

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM21-1A

Respond to a Failure of PRM N-41

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 AFFECTED	PREPARED/ REVISED BY:
0	Initial Issue	Y	1/26/10	All	M Hankins

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any UNSAT requires comments.
2. Acknowledge any associated alarms.
3. Initialize simulator in IC #13.
4. **Booth operator:**
 - a. Select N-41 on NR45.
 - b. Verify Rx power <75% on PRNIs, NR-45 and ΔT recorder, TR-68-2A
1. Approximately 1 minute after operator assumes shift, Activate **IMF NI07A f:120**.
2. 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. 9 mins **Local** _____

Tools/Equipment/Procedures Needed:

AOP-I.01, Section 2.0 & 2.3, AR-M6-A, AR-M4-B

References:

	Reference	Title	Rev No.
1.	AOP-I.01	Nuclear Instrument Malfunction	9
2.	1-AR-M6-A	Reactor Protection and Safeguards	15
3.	1-AR-M4-B	NIS/ROD CONTROL	28

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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 is operating at ~46% reactor power, all controls are in AUTOMATIC.

INITIATING CUES:

1. You are the OATC and are to monitor the control board and respond per licensed duties to operating conditions.
2. You will be required to respond, as a *single performer*, to any abnormality that occurs.
3. When any required actions/procedures have been completed notify the SM.

STEP/STANDARD

SAT/UNSAT

<p>STEP 1.: Operator places rods in Manual.</p> <p>STANDARD: Operator places rods in manual after verifying rod motion is not warranted due to no power change or Tave/Tref mismatch. Rods are placed in manual without referencing a procedure, prior to exceeding insertion of >25 steps.</p> <p>COMMENTS:</p>	<p><input type="checkbox"/> SAT <input type="checkbox"/> UNSAT</p> <hr/> <p>Start Time</p> <p>Critical Step</p>
<p>STEP 2.: Operator evaluates malfunction to determine Power Range Monitor (N-41) failed high.</p> <p>Cue: <i>After operator locates AOP-I.01 procedure, provide operator a copy.</i></p> <p>STANDARD: Operator recognizes Power Range Monitor (N-41) failed high, determines AOP-I.01, Section 2.3 is the appropriate procedure. AOP-I.01 may be entered directly or by transitions from any one of the procedures below:</p> <ul style="list-style-type: none"> • AOP-C.01 section 2.1 step [3] • 1-AR-M6-A windows [B-1] or [D-1] • 1-AR-M4-B windows [D-3] and [E-3] <p>COMMENTS:</p>	<p><input type="checkbox"/> SAT <input type="checkbox"/> UNSAT</p> <p>Critical Step</p>
<p>AOP-I.01, Nuclear Instrument Malfunction</p>	
<p>STEP 3.: 2.3 [1] PLACE rod control in Man.</p> <p>STANDARD: Operator verifies HS-85-5110 is in manual, or states Rods have already been placed in manual.</p> <p>COMMENTS:</p>	<p><input type="checkbox"/> SAT <input type="checkbox"/> UNSAT</p>

STEP/STANDARD	SAT/UNSAT
<p>STEP 4.: 2.3 [2] STABILIZE reactor power at current level.</p> <p>STANDARD: Operator checks other power range instruments and determines that reactor is stable.</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 5.: 2.3 [3] EVALUATE the following Tech Specs for applicability:</p> <p>Cue: <i>SM will evaluate Tech Specs.</i></p> <p>STANDARD: Operator requests SM to evaluate Tech Specs</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 6.: 2.3 [4] PLACE the following switches located on the Detector Current Comparator drawer [M-13, N50] in position corresponding to failed power Range Channel:</p> <ul style="list-style-type: none"> • UPPER SECTION <p>STANDARD: Detector Current comparator "Upper Section" switch in the PRN-41 position. Channel defeat light on.</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>
<p>STEP 7.: 2.3 [4] PLACE the following switches located on the Detector Current Comparator drawer [M-13, N50] in position corresponding to failed power Range Channel:</p> <ul style="list-style-type: none"> • LOWER SECTION <p>STANDARD: Detector Current comparator "Lower Section" switch in the PRN-41 position. Channel defeat light on.</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 12.:</u> 2.3 [7] ENSURE OPERABLE Power Range channel selected to the following:</p> <ul style="list-style-type: none"> • Nuclear Power Recorder [M4, NR-45] • Nuclear Power Recorder [M4, NR-45] (ΔI) <p><u>STANDARD:</u> Operator Uses Touch Screen to ensure the recorder is not selected for PR Channel I or ΔI Channel 1. Operator should select the highest operable power range channel and an operable ΔI Channel. (Operator could select view for all points on NR-45)</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 13.:</u> 2.3 [7 continued] ENSURE RCS Temp ΔT recorder (green pen) [M-5, XS-68-2B]</p> <p><u>STANDARD:</u> Operator checks position of XS-68-2B. Ensures it is <u>NOT</u> selected for LOOP ONE.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 14.:</u> 2.3 [8] RETURN rod control to AUTO if desired.</p> <p><u>Cue:</u> <i>CRO will perform this step.</i></p> <p><u>STANDARD:</u> Operator acknowledges this step is being addressed by the CRO and continues with procedure.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 15.:</u> 2.3 [9] CHECK reactor power greater than 75%.</p> <p><u>STANDARD:</u> Operator verifies power less than 75% (current power is ~ 46%), goes to RNO "GO TO Step 11."</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>

STEP/STANDARD	SAT/UNSAT
<p>STEP 16.: 2.3[11] NOTIFY IM to remove failed power range channel from service USING appropriate Appendix:</p> <p>Cue: <i>Role play as MSS or IM, inform operator that a crew will be in the MCR within the hour to perform Appendix "A" of AOP-I.01.</i></p> <p>STANDARD: Operator communicates with IMs or MSS to request performance of Appendix "A" of AOP-I.01 for removal of N-41 from service.</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 17.: NOTIFY SM that N-41 failed, its control functions have been defeated, IMs have been notified to remove it from service.</p> <p>STANDARD: Operator informs SM.</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p> <hr/> <p>Stop Time</p>

End of JPM

READ TO OPERATOR

Directions to Trainee:

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INITIAL CONDITIONS:

Unit 1 is operating at ~46% reactor power, all controls are in AUTOMATIC.

INITIATING CUES:

1. You are the OATC and are to monitor the control board and respond per licensed duties to operating conditions.
2. You will be required to respond, as a *single performer*, to any abnormality that occurs.
3. When any required actions/procedures have been completed notify the SM.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM 1-AP

Emergency Boration (Stuck Rods)

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 AFFECTED	PREPARED/ REVISED BY:
8	Transfer from WP. Minor enhancements.	N	8/12/94	All	HJ Birch
9	Boron Conc. changes	N	9/16/94	All	HJ Birch
10	Chg due to Rev B procedure.	Y	9/9/95	All	HJ Birch
11	Incorp previous pen/inks: which corrected step 10 to continue with procedure instead of transition (JPM performance comment. Moved Tave cue from step 14 to 17 added step to determine fully inserted, 12 steps. Latest EA-68-4 & ES-0.1 Rev Chgd 'rods full out' to 'rods >12 steps', added step to use the computer to verify Rods position	N	1/19/96	6	HJ Birch
12	Major flow change for the start of EA-68-4	Y	2/2/98	All	HJ Birch
13	Revision to ES-0.1 had no impact. Made step 28 a critical step. Revised K/A ratings. Reformatted critical steps.	N	9/23/98	All	JP Kearney
pen/ink	ES-0.1 procedure revision had no impact	N	8/22/00	4	S. R. Taylor
pen/ink	Minor clarification	N	11/27/01	4, 6, 7, 9	L. Pauley
14	Incorporated change to EA-68-4. Change was editorial in nature	N	8/12/02	All	J P Kearney
15	Incorporated REV. 1C changes to ES-0.1 and EA-68-4	Y	9/8/03	All	G S Poteet
16	Incorporated comments	N	3/30/04	All	G.S. Poteet
17	Made minor editorial changes throughout. Updated to current revisions of EA-68-4 and ES-0.1.	N	7/27/04	All	MG Croteau
18	Updated to current revisions of EA-68-4 and ES-0.1. Made minor editorial changes throughout.	Y	9/20/2005	All	JJ Tricoglou
19	Revised format and updated IC. Added candidate cue sheet and minor revisions to match procedure references.	N	11/21/07	All	R Putnam
20	Added H3 auto generate of Handout. Remove handout page. Minor step chgs base on previous procedure changes.	N	7/15/08	5, 7, 9	H J Birch
21	Updated procedure revisions, deleted steps to realign Emergency Boration, validation time change to 15 minutes.	Y	1/31/10	All	M Hankins

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:

Emergency Boration (Stuck Rods)

Note: This JPM satisfies Simulator Manipulation "T".

JA/TA task # : 0000980501 (RO)

K/A Ratings:

005AA2.03 (3.5/4.4)	
024AA1.17 (3.9/3.9)	005AK3.01 (4.0/4.3)
024AA1.18 (3.7/3.6)	005AK3.06 (3.9/4.2)
024AA1.15 (3.1/2.9)	005AA2.03 (3.5/4.4)

Task Standard:

≥ 5040 (or amount determined per 0-SI-NUC-000-038.0 and TI-44) gallons of boric acid injected into the reactor coolant system using the normal boration path.

Evaluation Method : Simulator In-Plant

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Performer: _____
NAME

Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish Time _____

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Evaluator: _____ / _____
SIGNATURE DATE

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COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any **UNSAT** requires comments
3. Initialize the simulator in IC-118.
4. **Insert the following:**
 - a. **IMF RD13A f:1**
 - b. **IMF RD13E f:1**
 - c. Override **IOR ZDIHS62138A f:0**
 - d. **IMF RD07C5 (F-8)**
 - e. **IMF RD07D8 (H-14)**
 - f. **IMF AN_OV_325** CPU alarm for Control Rods Dev & Seq- Nuisance alarm
5. **INITIATE** a reactor trip.
6. Close TDAFW valves and freeze the simulator after you have acknowledged the control board alarms.
7. The Console operator can be used to acknowledge alarms not associated with the JPM.
8. 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. 15 mins Local _____

Tools/Equipment/Procedures Needed:

1. EA-68-4,
2. ES-0.1
3. Calculator for examiner and examinee

REFERENCES:

	Reference	Title	Rev No.
A.	EA-68-4	Emergency Boration	10
B.	ES-0.1	Reactor Trip Response	32

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READ TO OPERATOR

Directions to Trainee:

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INITIAL CONDITIONS:

1. The reactor has tripped with no safety injection and the Immediate Actions of E-0, Reactor Trip or Safety Injection, were completed.
2. The transition was made to ES-0.1 "Reactor Trip Response".
3. BAT A is aligned to Unit 1 via 1A BATP

INITIATING CUES:

1. You are directed to PERFORM step 6 of ES-0.1.
2. NOTIFY the US/SRO when you have completed all actions required by Step 6 of ES-0.1.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 1.: OBTAIN the appropriate procedure(s).</p> <p>STANDARD: Operator obtains a copy of ES-0.1 (and EA-68-4 at step 3 of JPM)</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p>NOTE: The next three steps of the JPM are from ES-0.1.</p> <p>STEP 2. 6. CHECK if emergency boration required:</p> <p> a. VERIFY all control rods fully inserted</p> <p>STANDARD: Determinre that two rods F8 and H14 are indicating full out by checking rod bottom lights <u>and</u> rod position indicators for control rod position. Enter Step 6.a RNO.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 3. IF all rod bottom lights are de-energized, THEN RESTORE power to RPIs by switching Instrument Rack B Transfer Switch to ALTERNATE. [M-7, lower switch]</p> <p>STANDARD: Operator determines this step N/A since power is available.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 4. IF any of the following conditions exists:</p> <ul style="list-style-type: none"> • two or more RPI's indicate greater than 12 steps <p>OR</p> <ul style="list-style-type: none"> • two or more control rod positions CANNOT be determined, <p>THEN</p> <p>EMERGENCY BORATE USING EA-68-4, EMERGENCY BORATION</p> <p>STANDARD: Operator transitions to EA-68-4, Emergency Boration</p>	<p>___ SAT</p> <p>___ UNSAT</p>
EA-68-4, Emergency Boration	
<p>STEP 5. [4.1.1] IF entering this instruction from any of the following:</p> <p>STANDARD: Operator determines this step is N/A, since procedure entry was from ES-0.1, Reactor Trip Response.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>STEP 6. [4.1.2] IF entering this instruction from ES-0.1 AND any of the following conditions are met:</p> <ul style="list-style-type: none"> • RCS temperature less than 540°F AND core burnup is greater than 12,000 MWD/MTU <li style="text-align: center;">OR • RCS temperature less than 530°F <p>Cue: <i>If checked, cue that RCS temperature reads 547 degrees on all loops.</i></p> <p>STANDARD: Operator recognizes that emergency boration is not required based on temperature.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 7. [4.1.3] IF rod positions CANNOT be verified due to RPI's de-energized,</p> <p>STANDARD: Operator determines this step is N/A, since procedure entry was from ES-0.1, Reactor Trip Response due to two stuck rods, continue with next step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 8. [4.1.4] IF entering this instruction from ES-0.1 AND any of the following conditions are met:</p> <ul style="list-style-type: none"> • Two or more control rods indicating greater than 12 steps <li style="text-align: center;">OR • Two or more rod positions CANNOT be determined due to RPIs unavailable <p>THEN PERFORM the following:</p> <ul style="list-style-type: none"> a. IF using BAT as a boration source GO TO Section 4.2, Emergency Boration from BAT b. IF using RWST as a boration source GO TO Section 4.3, Emergency Boration from RWST <p>NOTE: Since Section 4.3 is an acceptable path, if the operator chooses this path give the following cue:</p> <p>Cue: <i>If the operator chooses to go to section 4.3, role play as US and state that the preferred boration method is via the BAT.</i></p> <p>STANDARD: Operator selects Section 4.2.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>NOTE: The following steps are from Section 4.2.</p> <p>STEP 9.: [4.2.1] PLACE boric acid transfer pumps to fast speed.</p> <p>NOTE: Standard 1 and 2 can be done in any order.</p> <p>STANDARD: 1) Pump(s) stopped. Green light on HS 2) Speed selector switch placed on "FAST" position 3) Pump(s) restarted, Red light on right comes on for fast speed. 4) (Starting only 1A pump is acceptable)</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 10.: [4.2.2] ADJUST emergency borate valve [FCV-62-138] to maintain flow between 35 and 150 gpm on [FI-62-137A].</p> <p>NOTE: FCV-62-138 will not operate.</p> <p>STANDARD: Operator recognizes that FCV-62-138 will not operate. Operator continues with procedure.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 11.: [4.2.3] MONITOR emergency boration flow: a. CHECK emergency boration flow established on [FI-62-137A].</p> <p>NOTE: Since FCV-62-138 will not operate, this step will have no affect on flow. Operator may continue with the next step.</p> <p>STANDARD: Operator determines FCV-62-138 will not open and no flow is available. Continues with next step. This is a MONITOR step which requires checking a process repeatedly at an unspecified interval.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 12.: [4.2.3.b] IF boric acid flow less than 35 gpm, THEN CLOSE recirculation valve for the BAT aligned to the blender: [1-FCV-62-237] for BAT A.</p> <p>NOTE: There is no boric acid flow indicated on FI-62-137A at this time. This is a monitor step and if or when flow is established on this FI the operator should verify flow greater than 35 gpm, or throttle recirculation valve as necessary to establish 35 gpm. Placing the recirculation valve in closed, without a flow path will dead head the boric acid transfer pump. See Attachment 1 Boric Acid Flowpath and Valves.</p> <p>STANDARD: Operator should continue with the next step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 13.: [4.2.4] IF emergency boration flow NOT established, THEN ALIGN normal boration path:</p> <p>[4.2.4a] VERIFY VCT outlet valves [LCV-62-132] and [LCV-62-133] OPEN</p> <p>STANDARD: Operator verifies valve positions using indicator lights for LCV-62-132 and 133 on control panel, red lights illuminated.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 14.:</u> [4.2.4.b] ALIGN normal boration to VCT outlet:</p> <ul style="list-style-type: none"> • OPEN [FCV-62-140]. • OPEN [FCV-62-144]. <p><u>STANDARD:</u> Operator verifies FCV-62-140 is already OPEN (red light illuminated, green light dark) and opens FCV-62-144 by placing HS-62-144 to the OPEN position (right) and verifies red light illuminated and green light dark.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p><u>STEP 15.:</u> [4.2.4.c] CHECK boration flow greater than 35 gpm on [FI-62-139].</p> <p><u>CUE:</u> <i>If operator notifies the SRO that emergency boration has been established acknowledge flow has been established.</i></p> <p><u>STANDARD:</u> Operator ensures flow rate is greater than 35 gpm. May notify SRO that emergency boration flow has been established.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p><u>STEP 16.:</u> [4.2.5] IF boration flow NOT established, THEN PERFORM one of the following...</p> <p><u>STANDARD:</u> Operator N/A's this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p><u>STEP 17.:</u> [4.2.6] VERIFY charging flow established.</p> <p><u>STANDARD:</u> Operator verifies charging flow established on FI-62-93.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p><u>STEP 18.:</u> [4.2.7] MAINTAIN boric acid flow between 35 and 150 gpm.</p> <p><u>STANDARD:</u> Operator monitors flow on FI-62-139 between 35 and 50 gpm.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p><u>STEP 19.:</u> [4.2.8] Monitor BAT level.</p> <p><u>STANDARD:</u> Operator monitors BAT level on LI-62-238.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p><u>STEP 20.:</u> [4.2.9] IF FR-S.1 ATWS or FR-S.2 Loss of core Shutdown condition exists, THEN....</p> <p><u>STANDARD:</u> Operator N/A's this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p><u>STEP 21.:</u> [4.2.10] IF emergency boration required for RCS cooldown, THEN DETERMINE required boric acid volume based on RCS Temperature</p> <p><u>STANDARD:</u> Operator N/As this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	

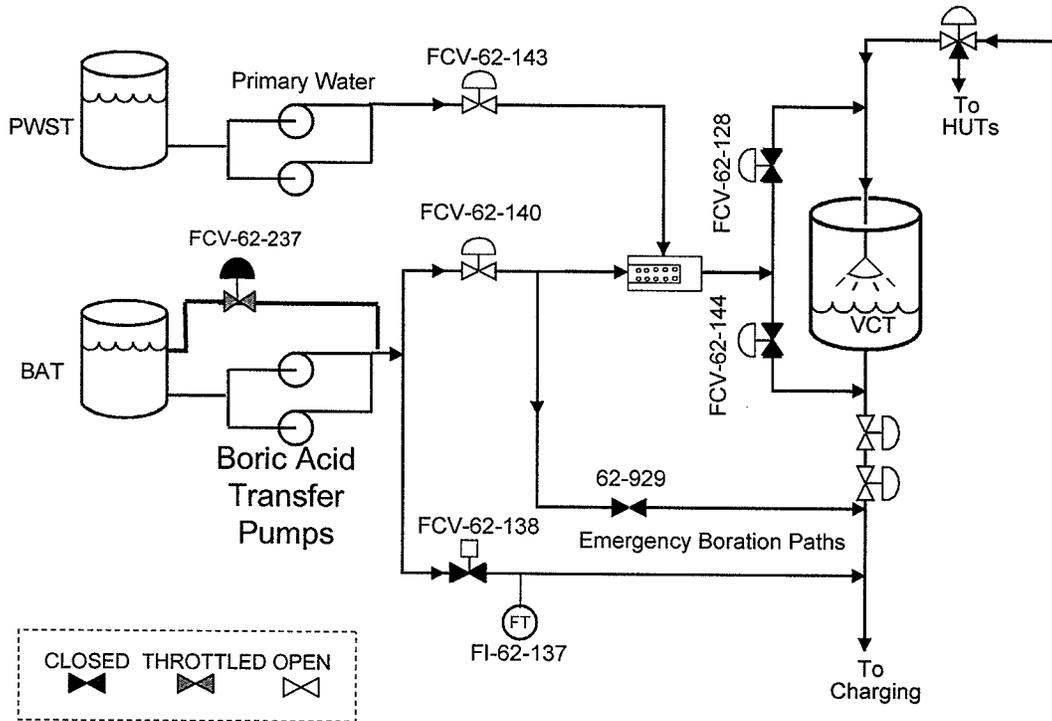
Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 22.: [4.2.11] IF any of the following conditions are met:</p> <ul style="list-style-type: none"> • 2 or more control rods greater than 12 steps OR • 2 or more control rods positions CANNOT be determined <p>THEN PERFORM one of the following:</p> <ul style="list-style-type: none"> • Determine Boric Acid Volume from Table OR • CALCULATE required boric acid volume USING 0-SI-NUC-000-038.0 and TI-44. <p>CUE: <i>If operator decides to use SI-38, tell them the preferred method to determine Boric Acid volume is from the table in EA-68-4.</i></p> <p>STANDARD: Operator Determines boric acid volume using table and determines that 5040 gallons of boric acid are required.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 23.: CALCULATE time to inject boric acid volume determined in EA-68-4 step 11 at established flow rate:</p> <p>NOTE: 5040 / (flow indicated by FI-62-139) = _____ minutes</p> <p>STANDARD: Operator determines the time required to inject 5040 gallons of boric acid based on the flow rate they establish. 5040 gal/ flow rate on FI-62-139 = _____ minutes +/- 1 minute</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 24.: WHEN either of the following conditions exists:</p> <ul style="list-style-type: none"> • FR-0 Subcriticality Status Tree is GREEN AND • Required Boric Acid Volume has been injected to RCS OR Adequate SDM verified OR Conditions which require Emergency Boration no longer exist, <p>THEN GO TO Section 4.4 for Termination of Boron.</p> <p>Cue: <i>When the operator determines the time, cue them that the JPM is complete.</i></p> <p>STANDARD: Operator notifies the US that boration has been established to RCS.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

End of JPM

Attachment 1

Emergency Boration Flowpath/Valves



READ TO OPERATOR

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INITIAL CONDITIONS:

1. The reactor has tripped with no safety injection and the Immediate Actions of E-0, Reactor Trip or Safety Injection, were completed.
2. The transition was made to ES-0.1 "Reactor Trip Response".
3. BAT A is aligned to Unit 1 via 1A BATP

INITIATING CUES:

1. You are directed to PERFORM step 6 of ES-0.1.
2. NOTIFY the US/SRO when you have completed all actions required by Step 6 of ES-0.1.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM2 RO/SRO

Remove Excess Letdown from Service

**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 AFFECTED	PREPARED/REVISED BY:
0	Initial Issue	Y	1/18/2010	All	M. Hankins

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. A **Critical step** is identified bold type in the SAT/UNSAT column.
2. Any **UNSAT** requires comments
3. Task should begin at the IC198, B CCP I/S, Excess LD I/S, LD I/S at ~73 gpm.
5. 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.
6. **Place a Pink Tag on 1-HIC-62-93, which is in manual.**

Validation Time: CR 7 min Local _____

Tools/Equipment/Procedures Needed:

REFERENCES:

Procedure	Title	Rev No.
1-SO-62-6	Excess Letdown	17
1-AR-M5-B	Annunciator Response	36

Task Number	Task Title	Cont TRN
0040160101	Place excess letdown in service to the VCT /RCDT	

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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 performed 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:

The Unit is operating at 100% power.
 A Leaking valve required Normal Letdown to be removed from service.,
 Excess letdown was placed in service while the repairs were made.
 Excess letdown temperature is ~207°F and 45 psig on 1-PI-62-57.
 The leaking valve has now been repaired.
 Normal Letdown has been restored to service in accordance with 1-SO-62-1.
 1-HIC-62-93 is in manual, per section 5.0 of 1-SO-62-6, Excess Letdown.
 1-SO-62-6, Section 4.0, 5.0 and 7.0 step 1 are complete.

INITIATING CUES:

You are the U-1 OATC. You have been directed to remove excess letdown from service using 1-SO-62-6, Section 7.0.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 1.: IF letdown is to be placed in service, THEN RETURN to service per 1-SO-62-1.</p> <p>STANDARD: Operator verifies letdown is in service. Initial conditions stated</p>	<p>___ SAT</p> <p>___ UNSAT</p> <hr/> <p>Start Time</p>
<p>STEP 2.: CLOSE [1-FCV-62-56] Excess Letdown Heat Exchanger outlet valve.</p> <p>STANDARD: Operator turns the potentiometer in the clockwise direction until the pointer (needle) is in the CLOSE or ZERO position. Operator may verify a decrease in temperature on TI-62-58 and pressure decrease on PI-62-57.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>CRITICAL STEP</p>
<p>STEP 3.: VERIFY [1-FCV-62-59] Excess Letdown 3-way valve in NORMAL.</p> <p>STANDARD: Operator verifies the HS for FCV-62-59 is in NORMAL.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 4.: CLOSE [1-FCV-62-55] Excess Letdown containment isolation valve.</p> <p>STANDARD: Operator places HS in closed and verifies green light illuminated and red light dark</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 5.: CLOSE [1-FCV-62-54] COLD LEG Loop #3 Excess Letdown valve.</p> <p>STANDARD: Operator places HS to close and verifies green light illuminated and red light dark</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 6.: IF charging is in service, THEN ADJUST seal injection flow to 6-11 gpm using [1-FCV-62-89]</p> <p>STANDARD: Operator turns potentiometer CCW to close (demand moves to the right toward 100% or CLOSE) to reduce seal injection flow to between 6 and 11 gpm.</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 7.: IF auto operation is desired and system conditions will allow it, THEN PLACE [1-FCV-62-93] in AUTO.</p> <p>STANDARD: Prior to placing charging in automatic, the Operator should adjust Pressurizer level, by taking the lever to the right to decrease charging flow (or to the left to increase charging flow) as needed to match Pzr Level and Program Level. When program level and actual level are matched, the Auto/Manual Toggle should be placed in the Auto (Down) position.</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 8.: NOTIFY RADCON that Excess Letdown is REMOVED from SERVICE.</p> <p>CUE: <i>Acknowledge as RADCON that Excess Letdown has been removed from service.</i></p> <p>STANDARD: Operator should call RADCON and notify them Excess Letdown has been removed from service on Unit 1.</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 9.: ENSURE [1-FCV-70-85] Excess Letdown HX CCS FCV is CLOSED.</p> <p>NOTE Operator should address the need to have a CV (Concurrent Verifier) present prior to operating the valve.</p> <p>STANDARD: Operator takes the HS for 1-FCV-70-85 to CLOSE position (to the left) and verifies green light illuminated and red light dark.</p>	<p>___ SAT ___ UNSAT CRITICAL STEP</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 10.:</u> ENSURE [1-HS-70-85A] is in the A-Auto position.</p> <p><u>NOTE</u> Operator should address the need to have a CV (Concurrent Verifier) present prior to operating the valve.</p> <p><u>STANDARD:</u> Operator places the HS in the A-Auto position (mid position).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>CRITICAL STEP</p>
<p><u>STEP 11.:</u> INDEPENDENTLY VERIFY....</p> <p><u>NOTE</u> The next four steps are independent verification of manipulations previously made by the operator</p> <p> <u>CUE:</u> <i>Tell the operator the independent verifications were performed by another operator.</i></p> <p><u>STANDARD:</u> Operator requests an independent verification for previous manipulations.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12.:</u> IF operation at greater than 200°F has occurred, THEN CONTACT Systems Engineering to evaluate Grinnell Valve maintenance requirements.</p> <p><u>STANDARD:</u> Operator notifies the US that excess letdown temperature exceeded 200°F, therefore System Engineering must be notified to evaluate Grinnell Valve maintenance requirements.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>_____ STOP TIME</p>

End of JPM

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 performed 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:

The Unit is operating at 100% power.
A Leaking valve required Normal Letdown to be removed from service.,
Excess letdown was placed in service while the repairs were made.
Excess letdown temperature is ~207°F and 45 psig on 1-PI-62-57.
The leaking valve has now been repaired.
Normal Letdown has been restored to service in accordance with 1-SO-62-1.
1-HIC-62-93 is in manual, per section 5.0 of 1-SO-62-6, Excess Letdown.
1-SO-62-6, Section 4.0, 5.0 and 7.0 step 1 are complete.

INITIATING CUES:

You are the U-1 OATC. You have been directed to remove excess letdown from service using 1-SO-62-6, Section 7.0.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 152-1

Swap RHR Pumps (Train B to Train A) With Level in the Pressurizer

PREPARED/
REVISED BY:

_____ Date/

VALIDATED BY:

*

_____ Date/

APPROVED BY:

_____ (Operations Training Manager)

_____ Date/

CONCURRED:

**

_____ (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	New JPM based on JPM 152, changed to swap from Train B to Train A RHR pump.	Y	12/03/09	All	M Hankins

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Initialize IC-197. Ensure Train B RHR is in service with flow aligned through FCV-63-94 to Loops 1 & 4.
2. An extra operator will be required to acknowledge alarms and monitor S/G levels, RCS temp, RCS press.
3. Any UNSAT requires comments
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.
5. Ensure 74-530 valve is closed.
6. **Override alarm SR Hi Flux at SD**

Validation Time: CR. 15 minutes Local _____

Tools/Equipment/Procedures Needed:
 0-SO-74-1, Section 8.3.1

REFERENCES:

	Reference	Title	Rev No.
1.	0-SO-74-1	Residual Heat Removal System	69

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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 had been in Mode 5 for 72 hours to repair a leak on the #1 Steam Line.
2. RHR pump B is in-service and supplying letdown
2. RCS boron is 1400 ppm and the previous shift determined that Train A RHR boron concentration is 1450 ppm.
3. Shutdown margin required boron concentration is 1200 ppm.
4. Train B RHR pump needs to be shutdown to allow Maintenance to add oil to the motor.
5. Train A RHR has been checked out locally by the Auxiliary Bldg AUO and is ready for service.
6. Two AUO's are briefed and standing by in the Auxiliary Building to assist in swapping the pumps.
7. 0-SO-74-1 Prerequisite Actions are complete.

INITIATING CUES:

You are the Unit 1 OATC and the SRO has directed you to place Train A RHR in service and remove Train B RHR from service, using 0-SO-74-1 Section 8.3.1, step [1].
 Align Train A injection flowpath to loops 2 & 3.
 Notify the SRO when you have Train A RHR in service.

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>STEP 1.: Obtain copy of 0-SO-74-1 and determine appropriate section</p> <p>STANDARD: Operator obtains a copy of 0-SO-74-1 and determines Section 8.3.1 is the section for Placing Train A RHR I/S.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>	
<p>STEP 2.: IF adjustment is required on CCS flow through RHR Hxs, THEN ENSURE [FCV-70-156] RHR Hx A CCS outlet is THROTTLED.</p> <p>NOTE: Operator may decide to keep FCV-70-156 at current position.</p> <p>STANDARD: Operator ensures HS-70-156 has a RED & GREEN light LIT with flow indicated on 0-M-27A.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 3.: ENSURE [FCV-74-16] RHR Hx A Outlet is CLOSED.</p> <p>STANDARD: Operator ensures FCV-74-16 RHR Hx A Outlet CLOSED, HIC-74-16 @ 100%.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 4.: START RHR Pump A-A with [HS-74-10A].</p> <p>STANDARD: Operator may address making a plant announcement prior to starting 1A-A RHR Pump (not critical). Starts pump and verifies RED light LIT on HS, verifies amps.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p>STEP 5.: VERIFY [FCV-74-12] RHR Pump A-A miniflow OPENS or greater than 500 gpm in indicated on FI-74-12.</p> <p>Cue: IF dispatched: FI-74-12 indicates >500 gpm.</p> <p>STANDARD: Operator verifies FCV-74-12 is open by Red light LIT on handswitch OR checks with AUO locally to verify >500 gpm flow indicated on local flow indicator FI-47-12.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 6.: IF aligning Train A RHR cooling to loops 2 and 3, THEN PERFORM the following: [a] ENSURE [FCV-63-93] OPEN.</p> <p>STANDARD: Operator opens FCV-63-93, verifies red light illuminated, green light dark.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 7.:</u> [b] ADJUST [FCV-74-16] to establish flow from train A RHR.</p> <p><u>STANDARD:</u> Operator adjusts FCV-74-16 RHR Hx A Outlet OPEN, using HIC-74-16, to the approximate valve of HIC-74-28, to obtain ~2000 gpm flow (~68-70% demand on HIC).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p><u>STEP 8.:</u> [c] ADJUST [FCV-74-28] AND [FCV-74-32] to reduce Train B RHR flow.</p> <p><u>STANDARD:</u> Operator closes FCV-74-28 RHR Hx B Outlet, place HIC-74-28 to 0%.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p><u>STEP 9.:</u> [d] VERIFY [FCV-74-24] RHR Pump B-B miniflow OPENS OR greater than 500 gpm in indicated on FI-74-24.</p> <p>Cue: IF dispatched: <i>FI-74-24 indicates >500 gpm.</i></p> <p><u>STANDARD:</u> Operator verifies FCV-74-24 is open by Red light LIT on handswitch or checks with AUO locally to verify >500 gpm flow indicated on local flow indicator FI-47-24.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p><u>STEP 10.:</u> [e] CLOSE [FCV-74-35] RHR Hx B Outlet.</p> <p><u>STANDARD:</u> Operator closes FCV-74-35, green light illuminated, red light dark.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p><u>STEP 11.:</u> [f] ENSURE [FCV-74-33] RHR Hx A Outlet OPEN.</p> <p><u>STANDARD:</u> Operator ensures FCV-74-33 RHR Hx A Outlet OPEN, red light illuminated, green light dark.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p><u>STEP 12.:</u> [g] OPEN [VLV-74-530] RHR Hx A to Letdown Hx.</p> <p>NOTE: <i>Console operator needs to modify remote function RHR03 to 100.</i></p> <p>Cue: <i>AUO reports that VLV-74-530 has been opened locally, operator should discuss the need for CV.</i></p> <p><u>STANDARD:</u> Operator directs an AUO to OPEN VLV-74-530 RHR Hx A to Letdown Hx.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 13.:</u> [h] STOP RHR Pump B-B with [HS-74-20A].</p> <p><u>STANDARD:</u> Operator stops RHR pump 1B-B, verifies GREEN light on handswitch.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 14.:</u> [i] OPEN [HCV-74-36] RHR Hx A Bypass.</p> <p>NOTE: <i>Console operator needs to modify remote function RHR06 to 100.</i></p> <p>Cue: <i>AUO reports HCV-74-36 is opened (including CV).</i></p> <p><u>STANDARD:</u> Operator directs an AUO to OPEN HCV-74-36 RHR Hx A Bypass.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 15.:</u> [j] CLOSE [HCV-74-37] RHR Hx B Bypass.</p> <p>NOTE: <i>Console operator needs to modify remote function RHR07 to 0.</i></p> <p>Cue: <i>AUO reports HCV-74-37 has been closed locally (including CV).</i></p> <p><u>STANDARD:</u> Operator directs an AUO to CLOSE HCV-74-37 RHR Hx B Bypass.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 16.:</u> [k] CLOSE [VLV-74-531] RHR Hx B-B to Letdown Hx.</p> <p>NOTE: <i>Console operator needs to modify remote function RHR04 to 0.</i></p> <p>Cue: <i>AUO report s VLV-74-531 has been closed an AUO locally (including CV).</i></p> <p><u>STANDARD:</u> Operator directs an AUO to close HCV-74-531.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 17.:</u> [l] ENSURE [FCV-63-94] CLOSED.</p> <p><u>STANDARD:</u> Operator closes FCV-63-94, green light illuminated, red light dark</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 18.:</u> IF aligning RHR cooling to loops 1 and 4, THEN ENSURE the following valves are in the required position.</p> <p>NOTE: Step is NA'd, initiating Cues direct alignment to loops 2 & 3.</p> <p><u>STANDARD:</u> Operator NA's the step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>NOTE: Initial flow values ~ 2500-2800 gpm.</p> <p>STEP 19.: THROTTLE one or both of the following to maintain desired cooling rate: FCV-74-16, RHR Hx A Outlet, AND/OR FCV-74-32, RHR Hx Bypass.</p> <p>STANDARD: Operator may throttle FCV-74-16 and/or FCV-74-32 to stabilize RCS temperature and establish RHR flowrates at approximately the same values that were present prior to the flowpath realignment.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 20.: WHEN injection flow is > 1250 gpm, THEN VERIFY [FCV-74-12] RHR Pump A-A miniflow is CLOSED.</p> <p>STANDARD: Operator verifies FCV-74-12 closed, GREEN light LIT on handswitch.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 21.: IF cooling water is to be removed from Train B Hx, THEN CLOSE [FCV-70-153].</p> <p>Cue: <i>Leave cooling water aligned to Train B at its current flowrate.</i></p> <p>STANDARD: Operator NA's step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 22.: NOTIFY U1 US that Train A of RHR is in service to loops 2 & 3 and Train B of RHR has been removed from service.</p> <p>STANDARD: None.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

End of JPM

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 had been in Mode 5 for 72 hours to repair a leak on the #1 Steam Line.
2. RHR pump B is in-service and supplying letdown
2. RCS boron is 1400 ppm and the previous shift determined that Train A RHR boron concentration is 1450 ppm.
3. Shutdown margin required boron concentration is 1200 ppm.
4. Train B RHR pump needs to be shutdown to allow Maintenance to add oil to the motor.
5. Train A RHR has been checked out locally by the Auxiliary Bldg AUO and is ready for service.
6. Two AUO's are briefed and standing by in the Auxiliary Building to assist in swapping the pumps.
7. 0-SO-74-1 Prerequisite Actions are complete.

INITIATING CUES:

You are the Unit 1 OATC and the SRO has directed you to place Train A RHR in service and remove Train B RHR from service, using 0-SO-74-1, Section 8.3.1, step [1].
Align Train A injection flowpath to loops 2 & 3.
Notify the SRO when you have Train A RHR in service.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 65-1

Re-establishment of Containment Pressure Control Following High Pressure Conditions

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 AFFECTED	PREPARED/ REVISED BY:
0	New JPM adapted from JPM 65 for NRC exam 0210.	Y	1/14/10	ALL	M Hankins

V - Specify if the JPM change will require another validation.
See cover sheet for criteria.

SEQUOYAH NUCLEAR PLANT

RO/SRO
JOB PERFORMANCE MEASURE

Task:

Re-establishment of CNTMT Pressure Control Following High Pressure Condition

JA/TA task # : 00601801 (RO)

K/A Ratings:

103A1.01 (3.7/4.1)	103A4.01 (3.2/3.3)	2.1.31 (4.2/3.9)
103A4.09 (3.1/3.7)	2.1.20 (4.3/4.2)	

Task Standard:

Vent the containment pressure down to normal range (within -0.1 to +0.3 psig) and then place the containment automatic Pressure Control System in service.

Evaluation Method : Simulator In-Plant

=====
Performer: _____
NAME

Start time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish time _____

=====
Evaluator: _____ / _____
SIGNATURE DATE

=====
COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any UNSAT requires comments.
2. Acknowledge any associated alarms.
3. Initialize Simulator in IC: #116, verify containment pressure 0.6 psig.
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 15 min Local _____

Tools/Equipment/Procedures Needed:

0-SO-30-8 Sections 3.0, 4.0, and 5.2

References:

	Reference	Title	Rev No.
A.	0-SO-30-8	Containment Pressure Control	29
B.	0-SI-CEM-030-410.1	Containment Vent to Aux Building Exhaust	31

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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 is in Mode 1 recovering from an Air Line break in containment. The air leak was discovered on a section of the header that allowed isolation without affecting any equipment.
- During isolation efforts, containment pressure increased to approximately 0.6 psig.
- EAM's are in the Adverse Containment condition.
- Purge is *not* in progress
- 0-SI-CEM -030-410.1, Containment Vent to Aux Building Exhaust, is in progress and approved by SRO and Radiochemical Laboratory Supervisor.
- RM-90-101, 106 and 112 and 130 are in service and indicating Normal.
- RM-90-106B is indicating 2.84 E+02; previous sample (yesterday) was 2.83E+02.
- Prerequisite Actions (Section 4.0) are complete for 0-SO-30-8.
- Power checklist 1-30-8.02 is complete with no deviations.

INITIATING CUES:

1. The US directs you, to vent containment using 0-SO-30-8, section 5.2.1.
2. Inform the US when Containment pressure is decreasing.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>The following steps are from Section 5.2.1 of 0-SO-30-8:</p> <p>STEP 1.: ENSURE 1-30-8.02 power checklist complete.</p> <p>STANDARD: Power checklist 1-30-8.02 is complete with no deviations per initial conditions.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p>STEP 2.: ENSURE the check valve portion of the containment vacuum relief assembly is capable of closing by observing monitor lights on panel (panel M-9).</p> <p>STANDARD: Operator checks monitor lights on panel (panel M-9) to ensure valves are closed, green lights are ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 3.: IF the unit is in MODES 1, ,2 or 3, THEN NOTIFY the US/SRO that the EAM will be placed in the Adverse Containment condition for venting containment.</p> <p>STANDARD: Per initial conditions, EAM's are in the Adverse Cntmt condition for venting containment.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 4.: EVALUATE entry into LCO 3.6.6. Vacuum Relief Lines.</p> <p>Cue: Play role of SRO and state you will evaluate the LCO.</p> <p>STANDARD: Operator informs the US/SRO LCO 3.6.6, Vacuum Relief Lines needs to be evaluated.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 5.: IF the Unit is in Modes 1, 2, 3, THEN PERFORM the following: [5.1] IF the EAM is NOT in the Adverse Cntmt condition....</p> <p>STANDARD: Operator recognizes the EAMs are in the Adverse Cntmt condition. Operator should N/A step [5.1] and complete [5.2] and [5.3].</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 6.: [5.2] ENSURE blue purge/vent operation permissive lights illuminated for each steam generator.</p> <p>STANDARD: Operator verifies blue purge/vent permissive lights are illuminated for each S/G (M-4 above SG NR levels indicators).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 7.: [5.3] VERIFY window 30 "S/G Level Adverse Setpoint" illuminated on XA-55-3C.</p> <p>STANDARD: Operator verifies XA-55-3C window 30 illuminated.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>STEP 8.: [6] IF the Unit is in Modes 1-4, THEN [6.1] VERIFY Radiochemical Laboratory has a current weekly performance of 0-SI-CEM-030-410.1 in progress.</p> <p>STANDARD: Per initial conditions, 0-SI-CEM-030-410.1 is in progress and approved by SRO and Radiochemical Laboratory Supervisor.</p>	<p>___ SAT ___ UNSAT</p>	
<p>STEP 9.: [6.2] IF the noble gas count rate for lower containment</p> <p>STANDARD: Operator determines from initial conditions that noble gas has not increased by 50% since last sample and N/A's the step.</p>	<p>___ SAT ___ UNSAT</p>	
<p>STEP 10.: [6.3] IF the lower containment noble gas radiation monitor is inoperable.....</p> <p>STANDARD: Operator determines RM-90-106 is operable by looking at RM or per initial conditions and N/A's the step.</p>	<p>___ SAT ___ UNSAT</p>	
<p>STEP 11.: [7] ENSURE that the Shield Building Annulus Vacuum Control System is in service and maintaining a negative 5.0 inches of H₂O as indicated on M-9, [PDI-30-126] or [PDI-30-127] OR EGTS in service OR EGTS testing in progress.</p> <p>STANDARD: Operator obtains reading from PDI-30-126 or 127 on panel M-9, AB-Annulus Vacuum reading ~ 5"of water.</p>	<p>___ SAT ___ UNSAT</p>	
<p>STEP 12.: [8] VERIFY NO abnormal or unexplainable radiation levels exist inside containment.</p> <p>STANDARD: Operator checks RM-90-106 and 112 for abnormal radiation levels in containment, determine radiation levels are normal and signs of step.</p>	<p>___ SAT ___ UNSAT</p>	
<p>STEP 13.: [9] VERIFY that NO containment vent isolation signal exists.</p> <p>STANDARD: Operator checks XA-55-6C windows C5 & C6 dark to verify that a containment vent isolation signal is not present.</p>	<p>___ SAT ___ UNSAT</p>	
<p>STEP 14.: [10] ENSURE at least ONE of the following radiation monitors in service:</p> <p style="margin-left: 40px;">U-1 Containment 1-RM-90-130 Purge Exhaust Monitors 1-RM-90-131</p> <p>STANDARD: Operator verifies the RM-90-130 per initial conditions is in service (No Alarms and Not Blocked).</p>	<p>___ SAT ___ UNSAT</p>	

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT							
<p>STEP 15.: [11] VERIFY that all personnel have been evacuated from the annulus and that all doors are closed.</p> <p>Cue: <i>when asked, Role play Rad Con and state all personnel are out of the annulus and the doors are closed.</i></p> <p>STANDARD: Operator calls Rad Con and verifies that all personnel have been evacuated from the annulus and that all doors are closed.</p>	<p>___ SAT</p> <p>___ UNSAT</p>								
<p>STEP 16.: [12] ENSURE at least one of the following radiation monitors in service for the appropriate unit:</p> <p>AB Vent: 0-RM-90-101B</p> <p>Upper Compartment: 1-RM-90-112 A, B</p> <p>Lower compartment: 1-RM-90-106 A, B</p> <p>STANDARD: Operator verifies the absence of applicable instrument malfunction alarms on 0-M-12, the RM's above are in service and Normal per initial conditions.</p>	<p>___ SAT</p> <p>___ UNSAT</p>								
<p>STEP 17.: [13] ENSURE PROTECTED EQUIPMENT DO NOT INOP tags placed on the following radiation monitors block switches as appropriate: (N/A tags not placed).</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left;">BLOCK SWITCH</th> <th style="text-align: left;">MONITOR</th> </tr> </thead> <tbody> <tr> <td>0-HS-90-136A1</td> <td>1-RM-90-130</td> </tr> <tr> <td>0-HS-90-136A2</td> <td>1-RM-90-131</td> </tr> <tr> <td>0-HS-90-136A3</td> <td>0-RM-90-101B</td> </tr> </tbody> </table> <p>Cue: <i>An Extra Operator will place Protected Equipment tags.</i></p> <p>STANDARD: Operator addresses placing PROTECTED EQUIPMENT Tags on Rad monitor Block Switches.</p>	BLOCK SWITCH	MONITOR	0-HS-90-136A1	1-RM-90-130	0-HS-90-136A2	1-RM-90-131	0-HS-90-136A3	0-RM-90-101B	<p>___ SAT</p> <p>___ UNSAT</p>
BLOCK SWITCH	MONITOR								
0-HS-90-136A1	1-RM-90-130								
0-HS-90-136A2	1-RM-90-131								
0-HS-90-136A3	0-RM-90-101B								
<p>STEP 18.: [14] IF aligning the lower compartment purge isolation valves using the <u>NORMAL</u> flow path, THEN PERFORM steps [a] thru [f].</p> <p>NOTE: This step will be satisfied in steps 19 thru 22.</p> <p>STANDARD: Operator selects the normal flow path as stated in initial conditions.</p>	<p>___ SAT</p> <p>___ UNSAT</p>								

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 19.:</u> [14.1] ENSURE [FCV-30-37] is CLOSED.</p> <p><u>STANDARD:</u> Operator verifies green light ON for FCV-30-37</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20.:</u> [14.2] ENSURE [FCV-30-40] is CLOSED.</p> <p><u>STANDARD:</u> Operator verifies green light ON for FCV-30-40</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 21.:</u> [14.3] OPEN [FCV-30-14 & 56] with [HS-30-14].</p> <p><u>STANDARD:</u> Operator places HS-30-14 in the OPEN position and places HS-30-14 in the A-AUTO position.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 22.:</u> [14.4] VERIFY [FCV-30-14 & 56] OPEN.</p> <p><u>STANDARD:</u> Operator verifies red lights illuminated ON [FCV-30-14 & 56].</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 23.:</u> [14.5] OPEN [FCV-30-15 & 57] with HS-30-15.</p> <p><u>STANDARD:</u> Operator places HS-30-15 in the OPEN position and places HS-30-15 in the A-AUTO position.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 24.:</u> [14.6] VERIFY FCV-30-15 & 57 OPEN.</p> <p><u>STANDARD:</u> Operator verifies red lights illuminated for FCV-30-15 & 57 and places HS-30-15 in the A-AUTO position.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 25.:</u> [15] IF aligning the lower compartment purge isolation valves using the <u>Alternate</u> flow path THEN PERFORM steps [15.1] thru [15.8].</p> <p><u>STANDARD:</u> Operator should NA this step since the NORMAL flow path is being used.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 26.:</u> [16] OPEN Annulus exhaust isolation valve FCV-30-54 with HS-30-54.</p> <p><u>STANDARD:</u> Operator opens FCV-30-54 with HS-30-54. Verifies valve open by observing red light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 27.:</u> [17] RECORD time purge isolation valves are OPENED. TIME _____</p> <p><u>STANDARD:</u> Operator records the time purge valves were opened.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 28.:</u> [18] IF the Annulus Vacuum Control System is in service and the standby Annulus Vacuum Control Fan is available, THEN PERFORM the following START the standby Annulus Vacuum Control Fan.</p> <p><u>STANDARD:</u> Operator starts the standby Annulus Vacuum Control Fan.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 29.</u> IF a high radiation alarm occurs on any of the following RM's</p> <p><u>STANDARD:</u> Operator checks RM's, and verifies all alarms are clear.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 30.</u> Operator notifies US that containment vent is in progress.</p> <p><u>CUE:</u> <i>Another operator will complete the vent.</i></p>		<p>___ SAT</p> <p>___ UNSAT</p> <hr/> <p>STOP TIME</p>

END OF JPM

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 in Mode 1 recovering from an Air Line break in containment. The air leak was discovered on a section of the header that allowed isolation without affecting any equipment.
- During isolation efforts, containment pressure increased to approximately 0.6 psig.
- EAM's are in the Adverse Containment condition.
- Purge is *not* in progress
- 0-SI-CEM -030-410.1, Containment Vent to Aux Building Exhaust, is in progress and approved by SRO and Radiochemical Laboratory Supervisor.
- RM-90-101, 106 and 112 and 130 are in service and indicating Normal.
- RM-90-106B is indicating 2.84 E+02; previous sample (yesterday) was 2.83E+02.
- Prerequisite Actions (Section 4.0) are complete for 0-SO-30-8.
- Power checklist 1-30-8.02 is complete with no deviations.

INITIATING CUES:

3. The US directs you, to vent containment using 0-SO-30-8, section 5.2.1.
4. Inform the US when Containment pressure is decreasing.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 34-1

Establishing Secondary Heat Sink Using Main Feedwater or Condensate

**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 AFFECTED	PREPARED/ REVISED BY:
0	Initial issue	Y	1/31/10	All	M Hankins

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 are identified.
2. Any **UNSAT** requires comments
3. Acknowledge any associated alarms.
4. Initialize simulator in **IC: 119** Steam Dump Pressure Mode Setpoint-968 psig
All AFW pumps are shutdown, MDAFW A-A tagged, TDAFW pump and MDAFW B-B trip on Reactor Trip. RX trip due Rod control problems (multiple rod drops), adjust steam dumps in pressure mode to control Tavg 544-546°F.
5. Allow S/G narrow range levels are <~20%. (allow SD to steam off to reduce S/G level if necessary)
6. Console operator will role play as CRO and acknowledge/clear alarms as needed.
7. 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. 30 mins **Local** _____

Tools/Equipment/Procedures Needed:

EA-2-2

References:

	Reference	Title	Rev No.
1.	EA-2-2	Establishing Secondary Heat sink using Main Feedwater or Condensate	8

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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 has experienced a Reactor Trip due multiple dropped rods.
2. MDAFW pump A-A is tagged out for maintenance, MDAFW pump B-B tripped on electrical fault and the TDAFW pump tripped on mechanical overspeed just after RX trip.
3. Unit has transitioned to ES-0.1 and is ready to perform the RNO for STEP 5.
4. All four S/G levels have been decreasing.
5. AFW Flow to the S/Gs can NOT be established.

INITIATING CUES:

1. You are the CRO and the US directed you to establish Main Feedwater flow USING EA-2-2, Establishing Secondary Heat Sink Using Main Feedwater or Condensate System.
2. Inform the US when Main Feedwater or Condensate flow has been established to **one** S/G.

<p>STEP 1.: Obtain copy of the appropriate procedure.</p> <p>STANDARD: Operator may obtain a copy of ES-0.1 and review step 5 RNO, for transition step to EA-2-2.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p>EA-2-2 Establishing Secondary Heat Sink Using MFW or Condensate System Section 4.1</p>	
<p>STEP 2.: [1] IF directed by ES-0.1, Reactor Trip Response, to establish Main Feedwater flow, THEN PERFORM Section 4.2.</p> <p>STANDARD: Operator recognizes Section 4.2 is the correct section for performance and transitions to section 4.2.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>EA-2-2 Establishing Secondary Heat Sink Using MFW or Condensate System Section 4.2</p>	
<p>STEP 3. [1] REFER TO the following EAPs to attempt to restore AFW flow in parallel with this procedure:</p> <ul style="list-style-type: none"> • EA-3-10 Establishing MDAFW flow • EA-3-9, establishing TDAFW flow <p>CUE: <i>Maintenance and Ops personnel have been dispatched to restore MDAFW pumps A and B and the TDAFWP, EA-3-10 and EA-3-9 are in progress.</i></p> <p>STANDARD: Operator contacts the US and or the MSS to have personnel dispatched to establish AFW flow.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 4.: [2] CLOSE MFW Regulating valves.</p> <p>STANDARD: Operator ensures the MFW Reg valves output signal is zero, on 1-FIC 3-35, 48, 90 and 103 and check lights for MFW Reg valves on 1-XX-3-35.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 5.: [3] ENSURE MFW Regulating Bypass valves CLOSED.</p> <p>STANDARD: Operator ensures MFW Bypass valves CLOSED using 1-LIC-3-35, 48, 90, 103</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 6.: [4] CYCLE Reactor Trip breakers.</p> <p>STANDARD: Operator places 1-HS-99-7 in the CLOSE position, and places 1-RT-1 in the trip position. Rx trip breaker lights turn red and then green.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

<p>STEP 7.: [5] RESET FW Isolation signal. [M-3]</p> <p>STANDARD: Operator depresses pushbuttons 1-HS-3-99A and 99B, and Annunciator Window 1-XA-55-6B, LOW Tavg Reactor Trip MFW Valves Actuated alarm clears.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 8.: [6] OPEN FW isolation valves for S/G's to be fed.</p> <p>STANDARD: Operator opens at least one FWI valve(s) for S/G to be fed, using 1-HS-3-33A, 47A, 87A or 100A, red light on green light off.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 9.: [7] PERFORM Section 4.4 to establish Main Feedwater flow to S/G's.</p> <p>STANDARD: Operator transitions to Section 4.4.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>Section 4.4</p>	
<p>STEP 10.: [1] DISPATCH operator to PERFROM Appendix A, Part I to remove fuses to disable intermediate heater string isolation.</p> <p>Cue <i>Respond as an AUO and tell operator you will perform Appendix A to remove fuses to disable intermediate heater string isolation.</i></p> <p>STANDARD:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 11.: [2] ENSURE Condensate Inlet and Outlet valves for at least one LP Heater String OPEN.</p> <p>STANDARD: Operator verifies LP Heater Inlet/Outlet valves OPEN for at least one LP heater string, red light illuminated and green lights dark for (A) 1-HS 2-45A and 55A, OR (B) 1-HS-2-56A and 65A, OR (C) 1-HS-2-66A and 75A.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 12.: [3] ENSURE the following condensate pumps RUNNING:</p> <ul style="list-style-type: none"> • 2 Hotwell pumps • 1 CBP (with suction valve open) • 1 Injection water pump <p>STANDARD: Operator ensures 2 HW pumps, 1 CBP with suction valve open and 1 injection water pump running.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p>STEP 13.: [4] ENSURE MFPT Recirc Valves in MANUAL and CLOSED:</p> <ul style="list-style-type: none"> • MFPT A 1-FIC-3-70 • MFPT B 1-FIC-3-84 <p>STANDARD: Operator ensures recirc valves for the MFP's, 1-FIC-3-70 and 3-84, are in manual (amber light illuminated) and closed (indicator to the right).</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 14.: [5] ENSURE MFW Reg controllers in MANUAL and Output Zero.</p> <p>STANDARD: Operator ensures Main FRV are in manual (toggle switch to manual) and closed (output demand 0) using 1-FIC-3-35, 48, 90, 103, and checks green status lights illuminated on 1-XX-3-35 (red dark).</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 15.: [6] ENSURE MFW Bypass Reg valves controllers in MANUAL and output ZERO.</p> <p>STANDARD: Operator ensures all MFW Reg Bypass valves are in Manual (amber light illuminated) and output ZERO using 1-LIC-3-35, 48, 90, and 103.</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 16.: [7] IF a flowpath is not available through at least one Intermediate Heater string.....</p> <p>STANDARD: Operator N/A's this step, flow path is available.</p>	<p>___ SAT ___ UNSAT</p>
<p>STEP 17.: [8] ENSURE Inlet and Outlet valves for at least one string of Intermediate and High Pressure Heaters OPEN:</p> <ul style="list-style-type: none"> • High Pressure FW Heaters (panel M-3) <ul style="list-style-type: none"> (A) 1-HS-3-3A and 10A OR (B) 1-HS-3-13A and 20A OR (C) 1-HS-3-23A and 30A • Intermediate Pressure FW Heaters (Panel M-2) <ul style="list-style-type: none"> (A) 1-HS-2-110A and 128A OR (B) 1-HS-2- 130A and 147A OR (C) 1-HS-2- 149A and 167A <p>STANDARD: Operator verifies at least one string of IP (M-2) and HP (M-3) heater string isolation valves are OPEN.</p>	<p>___ SAT ___ UNSAT</p>

<p>STEP 18.: [9] IF starting MFW pump A, THEN PERFORM the following:</p> <p>[9.a] ENSURE MFP a drain hand-switch [HS-46-14] in OPEN position</p> <p>STANDARD: OPERATOR ensures the MFPT drain hand-switch [HS-46-14] is in OPEN position (HS to the right on M-3)</p>	<p>___ SAT</p> <p>___ UNSAT</p>															
<p>STEP 19.: [9.b] ENSURE the following valves are OPEN:</p> <table border="1" data-bbox="246 663 1114 863"> <thead> <tr> <th>VALVE</th> <th>DESCRIPTION</th> <th>OPEN ✓</th> </tr> </thead> <tbody> <tr> <td>FCV-2-205</td> <td>MFPT Condenser A Inlet Isol [M2]</td> <td><input type="checkbox"/></td> </tr> <tr> <td>FCV-2-210</td> <td>MFPT Condenser A Outlet Isol [M2]</td> <td><input type="checkbox"/></td> </tr> <tr> <td>FCV-2-221</td> <td>MFWP A Inlet Valve [M2]</td> <td><input type="checkbox"/></td> </tr> <tr> <td>FCV-3-67</td> <td>MFWP A Outlet Valve [M3]</td> <td><input type="checkbox"/></td> </tr> </tbody> </table> <p>STANDARD: OPERATOR ensures the MFPT condenser Inlet and Outlet Isolation valves are OPEN, FCV-2-205 and 210, and the MFP Inlet and Outlet isol Valves are open, FCV-2-221 and 3-67.</p>	VALVE	DESCRIPTION	OPEN ✓	FCV-2-205	MFPT Condenser A Inlet Isol [M2]	<input type="checkbox"/>	FCV-2-210	MFPT Condenser A Outlet Isol [M2]	<input type="checkbox"/>	FCV-2-221	MFWP A Inlet Valve [M2]	<input type="checkbox"/>	FCV-3-67	MFWP A Outlet Valve [M3]	<input type="checkbox"/>	<p>___ SAT</p> <p>___ UNSAT</p>
VALVE	DESCRIPTION	OPEN ✓														
FCV-2-205	MFPT Condenser A Inlet Isol [M2]	<input type="checkbox"/>														
FCV-2-210	MFPT Condenser A Outlet Isol [M2]	<input type="checkbox"/>														
FCV-2-221	MFWP A Inlet Valve [M2]	<input type="checkbox"/>														
FCV-3-67	MFWP A Outlet Valve [M3]	<input type="checkbox"/>														
<p>CUE: <i>IF asked, state 0-GO-12, Appendix A was not performed.</i></p> <p>STEP 20.: [9.c] IF [VLV-1-611] MFP pump A HP steam Isolation</p> <p>CUE: <i>IF operator dispatches personnel to open valve Inform them that VLV-1-611 is already open.</i></p> <p>STANDARD: Operator dispatches an operator to check valve open locally, or acknowledges that 0-GO-12, Appendix A was not performed.</p>	<p>___ SAT</p> <p>___ UNSAT</p>															
<p>STEP 21.: [9.d] RESET MFPT A USING [HS-46-9A].</p> <p>STANDARD: Operator places HS in the reset position and verifies the red light illuminates green light is dark, alarm clears for MFP trip.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>															

<p>STEP 22.: [9.e] PLACE MFPT A [SIC-46-20A] in MANUAL and with ZERO output.</p> <p>STANDARD: Operator places MFPT A SIC-46-20 to manual and sets output signal to 0.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 23.: [9.f] ENSURE MFPT A and B master speed controller [PC-46-20] in MANUAL and with output at 0.</p> <p>STANDARD: Operator places MFPT A and B master speed controller [PC-46-20] in MANUAL and sets output at 0.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 24.: [9.g] DO NOT CONTINUE until suction flow path established to MFP.</p> <p>STANDARD: Operator has previously verified suction flow path is available to MFP, and continues with procedure.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 25.: [9.h] ENSURE [FIC-3-70] MFPTA recirc valve in MANUAL and OPEN.</p> <p>STANDARD: Operator verifies the MFP A recirc valve is in manual, amber light illuminated and opens valve (toggle switch to the left).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 26.: [9.i] PLACE MFPT A speed controller [SIC-46-20A] in AUTO.</p> <p>STANDARD: Operator places MFPT A speed controller in AUTO.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 27.: [9.k] VERIFY the governor valve positioner is indicating CLOSED.</p> <p>STANDARD: Operator verifies 1-HS-46-13A green light illuminated and/or checks 1-ZI-46-13B (M-3) indicating 0.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p>STEP 28.: [9.k] IF MFPT governor valve NOT indicating CLOSED, THEN</p> <p>STANDARD: Operator N/A's this step, valve is closed.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 29.: [9.l] OPEN MFPT A stop valves by placing HP stop valve switch [HS-46-15A] to raise.</p> <p>NOTE: HP and LP stop valve will open when the HS is placed in raise. Either HS placed in raise will open the valves. If HS-46-16A is used to open stop valves then make a comment. Critical task is SAT if HS-46-16A is used.</p> <p>STANDARD: OPERATOR holds the HS-46-15A in raise position until the red light is illuminated and green light is dark.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 30.: [9.m] RAISE MFPT A speed by PERFORMING one of the following:</p> <p>1) IF MCR operation of governor valve positioner is available, PLACE [HS-47-13A] to RAISE to open the steam chest valves.</p> <p>STANDARD: OPERATOR places HS-47-13A in RAISE to open GV while monitoring MFP loading. MFP speed should stabilize at ~3300 rpm as seen on 1-SI-46-20A.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 31.: [9.m] (continued)</p> <p>2) IF MCR operation of governor valve positioner unavailable, THEN...</p> <p>STANDARD: Operator N/A's this step since governor valve positioner was available.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 32.: [9.n] WHEN MFPT speed controller controlling MFPT speed, THEN ENSURE governor valve positioner is fully raised.</p> <p>NOTE: MFPT speed controller takes over speed control when MFPT accelerates to ~ 3300 rpm on 1-SI-46-20A.</p> <p>STANDARD: Operator ensures Governor Valves Positioner is fully raised, red light illuminated and green light dark.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p>STEP 33.: [9.o] ADJUST MFPT speed USING Master Controller [PC-46-20] UNTIL feedwater header pressure is ~ 80 psid greater than steam header pressure.</p> <p>STANDARD: Operator adjusts [PC-46-20] in manual to increase FW header pressure to 80 psid greater than steam header pressure while monitoring PI-3-1, # 1 HTR Inlet Pressure (on M-3 panel), and PI-1-33, Main Steam Header Pressure (on M-4 panel). Operator may also monitor FW/SG delta P on: ICS/Secondary Mimics/Feedwater screen.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 34.: [10] IF starting MFP pump B.....</p> <p>STANDARD: OPERATOR N/A's this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 35.: [11] IF RCS temperature is less than 550°F, THEN GO TO Step 13.</p> <p>STANDARD: OPERATOR verifies temperature is <550°F and continues with step 13.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p>STEP 36.: [13] ADJUST MFW regulating Bypass valve controller to establish required feed flow.</p> <p>CAUTION IF automatic SI signals are NOT blocked, feed flow should be carefully controlled to prevent rapid cooldown which could result in low steam flow line pressure SI actuation (and subsequent feedwater isolation).</p> <p>NOTE 0.2 X10⁶ lbm/hr feed is equivalent to ~440 gpm. Due to inaccuracy of flow indication at low end of scale, feed flow should be determined based on a rise in indicated flow.</p> <p>NOTE TO EVALUATOR: If operator notifies the US that FW flow is established to one SG in this step, then N/A step 37 and record stop time in step 38.</p> <p>STANDARD: Operator adjusts MFW Reg Bypass valve in manual by adjusting the lever to the right to establish feed water flow to at least one steam generator. Monitors for an indication of flow on FW Flow Indicators or level increase in the selected steam generator(s).</p> <p>Operator may notify the US that FW flow has been established to at least one S/G, this ends the JPM as FW flow is established to one SG.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 37.: [14] MONITOR Hotwell level and CONTROL as necessary.</p> <p>NOTE: If operator notified US that FW was established in previous step then this step is not required.</p> <p>STANDARD: Operator may state that they are monitoring HW level on 1-LR-2-12 (M-3), and using 1-LIC-2-3 and 1-LIC-2-9 for auto makeup and dumpback.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 38.: Inform the US/SRO when feedwater flow has been established.</p> <p>STANDARD: Operator informs the US/SRO FW flow has been established.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>_____ Stop Time</p>

End of JPM

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 has experienced a Reactor Trip due multiple dropped rods.
2. MDAFW pump A-A is tagged out for maintenance,
MDAFW pump B-B tripped on electrical fault and the
TDAFW pump tripped on mechanical overspeed just after RX trip.
3. Unit has transitioned to ES-0.1 and is ready to perform the RNO for STEP 5.
4. All four S/G levels have been decreasing.
5. AFW Flow to the S/Gs can NOT be established.

INITIATING CUES:

1. You are the CRO and the US directed you to establish main feedwater flow USING EA-2-2, Establishing Secondary Heat sink Using Main Feedwater or Condensate System.
2. Inform the US when Main Feedwater or Condensate flow has been established to **one** S/G.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 77-1AP

Perform D/G Load Test on 1B-B D/G (with high crankcase press)

**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 AFFECTED	PREPARED/ REVISED BY:
8	Revised to reflect revision changes in SI-7B, changed critical steps for consistency with JPM 77-5AP reviewed/approved 4/20/99, corrected typos and incorporated comments from 1999 cycle 5 requal performances of JPM 77-2AP. Flow of the JPM is not affected.	N	10/13/99	All	SR Taylor
pen/ink	0-AR-M26-B Rev chg only	N	8/9/00	4	SR Taylor
pen/ink	Minor change to step 6, SO-83 Rev update.	N	8/17/00	4	SR Taylor
pen/ink	0-AR-M26-B Rev chg only	N	8/28/00	4	SR Taylor
pen/ink	1-SI-OPS-082-007.B Rev chg only	N	6/21/01	4	WR Ramsey
pen/ink	1-SI-OPS-082-007.B rev 25 Update minor changes related to stopwatch usage	N	09/07/01	ALL	WR Ramsey
pen/ink	minor enhancement changes and 1-SI-OPS-082-007.B Revision update	N	03/21/02	ALL	WR Ramsey
9	Incorporated pen/ink changes; updated to latest revisions of referenced documents; no impact on JPM flow	N	8/20/02	All	J P Kearney
10	Updated references	N	12/10/03	4	JJ Tricoglou
	Revised remote functions/annunciator overrides to conform to new simulator configurations.	N		8, 9	
11	Updated to current revisions and IC.	N	8/11/04	All	MG Croteau
12	Updated to current revision of procedure	Y	12/03/09	ALL	M Hankins

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:

Perform D/G Load Test on 1B-B D/G

JA/TA task # :

0640020101 0640040101 0640060101 (RO)

K/A Ratings:

064A4.01 (4.0/4.3)	064A1.04 (2.8/2.9)
064A4.02 (3.3/3.4)	064A4.03 (3.2/3.3)
064A2.09 (3.1/3.3)	064A3.06 (3.9/3.9)

Task Standard:

Perform D/G Operability Test per 1-SI-OPS-082-007.B, specifically manually start the D/G. Emergency stop D/G on high crankcase pressure annunciation.

Evaluation Method : Simulator In-Plant

Performer:

NAME

Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish Time _____

Evaluator:

_____ / _____

SIGNATURE

DATE

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any **UNSAT** requires comments
2. Acknowledge any associated alarms.
3. Initialize Simulator in IC: #16.
4. A console operator will be needed to insert override and play role of AUO on Radio.
5. Operator will need assistance during D/G start (at step 5). An extra simulator operator or the console operator needs to be present to perform this timing.
6. Place Protected equipment tag on the A DG.
7. **AT JPM step 13, Console operator should insert IRF EGR08 f:1 to reset 86LOR and then notify operator - 86 LOR is reset.**
7. **When operator starts JPM step #25, prior to D/G breaker closure, insert IMF AN_OV_958 f:2.**
8. 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 30 minutes Local _____

Tools/Equipment/Procedures Needed:

1. 1-SI-OPS-082-007.B, Through Section 6.1 and Appendix "C".
2. "Signed off" copy of entire section 4.
3. 0-AR-M26-B window D-2.

References:

	Reference	Title	Rev No.
1.	1-SI-OPS-082-007.B	Electrical Power System Diesel Generator 1B-B	50
2.	0-AR-M26-B	Annunciator 0-XA-55-26B	27

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. Both units are at 100% RTP.
2. All systems are OPERABLE, except for the 1B-B D/G.
3. 0-GO-16 has been completed on all the A train equipment.
4. Maintenance has been completed on the 1B-B D/G and the clearance has been removed.
5. The D/G has been rolled and is in standby alignment using 0-SO-82-2.
6. The AUO at the D/G building has completed Appendix A of 1-SI-OPS-082-007.B and all parameters are within limits. Two AUO's are standing by for DG start.
7. The U1 Control Room AUO has verified breaker 1934 is in the Disconnect position.
8. D/G-DAQ has been installed.
9. Room fire protection is in service.
10. The U1 US/SRO has reviewed the completed work package for the 1B-B D/G, all that remains is to perform 1-SI-OPS-082-007.B for the PMT.
11. Section 4.0 and Appendix A of 1-SI-OPS-082-007.B are complete.
12. Section 6.1 is complete thru step 6.

INITIATING CUES:

1. Perform 1-SI-OPS-082-007.B, beginning with Section 6.1, step 7.c.

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>STEP 1.: Operator obtains a copy of the appropriate procedure.</p> <p>NOTE: Initial conditions cover steps in procedure up to the transition to Appendix "C".</p> <p>STANDARD: Operator obtains a copy of 1-SI-OPS-082-007.B. Begins in section 6.1, Step 7.c, and transitions to Appendix C.</p>	<p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p>Start Time ___</p>	
Appendix C		
<p>STEP 2.: [1] ENSURE 0-HS-82-48 1B-B D/G mode selector switch in the UNIT position.</p> <p>STANDARD: 0-HS-82-48 in UNIT position on 0-M-26. Green light ON.</p>	<p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p>	
<p>STEP 3.: [2] PLACE 1-HS-57-74 D/G 1B-B Synchronize Switch in the SYN position.</p> <p>NOTE: 0-EI-82-35 and 0-XI-82-33 will indicate running voltage & frequency.</p> <p>STANDARD: 1-HS-57-74 in "SYN" position on 0-M-26</p>	<p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Critical Step</p>	
<p>NOTE Operator may discuss notes preceding step 3 with the DAQ operator and the stopwatch operator to ensure expectations for starting and stopping the DAQ and Stopwatches are clear.</p>	<p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p>	
<p>STEP 4. [3] PERFORM the following to initiate D/G start signal: [3.1] IF the D/G DAQ is to be used, THEN NOTIFY D/G-DAQ Operator to START the D/G-DAQ.</p> <p>NOTE: Operator must coordinate the start of the D/G-DAQ just prior to D/G start actuation.</p> <p>CUE: Tell D/G operator there is extra operator that will time the DG start with a stopwatch.</p> <p>STANDARD: Operator notifies the D/G-DAQ operator to start the D/G-DAQ.</p>	<p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p>	

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>NOTE:</u> The DG operator will NOT be able to operate the stop watch alone. Another operator simulates the DG start timing. Only one stopwatch is required since the DAC is used.</p> <p><u>STEP 5.:</u> [3.2] PROCEED with the countdown: 3,2,1, START.</p> <p><u>STANDARD:</u> Operator ensures operator is ready with stop watch and announces the countdown to start the D/G. Only one stopwatch is required since the DAQ is being used.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6.:</u> [3.3] DEPRESS 0-HS-82-46A, DG 1B-B Emergency Start Switch AND START Stopwatch(es).</p> <p><u>STANDARD:</u> 0-HS-82-46A momentarily depressed. Green light will go "out" and red light will come "on" above D/G mimic. [Not critical: Stop watch is started. D/G running alarm will ANN to indicate D/G > 40 rpm. Incoming voltage and frequency are verified on 0-EI-82-34 and 0-XI-82-32.]</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 7.:</u> [3.4] When voltage >6800 volts and Frequency >58.8 HZ, THEN STOP stopwatch.</p> <p><u>STANDARD:</u> Stop stopwatch when voltage >6800 volts and Frequency >58.8 HZ.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8.:</u> [4] ENSURE 1-FCV-67-67, ERCW cooling water supply valve is OPEN.</p> <p><u>STANDARD:</u> ERCW valve 1-FCV-67-67 red light comes "on" and green light goes "out" on 0-M-27A panel.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9.:</u> [5] Record the time from the Stopwatches:</p> <p><u>CUE:</u> STOP WATCH E123, TIME 9.5 SECONDS</p> <p><u>STANDARD:</u> Operator records the stop watch ID number and seconds for DG start and checks acceptance criteria met: <10 seconds Generator Voltage ≥ 6800 V Frequency ≥ 58.8 Hz</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 10.: [6] RECORD the steady state values for the following:</p> <p style="margin-left: 40px;">A. 0-EI-82-34, DG 1B-B incoming Voltage. B. 0-XI-82-32, DG 1B-B incoming Frequency.</p> <p>STANDARD: Operator records D/G voltage (as indicated on INC Voltage Gen 1B-B 0-EI-34) is ≥ 6800 but ≤ 7260 volts and frequency (as indicated on INC Freq Gen 1B-B 0-XI-82-32) is ≥ 59.9 Hz and ≤ 60.1 Hz Checks acceptance criteria to verify readings are within limits</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 11.: [7] RECORD Voltage Regulator Control Current.</p> <p>Cue: <i>Voltage Regulator Control Current is 1.8 dc amps.</i></p> <p>STANDARD: Operator records Voltage Regulator Control Current.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 12.: [8] ENSURE D/G 1B-B 86 LOR red light NOT ILLUMINATED, at D/G local relay panel.</p> <p>Cue: <i>Role play as D/G operator - 86 LOR local red light is not illuminated.</i></p> <p>STANDARD Operator verifies red light on 86 LOR at D/G is not illuminated.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 13.: [9] RESET 86 LOR lockout relay, on D/G local relay panel.</p> <p>Cue: When the D/G AUO is requested to reset 86LOR, the Console operator should insert IRF EGR08 f:1 to reset 86LOR and then notify operator - 86 LOR is reset.</p> <p>STANDARD: 86 LOR is reset locally, operator continues.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 14.: [10] VERIFY [86LOR] reset by amber light 0-XI-82-49 illuminated on 0-M-26.</p> <p>STANDARD: Operator verifies Amber light on 0-M-26 is lit.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>STEP 15.: [11] IF the D/G-DAQ was used , THEN RECORD the time required to achieve ≥ 58.8 HZ and ≥ 6800 Volts from the D/G-DAQ computer.</p> <p>NOTE: Evaluator can initial for DG-DAQ Operator if asked</p> <p>Cue: <i>Time was 9.5 seconds for D/G-DAQ.</i></p> <p>STANDARD: Operator checks acceptance criteria met, in < 10 seconds generator voltage ≥ 6800 volts and frequency ≥ 58.8 Hz.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 16.: [12] IF step 1.0[6] is <59.9 or >60.1, THEN INITIATE a PER.</p> <p>STANDARD: Parameters in Step 1.0 [6] were within limits, no PER required, operator N/A's step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 17.: [13] RECORD start as ambient in 0-SI-OPS-082-007.M.</p> <p>CUE: Another operator will record D/G start in 0-SI-OPS-082-007.M.</p> <p>STANDARD: Operator addresses logging the start in 0-SI-OPS-082-007.M.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 18.: [14] RETURN to Section 6.1, Step 10.</p> <p>STANDARD: Operator returns to the appropriate section and step of the procedure. (Exits Appendix C)</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
Section 6.1 Step 10		
<p>STEP 19.: [10] PERFORM the following to wipe the Automatic Voltage Control Rheostat:</p> <p>[10.1] RECORD voltage from 0-EI-82-34.</p> <p>STANDARD: OPERATOR records voltage and continues with next step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 20.: [10.2] ENSURE 0-HS-82-42, DG 1B-B Voltage Regulator Switch in the Pull-to P-AUTO position</p> <p>STANDARD: Operator verifies 0-HS-82-42 in the Pull To PAUTO position.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 21.:</u>	[10.3] DECREASE voltage to 6700 volts on 0-EI-82-34 using 0-HS-82-42.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator decreases voltage to 6700 volts on EI-82-34.	
<u>STEP 22.:</u>	[10.4] INCREASE voltage to 7300 volts on 0-EI-82-34 using 0-HS-82-42.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator increases voltage to 7300 volts on EI-82-34.	
<u>STEP 23.:</u>	[10.5] RETURN voltage to value recorded in 6.1 [10.1]	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator returns voltage to reading recorded in step 6.1[10.1], ~ 7000 Volts (+/- 200 volts)	Critical Step
<u>STEP 24.:</u>	[11] PLACE 0-HS-82-48, DG 1B-B Mode Selector Switch, in PARALLEL position.	___ SAT ___ UNSAT
<u>STANDARD:</u>	0-HS-82-48 rotated to the PARALLEL position. Red light "on" & green light "off".	Critical Step
<u>EVALUATOR NOTE:</u>	While operator is adjusting the speed control in the next step have console operator insert IMF AN-OV-958 f:2	
<u>STEP 25.:</u>	[12] ADJUST 0-HS-82-43 DG 1B-B Speed Control Switch to obtain a synchroscope indication of slowly rotating in FAST direction.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator adjusts speed control hand switch 0-HS-82-43 such that synchroscope (XI-82-31) is moving slowly in the fast direction (slowly clockwise).	Critical Step
The steps [27] thru [29] are from 0-AR-M26-B		
<u>STEP 26.:</u>	RESPOND TO annunciator panel 0-M-26B window D-2.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator pulls AR 0-M-26B and consults for window D-2, OR depresses the emergency stop button for D/G 1B-B.	
<u>STEP 27.:</u>	[1] IF D/G running with no valid accident (blackout or SI) signal present, THEN ENSURE D/G shutdown by depressing emergency stop pushbutton 0-HS-82-47A.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator depresses emergency stop button for Diesel Generator 1B-B.	Critical Step

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>STEP 28.: [2] IF D/G running with valid accident (blackout or SI) signal present...</p> <p>STANDARD: Operator N/A's this step, D/G is being run for PMT.</p>	<p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p>	
<p>STEP 29.: [3] DISPATCH personnel to D/G Bldg to verify alarm, AND CHECK crankcase trip device actuated [0-PS-82-5026/2] or [0-PS-82-5025/2].</p> <p>Cue: <i>AUO informs Unit Operator that crankcase pressure alarm is in on local panel and 0-PS-82-5026/2 is actuated on engine 2.</i></p> <p>STANDARD: Operator contacts AUO at the Diesel Generator Building to confirm crankcase pressure alarm.</p>	<p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p>	
<p>STEP 30.: NOTIFY US/SRO of Emergency Stop of Diesel Generator 1B-B.</p> <p>Cue: <i>US/SRO instructs operator to standby for further instructions.</i></p> <p>STANDARD: Operator informs US/SRO of Emergency stop of Diesel Generator 1B-B.</p>	<p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Stop Time___</p>	

END of JPM

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. Both units are at 100% RTP.
2. All systems are OPERABLE, except for the 1B-B D/G.
3. 0-GO-16 has been completed on all the A train equipment.
4. Maintenance has been completed on the 1B-B D/G and the clearance has been removed.
5. The D/G has been rolled and is in standby alignment using 0-SO-82-2.
6. The AUO at the D/G building has completed Appendix A of 1-SI-OPS-082-007.B and all parameters are within limits. Two AUO's are standing by for DG start.
7. The U1 Control Room AUO has verified breaker 1934 is in the Disconnect position.
8. D/G-DAQ has been installed.
9. Room fire protection is in service.
10. The U1 US/SRO has reviewed the completed work package for the 1B-B D/G, all that remains is to perform 1-SI-OPS-082-007.B for the PMT.
11. Section 4.0 and Appendix A of 1-SI-OPS-082-007.B are complete.
12. Section 6.1 is complete thru step 6.

INITIATING CUES:

1. Perform 1-SI-OPS-082-007.B, beginning with Section 6.1, step 7.c.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM13AP1-1

Transfer to Hot Leg Recirculation

**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 AFFECTED	PREPARED/ REVISED BY:
0	New JPM adapted from JPM 13AP1 for NRC exam 02 2010, updated special instructions to the evaluator, added Appendix A with Hot Leg Recirc flowpath and major valve manipulations for examiner. Revised to end JPM after flow established for train A SI pump.	Y	1/18/10	All	M Hankins

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.
2. Any UNSAT requires comments.
3. Initialize Simulator to IC #120, after automatic containment sump swapover is initiated, perform required alignment of ECCS to Containment Sump per ES-1.3. Insert the following remote functions:
 - a. **IRF RHR14 f:1** (FCV-63-1)
 - b. **IRF SIR06 f:0** (FCV-63-22) (Verify power on during setup)
 - c. **IOR ZDIHS63172A f:0 (Fails FCV-63-172 closed)**
5. If sump recirc IC is not available, then initialize to IC #16 and complete the following setup:
 - a. Insert **IMF TH01A f:10** (10% LOCA on Loop #1 Hot Leg) and trip RCPs.
 - b. After automatic containment sump swapover is initiated, perform required alignment of ECCS to containment sump per ES-1.3.
 - c. Place operating power on FCV-63-1 (remote function **IRF RHR14 f:1**).
 - d. When RWST level decreases to 8% realign containment spray pump suction to containment sump per ES-1.3.
 - e. Ensure operating power **ON** FCV-63-22 (Check remote function main menu for **IRF SIR06 f:0**, this task should have been performed in E-1).
 - f. Insert override **IOR ZDIHS63172A f:0 (Fails [FCV-63-172] CLOSED)**
 - g. Acknowledge and clear ALL alarms.
 - h. Freeze simulator after realignment of containment spray suction to containment sump.
6. Insert overrides to silence following nuisance alarms:
 - a. **IMF AN_OV_304 f:3** (Saturation Margin Trouble)
 - b. **IMF AN_OV_420 f:3** (Lower Compt Moisture High)
 - c. **IMF AN_OV_96 f:3** (Turbine Zero Speed)
 - d. Change plaque next to FCV-63-22 to indicate power restored to valve.
7. Ensure Operator performs the following required actions for **SELF-CHECKING**;
 - a. Reviews the intended action and expected response.
 - b. Compares the actual response to the expected response.
8. Appendix A Hot Leg Recirculation Flowpath is available for examiner.

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	5

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, Transfer To RHR Containment Sump.
2. RCS pressure is less than 180 psig. RHR spray is NOT in service.
3. Both RHR pumps are in service.
4. 5 hours have elapsed since the time of the event.

INITIATING CUES:

1. As the OATC, you are directed to transfer to hot leg recirculation in accordance with ES-1.4, Transfer to Hot Leg Recirculation.
2. Notify the US/SRO when you have completed ES-1.4.

Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

<p>STEP 1: Obtain a copy of the appropriate procedure.</p> <p>STANDARD: Operator obtains a copy of ES-1.4.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p>STEP 2:</p> <p>1. DETERMINE if RHR spray should be isolated: a. CHECK RHR spray IN SERVICE: <ul style="list-style-type: none"> • Train A RHR spray valve FCV-72-40 OPEN OR • Train B RHR spray valve FCV-72-41 OPEN. </p> <p>STANDARD: Operator determines FCV-72-40 and FCV-72-41 closed, verifies green lights ON and red lights OFF for both valves. Operator goes to RNO step [a] and then proceeds to step 2.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 3:</p> <p>2. CHECK RHR pump A-A RUNNING.</p> <p>STANDARD: Operator checks RHR pump A-A running, verifies red light ON and green light OFF. Operator may also verify pump amps normal (EI-74-5A).</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP *4:</p> <p>3. ALIGN RHR Train A for hot leg recirculation: a. CLOSE RHR Train A cold leg isolation valve FCV-63-93.</p> <p>NOTE: Alarm on M-6D, window E-6, Group 6 Monitor Lights Component Off Normal will come in when FCV-63-93 is closed.</p> <p>STANDARD: Operator places FCV-63-93 to Close, verifies green light ON and red light OFF.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

<p>STEP 5: 3. ALIGN RHR Train A for hot leg recirculation: b. ENSURE RHR Train B discharge crosstie valve FCV-74-35 CLOSED.</p> <p>STANDARD: Operator ensures FCV-74-35 Closed, verifies green light ON and red light OFF.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP *6: 3. ALIGN RHR Train A for hot leg recirculation: c. OPEN RHR Train A discharge crosstie valve FCV-74-33.</p> <p>STANDARD: Operator places FCV-74-33 to Open, verifies red light ON and green light OFF.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP *7: 3. ALIGN RHR Train A for hot leg recirculation: d. OPEN RHR HL injection valve FCV-63-172.</p> <p>NOTE: FCV-63-172 fails to open. Operator must transition to RNO Column and realign RHR trains to cold legs.</p> <p>STANDARD: Operator places FCV-63-172 to Open. Operator determines FCV-63-172 will NOT open, verifies green light remains ON. Operator goes to RNO Column.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>NOTE: Begin alternate path steps, RNO for Step 3:</p> <p>STEP 8: 1) ENSURE RHR hot leg injection valve FCV-63-172 CLOSED.</p> <p>STANDARD: Operator ensures FCV-63-172 Closed, verifies green light ON and red light OFF.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

<p><u>STEP *9:</u> 2) ENSURE RHR Train A discharge crosstie valve FCV-74-33 CLOSED.</p> <p><u>STANDARD:</u> Operator places FCV-74-33 to Close, verifies green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP *10:</u> 3) ENSURE RHR Train A cold leg isolation valve FCV-63-93 OPEN.</p> <p>NOTE: Alarm on M-6D, window E-6, Group 6 Monitor Lights Component Off Normal will clear when FCV-63-93 is open.</p> <p><u>STANDARD:</u> Operator places FCV-63-93 to Open, verifies red light ON and green light OFF.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 11:</u> 4) IF FCV-63-172 is NOT capable of opening from MCR, THEN GO TO Step 11.</p> <p><u>STANDARD:</u> Operator determines FCV-63-172 not able to be opened and goes to Step 11.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12:</u> 11. CHECK SI pump A-A RUNNING.</p> <p><u>STANDARD:</u> Operator checks SI pump A-A running, verifies red light ON and green light OFF.</p> <p>Operator may also verify pump amps normal on 1-EI-63-12A.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *13:</u> 12. ALIGN SI pump A-A for hot leg recirculation: a. ENSURE SI pump A-A STOPPED.</p> <p><u>STANDARD:</u> Operator places SI pump A-A to Stop, verifies green light ON and red light OFF (HS-63-10A).</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

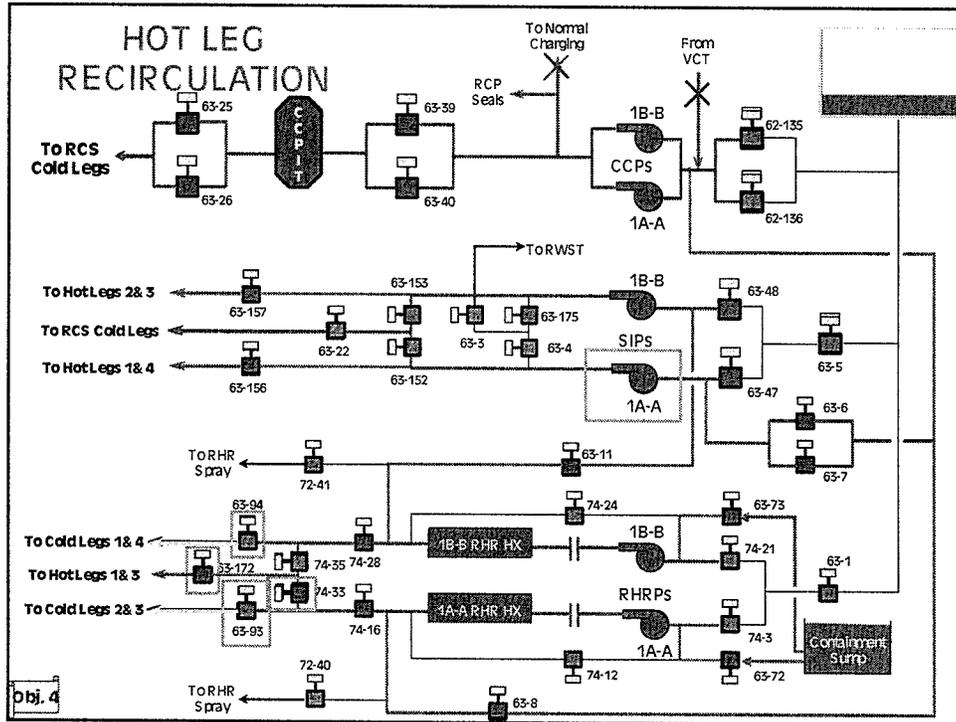
Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

<p>STEP *14: 12. ALIGN SI pump A-A for hot leg recirculation: b. CLOSE SI Train A crosstie valve FCV-63-152.</p> <p>NOTE Alarm on M-6D, window E-6, Group 6 Monitor Lights Component Off Normal will come in when FCV-63-152 is fully closed.</p> <p>STANDARD: Operator places FCV-63-152 to Close, verifies green light ON and red light OFF.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP *15: 12. ALIGN SI pump A-A for hot leg recirculation: c. WHEN FCV-63-152 closed, THEN PERFORM the following: 1) OPEN SI Train A hot leg injection FCV-63-156.</p> <p>STANDARD: Operator places FCV-63-156 to Open, verifies red light ON and green light OFF.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP *16: 12. ALIGN SI pump A-A for hot leg recirculation: c. WHEN FCV-63-152 closed, THEN PERFORM the following: 2) START SI pump A-A.</p> <p>STANDARD: Operator places SI pump A-A to Start, verifies red light ON and green light OFF (HS-63-10A). Operator may also verify pump amps normal on 1-EI-63-12A.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>NOTE JPM will be terminated when operator establishes SI Train A flow on FI-63-151.</p> <p>STEP 17: 13. VERIFY SI Train A discharge flow on FI-63-151.</p> <p>STANDARD: Operator verifies SI Train A discharge flow indicated on FI-63-151.</p> <p>CUE: Tell operator JPM is terminated at this step.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <hr/> <p>Stop Time</p>

Appendix A Hot Leg Recirculation Flowpath for Examiner



Hot Leg Recirculation Swapover:

Swapover is manually done by operators in the Main Control Room.

RHR Sequence:

- Close A Train cold leg isolation valve FCV-63-93
- Ensure RHR Train B discharge crosstie valve FCV-74-35 is closed
- Open Train A crosstie valve FCV-74-33
- Open RHR hot leg recirculation valve FCV-63-172
- Close B Train cold leg isolation valve FCV-63-94

SI Sequence: One train is completed at a time.

A Train

- Stop SI Pump A-A
- Close Trn A Crosstie FCV-63-152
- Open Trn A H/L valve FCV-63-156
- Start SI Pump A-A

B Train

- Stop SI Pump B-B
- Close Trn B Crosstie FCV-63-153
- Open Trn B H/L valve FCV-63-157
- Start SI Pump B-B

After both SI pumps aligned for Hot Leg Recirculation
Close FCV-63-22 SI pump CL injection

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, Transfer To RHR Containment Sump.
2. RCS pressure is less than 180 psig. RHR spray is NOT in service.
3. Both RHR pumps are in service.
4. 5 hours have elapsed since the time of the event.

INITIATING CUES:

1. As the OATC, you are directed to transfer to hot leg recirculation in accordance with ES-1.4, Transfer to Hot Leg Recirculation.
2. Notify the US/SRO when you have completed ES-1.4.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 189AP

Radiation Monitor 0-RE-90-122 Flushing After Hi Radiation Signal Isolation of Release (Alternate Path)

**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		V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	Initial Issue	Y	1/19/04	All	S. Poteet
1	Revised to update to latest procedure revision	Y	12/07/09	ALL	M. Hankins

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.
2. Any UNSAT requires comments
3. 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 30 minutes

Tools/Equipment/Procedures Needed

0-SO-77-1 Section 8.2

References:

	Reference	Title	Rev No.
1.	0-SO-77-1	Waste Disposal System	47

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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. A release from the CDCT has just been initiated using 0-SO-77-1 Waste Disposal System and 0-SI-CEM-077-400.1 Liquid Waste Effluent Batch Release.
2. The calculated high radiation trip setpoint for 0-RM-90-122 is 8.59 E+04 cpm, per 0-SI-CEM-077-400.1, Liquid Waste Effluent Batch Release.
3. A high radiation signal on 0-RE-90-122 occurred shortly after initiation of the release, causing an isolation of the release.
4. 0-RCV-77-43 has been verified CLOSED.
5. All Prerequisite Actions are complete (Section 4.0)

INITIATING CUES:

You are the RadWaste AUO and have been directed by the Unit 1 SRO to perform Section 8.2 of 0-SO-77-1 to flush 0-RE-90-122 after the High Radiation Isolation. Inform the Unit 1 SRO when Section 8.2 is complete.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Obtain a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> The operator obtains a copy of 0-SO-77-1, Section 8.2</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time _____</p>
<p><u>STEP 2.:</u> Section 4.0 Prerequisite Actions</p> <p><u>Cue:</u> <i>If asked, state all prerequisite actions are complete per initial conditions.</i></p> <p><u>STANDARD</u> Operator may review Prerequisite Actions, but all steps have already been complete.</p>	
<p><u>STEP 3.:</u> [1] ENSURE [0-RCV-77-43] Radiation Control Valve is CLOSED.</p> <p><u>Cue:</u> <i>If asked, state 0-RCV-77-43 is closed per the Initial Conditions.</i></p> <p><u>STANDARD:</u> Operator verifies that valve is closed by reviewing INITIAL CONDITIONS portion of JPM, or can verify valve closed locally (AB el. 669', West Wall of SFP.)</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4.:</u> [2] ENSURE [0-77-689A] Radiation Monitor Inlet isolation Valve is OPEN.</p> <p><u>Cue:</u> <i>Inform the operator that the HW for [0-77-689A] is open.</i></p> <p><u>STANDARD</u> Operator ensures [0-77-689A] Radiation Monitor Inlet isolation Valve is OPEN by turning HW in the CW direction only enough to verify valve movement (indicates the valve is open), and then returns valve to original position.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5.:</u> [3] OPEN [0-77-689B] Discharge to FDCT Isolation Valve.</p> <p><u>Cue:</u> <i>Inform the operator that the HW for [0-77-689B] moves in the counter clockwise direction until snug.</i></p> <p><u>STANDARD</u> Operator OPENS [0-77-689B] Discharge to FDCT Isolation Valve by turning HW in the CCW direction until HW is snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>STEP 6.: [4] CLOSE [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve.</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689C] moves in the clockwise direction until snug.</i></p> <p>STANDARD: Operator CLOSES [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve by turning HW in the CW direction until HW is snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p>STEP 7.: [5] VERIFY [0-RE-90-122] radiation monitor pump is running.</p> <p>Cue: <i>0-HS-90-122B RED light ON; GREEN light OFF.</i></p> <p>STANDARD: Operator verifies that [0-RE-90-122] radiation monitor pump is running.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 8.: [6] ALLOW [0-RE-90-122] Radiation Monitor to flush to FDCT for 5 minutes.</p> <p>Cue: <i>Inform operator that 5 minutes have elapsed.</i></p> <p>STANDARD: Operator allows flush for at least 5 minutes prior to proceeding to next step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 9.: [7] OPEN [0-77-689C]</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689C] moves in the counter clockwise direction until snug.</i></p> <p>STANDARD: Operator OPENS [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve by turning HW in the CCW direction until HW is snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p>STEP *10.: [8] CLOSE [0-77-689B]</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689B] moves in the clockwise direction until snug.</i></p> <p>STANDARD: Operator CLOSES [0-77-689B] Discharge to FDCT Isolation Valve by turning HW in the CW direction until HW is snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT								
<p>STEP 11.: [9] RECORD 0-RE-90-122 reading:</p> <p>0-RE-90-122 Reading _____ cpm</p> <p>NOTE: ALTERNATE PATH BEGINS HERE.</p> <p> <u>Cue:</u> Inform operator that 0-RE-90-122 is reading 9.00 E+04 cpm</p> <p><u>STANDARD:</u> Operator enters 9.00 E+04 cpm for 0-RE-90-122 data.</p>	<p>___ SAT</p> <p>___ UNSAT</p>									
<p>STEP * 12.: [10] IF the reading in step [9] is below the trip setpoint. THEN RETURN to instruction where exited</p> <p>NOTE: RE high radiation trip setpoint, 8.59 E+04 cpm, was provided in the INITIAL CONDITIONS.</p> <p><u>STANDARD:</u> Operator determines that the current 0-RE-90-122 reading remained greater than the trip setpoint 8.59 E+04 cpm and continues with step [11].</p>	<p>___ SAT</p> <p>___ UNSAT</p>									
<p>STEP 13.: [11] IF the reading obtained in step [9] is still above the trip setpoint, THEN PERFORM the following steps to lower the radiation monitoring reading:</p> <p>NOTE: Valve is located in CDCT room</p> <p> [11.a] CLOSE applicable tank isolation valve from release header. (N/A tanks not aligned)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Tank Being Released</th> <th style="text-align: center;">Isolation Valve</th> <th style="text-align: center;">Initials</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">CDCT</td> <td style="text-align: center;">0-77-679</td> <td style="text-align: center;">_____</td> </tr> <tr> <td style="text-align: center;">Monitor Tank</td> <td style="text-align: center;">0-77-1306</td> <td style="text-align: center;">_____</td> </tr> </tbody> </table> <p><u>Cue:</u> Inform the operator that the HW for [0-77-679] moves in the clockwise direction until snug.</p> <p>STANDARD: Operator CLOSSES [0-77-679] Cask Decon Collector Tank by turning HW in the CW direction until HW is snug. Operator enters an "N/A" for the Monitor Tank.</p>	Tank Being Released	Isolation Valve	Initials	CDCT	0-77-679	_____	Monitor Tank	0-77-1306	_____	<p>___ SAT</p> <p>___ UNSAT</p> <p style="text-align: right;">Critical Step</p>
Tank Being Released	Isolation Valve	Initials								
CDCT	0-77-679	_____								
Monitor Tank	0-77-1306	_____								

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>NOTE: Valve is located in CDCT room.</p> <p>STEP14.: [11.b] OPEN [0-VLV-59-735] Demin Flush To Radwaste Isol.</p> <p>Cue: <i>Inform the operator that the handle for [0-VLV-59-735] moves in the counter clockwise direction until handle is in line with pipe.</i></p> <p>STANDARD: Operator OPENS [0-VLV-59-735] Demin Flush To Radwaste Isol by turning handle in the CCW direction until handle is in line with pipe.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p>STEP15.: [11.c] OPEN [0-77-689B] Discharge to FDCT Isolation Valve.</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689B] moves in the counter clockwise direction until snug.</i></p> <p>STANDARD: Operator OPENS [0-77-689B] Discharge to FDCT Isolation Valve by turning HW in the CCW direction until HW is snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p>STEP 16.: [11.d] CLOSE [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve.</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689C] moves in the clockwise direction until snug.</i></p> <p>STANDARD: Operator CLOSES [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve by turning HW in the CW direction until HW is snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p>STEP 17.: [11.e] WHEN count rate on [0-RE-90-122] decreases to its minimum value, THEN</p> <p>Cue: <i>0-RE-90-122 reading has lowered to 8.00 E+02 cpm and is stable.</i></p> <p>STANDARD: Operator reads count rate on 0-RE-90-122.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT								
<p>STEP 18.: [11.e.1] OPEN [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve.</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689C] moves in the counterclockwise direction until snug.</i></p> <p>STANDARD: Operator OPENS [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve by turning HW in the CCW direction until HW is snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>									
<p>STEP 19.: [11.e.2] CLOSE [0-77-689B] Discharge to FDCT Isolation Valve.</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689B] moves in the clockwise direction until snug.</i></p> <p>STANDARD: Operator CLOSES [0-77-689B] Discharge to FDCT Isolation Valve by turning HW in the CW direction until HW is snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>									
<p>STEP 20.: [11.f] CLOSE [0-VLV-59-735] Demin Flush To Radwaste Isol.</p> <p>Cue: <i>Inform the operator that the handle for [0-VLV-59-735] moves in the clockwise direction until perpendicular with pipe.</i></p> <p>STANDARD: Operator CLOSES [0-VLV-59-735] Demin Flush To Radwaste Isol by turning handle until handle is perpendicular with pipe.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>									
<p>STEP 21.: [11.g] OPEN applicable tank isolation valve previously closed in step [a] (N/A tanks not aligned):</p> <table border="1" data-bbox="354 1375 1101 1495"> <thead> <tr> <th>Tank Being Released</th> <th>Isolation Valve</th> <th>Initials</th> </tr> </thead> <tbody> <tr> <td>CDCT</td> <td>0-77-679</td> <td>_____</td> </tr> <tr> <td>Monitor Tank</td> <td>0-77-1306</td> <td>_____</td> </tr> </tbody> </table> <p>Cue: <i>Inform the operator that the HW for [0-77-679] moves in the counter clockwise direction until snug.</i></p> <p>STANDARD: Operator OPENS [0-77-679] Cask Decon Collector Tank by turning HW in the CCW direction until HW is snug, and N/A's valve for the Monitor Tank.</p>	Tank Being Released	Isolation Valve	Initials	CDCT	0-77-679	_____	Monitor Tank	0-77-1306	_____	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
Tank Being Released	Isolation Valve	Initials								
CDCT	0-77-679	_____								
Monitor Tank	0-77-1306	_____								

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 22.: [h] IF hi radiation alarm will not clear, THEN NOTIFY the appropriate US/SRO that alarm will not clear.</p> <p>Cue: <i>0-RE-90-122 high radiation alarm is clear If asked, rad monitor 0-RE-90-122 is still reading 8.00 E+2 cpm.</i></p> <p>STANDARD: Operator determines that 0-RE-90-122 alarm has cleared by observing verifying XA-55-L2C Window C-3 DARK in RadWaste AUO shack OR Calling Main Control Room and verifying alarm status.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 23.: [12] RETURN to instruction where exited.</p> <p>STANDARD: Operator informs Unit 1 US/SRO that 0-SO-77-1 is complete</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>End Time___</p>

End of JPM

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. A release from the CDCT has just been initiated using 0-SO-77-1 Waste Disposal System and 0-SI-CEM-077-400.1 Liquid Waste Effluent Batch Release.
2. The calculated high radiation trip setpoint for 0-RM-90-122 is 8.59 E+04 cpm, per 0-SI-CEM-077-400.1, Liquid Waste Effluent Batch Release.
3. A high radiation signal on 0-RE-90-122 occurred shortly after initiation of the release, causing an isolation of the release.
4. 0-RCV-77-43 has been verified CLOSED.
5. All Prerequisite Actions are complete (Section 4.0)

INITIATING CUES:

You are the RadWaste AUO and have been directed by the Unit 1 SRO to perform Section 8.2 of 0-SO-77-1 to flush 0-RE-90-122 after the High Radiation Isolation. Inform the Unit 1 SRO when Section 8.2 is complete.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 44

Venting the A-A RHR Pump due to Cavitation While in Mid-Loop Operation

**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 AFFECTED	PREPARED/REVISED BY:
1	Transfer from WP. Minor enhancements.	N	8/31/95	All	HJ Birch
2	Incorp prev pen/ink which chgd performance time from 20 to 24. AOP-R.03 replaced AOI-14. Minor JPM chgs to match new procedure	N	3/5/96	3,4,5	HJ Birch
pen/ink	AOP-R.03 Rev chg. Procedure step 14d referenced in JPM became 15d.	N	6/8/96	4,5,8	HJ Birch
pen/ink	AOP-R.03 Rev chg added train designation to valves. For JPM to save confusion: added a note that valves in () are B Train.	N	2/6/97	4,5	HJ Birch
pen/ink	AOP-R.03 Rev chg only	N	8/12/97	4	HJ Birch
	requal comment - FCV is normally blocked. Chg cue to block fell off.	N	5/13/98	4	HJ Birch
pen/ink	AOP R.03 revision had no impact. Revised K/A ratings. Reformatted critical steps.	N	8/13/98	All	JP Kearney
pen/ink	AOP-R.03 revision had no impact. Updated procedure revision only	N	9/25/98	2,4	JP Kearney
pen/ink	AOP Rev Change only	N	9/22/99	4	SR Taylor
pen/ink	Corrected proceduredstep number references in initiating cues and in JPM steps 1 & 14 due to AOP Rev Change and updated rev level.	N	8/21/00	4,5,8	SR Taylor
pen/ink	Added item 7 to initial conditions to eliminate confusion during performance.	N	08/02/01	4	WR Ramsey
3	Incorporated pen/ink changes; revised per recent changes to AOP-R.03; No impact on JPM flow	N	8/20/02	4	J P Kearney
4	Updated to current revision.	N	9/15/04	All	MG Croteau
5	Updated to current revision.	N	10/03/05	All	MG Croteau
6	Proc chg eliminated several vlv manipulation steps.	Y	2/9/09	All	H J Birch
7	Update to divide JPM steps to reflect current procedure revision	Y	11/3/2009	All	M Hankins

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any UNSAT requires comments
2. ***This JPM may be performed on either unit or train depending on accessibility. The Evaluator MUST clearly specify which UNIT and TRAIN the task is to be performed on when reading the initial conditions and initiating cues.***
3. 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.
4. If a ladder is needed to operate any equipment the trainee should locate a ladder and state that they would use the ladder to operate the valve, it is not necessary to bring the ladder to the work location.

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

Tools Needed:

AOP-R.03, Section 2.1 step 17. and Appendix J

References:

	Reference	Title	Rev No.
A.	AOP-R.03	RHR System Malfunctions	22

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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. 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 ___ is in Mode 5 following a refueling outage.
- 2) The RCS is at Mid-loop with the A-A (B-B) RHR pump aligned for Shutdown Cooling.
- 3) Hoses are not installed at 74-512 and 513
- 4) The flow block gag device on discharge valve FCV-74-16 (74-28) on the A-A (B-B) RHR Hx fell off and the FCV failed full open, causing vortexing in the RCS loop, resulting in air being drawn into the A-A (B-B) RHR pump suction and pump casing.
- 5) Rad Con Techs are standing by to support the venting operation.
- 6) The A-A (B-B) RHR pump is in the Pull-to-Lock position.
- 7) Repairs have been completed on the flow block gag for FCV-74-16 (74-28) and the valve is now functional.

INITIATING CUES:

- 1) The operators in the MCR have unsuccessfully attempted to get the A-A (B-B) RHR pump back in service.
- 2) You are the Unit___ Aux. Bldg. AUO. You have been directed to locally vent the A-A (B-B) RHR pump using AOP-R.03 Using Appendix J.
- 3) When you have completed the local venting notify the CRO on the unit.

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 AOP-R.03, Appendix J</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p><u>STEP 2.</u> OBTAIN M-5 key and radio.</p> <p><u>Cue:</u> After explaining how to obtain M-5 Key and radios, inform operator that they have both.</p> <p><u>STANDARD:</u> Operator explains how to obtain M-5 Key and radios, procedure contains note stating keys may be obtained from AOP-C.04 cabinet or could be checked out from the Shift Manger clerks office, radios made be obtained from AUO work station (OFO), MCR, SM office</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.</u> IDENTIFY applicable unit:</p> <ul style="list-style-type: none"> • Unit 1 _____ • Unit 2 _____ <p><u>STANDARD:</u> Operator identifies proper unit as determined from the initiating cues</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4.</u> IDENTIFY RHR Pump(s) to be vented (specified by MCR).</p> <ul style="list-style-type: none"> • Train A _____ • Train B _____ <p><u>STANDARD:</u> Operator identifies proper RHR pump as determined from the initiating cues</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5.:</u> UNLOCK and CLOSE pump discharge valve on affected train: [RHR pump Room, 653']</p> <ul style="list-style-type: none"> • 74-520 (Train A) <li style="text-align: center;">OR • 74-521 (Train B) <p><u>Cue:</u> Lock is removed; HW turned several times in the CW direction and is now snug.</p> <p><u>STANDARD:</u> Operator locates VLV-74-520 (74-521), unlocks and turns the HW in the CW direction until snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 10.: FULLY OPEN pressure transmitter instrument drain valve for 5 minutes on affected train: [Racks outside RHR pump room]</p> <ul style="list-style-type: none"> • PT-74-13 (Train A) <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • PT-47-26 (Train B) <p>Cue: <i>HW turned CCW until snug, 5 minutes have elapsed.</i></p> <p>STANDARD: Operator locates drain valve for PT-74-13 (26), turns HW in the CCW direction until snug, leaves open for 5 minutes.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 11.: CLOSE pressure transmitter instrument drain valve on affected train:</p> <ul style="list-style-type: none"> • PT-74-13 (Train A) <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • PT-47-26 (Train B) <p>Cue: <i>HW turned CW until snug.</i></p> <p>STANDARD: Operator turns HW in the CW direction until snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 12.: NOTIFY MCR that RHR pump Venting is complete on the affected train.</p> <p>Cue: <i>Acknowledge report and instruct operator to resume normal duties.</i></p> <p>STANDARD: Operator communicates with the UO in the MCR and informs him/her that the A-A (B-B) RHR pump has been vented in accordance with Appendix J of AOP-R.03.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time ___</p>

END OF JPM

READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated. 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 ___ is in Mode 5 following a refueling outage.
- 2) The RCS is at Mid-loop with the A-A (B-B) RHR pump aligned for Shutdown Cooling.
- 3) Hoses are not installed at 74-512 and 513.
- 4) The flow block gag device on discharge valve FCV-74-16 (74-28) on the A-A (B-B) RHR Hx fell off and the FCV failed full open, causing vortexing in the RCS loop, resulting in air being drawn into the A-A (B-B) RHR pump suction and pump casing.
- 5) Rad Con Techs are standing by to support the venting operation.
- 6) The A-A (B-B) RHR pump is in the Pull-to-Lock position.
- 7) Repairs have been completed on the flow block gag for FCV-74-16 (74-28) and the valve is now functional.

INITIATING CUES:

- 1) The operators in the MCR have unsuccessfully attempted to get the A-A (B-B) RHR pump back in service.
- 2) You are the Unit___ Aux. Bldg. AUO. You have been directed to locally vent the A-A (B-B) RHR pump using AOP-R.03 Using Appendix J.
- 3) When you have completed the local venting notify the CRO on the unit.

READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated. 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 ___ is in Mode 5 following a refueling outage.
- 2) The RCS is at Mid-loop with the A-A (B-B) RHR pump aligned for Shutdown Cooling.
- 3) Hoses are not installed at 74-512 and 513.
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- 5) Rad Con Techs are standing by to support the venting operation.
- 6) The A-A (B-B) RHR pump is in the Pull-to-Lock position.
- 7) Repairs have been completed on the flow block gag for FCV-74-16 (74-28) and the valve is now functional.

INITIATING CUES:

- 1) The operators in the MCR have unsuccessfully attempted to get the A-A (B-B) RHR pump back in service.
- 2) You are the Unit___ Aux. Bldg. AUO. You have been directed to locally vent the A-A (B-B) RHR pump using AOP-R.03 Using Appendix J.
- 3) When you have completed the local venting notify the CRO on the unit.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 91-1

Transfer Controls to the Auxiliary Mode Per Checklist 3

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 AFFECTED	PREPARED/ REVISED BY:
0	New JPM, adapted from JPM91AP, revised to require partial performance fo checklist 3, no alternate path. Also updated steps to latest procedure revision, revised steps concerning Time Critical Action Clock starts as addressed AOP-N.01.	Y	1/23/2010	All	M Hankins

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any UNSAT requires comments.
2. *The SHUTDOWN BOARD LOGIC CABINETS are not locked, it will NOT be necessary to open the cabinet, having the operator locate the correct cabinet and describing his/her actions will suffice.*
3. *The AOP-C.04 cabinet is sealed. It is not necessary to open the cabinet and retrieve the key. Having the operator locate the cabinet and discuss his/her actions will suffice.*
4. AOP-N.01 directs the operators to go to the AOP-C.04 cabinet in 6.9KV SDBD Rm via el. 690 radcon Portal to avoid entering the fire area. For this JPM students can enter the 6.9 KV SDBD thru the MCR. Access from the AB to the 6.9 KV SDBD is normally prohibited by RADCON, exception in emergencies.
5. Evaluators review Attachment 1 and 2.
6. The clock starts for time critical actions in AOP-C.04 when ANY of the conditions listed in AOP-N.01 Appendix E are met. Timing for Time Critical Actions in this JPM will start one minute prior to the operator being notified to perform the checklist. Operator should be allowed a few minutes to review checklist prior to checklist performance.
7. 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 20 minutes

Tools Needed:

AOP-C.04 Checklist 3

References:

	Reference	Title	Rev No.
A.	AOP-C.04	Control Room Inaccessibility	18

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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.

WHEN ENTERING A UNIT TRIP HAZARD ZONE ENSURE YOU DO NOT TOUCH ANY SWITCHES WITHIN THAT ZONE.

DO NOT OPEN ANY COMPARTMENTS.

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) Both units were operating at 100% power, both units entered AOP-N.01 due to a fire in the spreader room.
- 2) Operators have dispatched AUO's to the AOP-C.04 cabinets. AUO's are standing by awaiting instructions.

INITIATING CUES:

- 1) You are the Control Room AUO and have been directed by the UO to report to the AOP-C.04 Cabinet in the 6.9 KV Shutdown Bd Room A.
- 2) The CRO has assigned you to report to the AOP-C.04 cabinet and review Checklist 3 for performance.
- 3) When notified that AOP-C.04 is entered, Perform Checklist 3.
- 4) NOTIFY the ACR when a CCP has been restored to service.

THIS IS A TIME CRITICAL JPM

Clock Start for Time Critical Actions is one minute prior to the operator being notified to PERFORM the checklist.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>NOTE 1 This checklist has Time Critical Actions. Time limits are identified at applicable steps. The clock starts for Time Critical Actions in AOP-C.04 when ANY of the entry conditions listed in AOP-N.01 are met.</p> <p>NOTE 2 For JPM performance the clock start for Time Critical Actions is one minute before the operator is notified to perform checklist.</p> <p>STEP 1.: Obtain a copy of the appropriate checklist(s).</p> <p>STANDARD: Operator obtains a copy of AOP-C.04, Checklist 3. (Checklist is obtained by the operator for review prior to entering AOP-C.04)</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p>STEP 2.: [1] OBTAIN the following from AOP-C.04 Cabinet:</p> <ul style="list-style-type: none"> • C415A Key • Flashlight <p>NOTE: The AOP-C.04 cabinet is sealed. It is not necessary to open the cabinet and retrieve the key or a flashlight. Having the operator locate the cabinet and discuss his/her actions will suffice.</p> <p>STANDARD: Operator locates the AOP-C.04 cabinet in the A-A 6.9 KV Shutdown Board Room (north end) and states that they would get a C415A Key and a flashlight.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 3.: Operator is notified that AOP-C.04 has been entered by the MCR, Timing for Time Critical Actions started one minute ago.</p> <p>CUE: <i>Tell OPERATOR that AOP-C.04 has been entered in the Main Control Room for Both units. Timing for Time Critical Actions started one minute ago</i></p> <p>STANDARD: N/A.</p>	<p>Record time AOP-C.04 was entered in MCR (Present time minus 1 minute)</p> <hr/> <p>This time starts the clock for Time Critical Actions</p>

Job Performance Checklist:

STEP/STANDARD						SAT/UNSAT																		
<p>STEP 4. [2] ATTEMPT to STOP both Unit 1 CCP's by.....(5 minutes)</p> <p>[2.a] PLACE CCP transfer switch in AUX (Lift Lever below switch to break seal and allow transfer switch operation)</p> <p>[2.b] ATTEMPT to STOP CCP USING HS on Bkr cmpt</p> <table border="1"> <thead> <tr> <th>CCP</th> <th>Breaker Location</th> <th>Transfer Switch</th> <th>AUX √</th> <th>Control Switch</th> <th>Stopped √</th> </tr> </thead> <tbody> <tr> <td>1A-A</td> <td>6.9 SDBD 1AA Compt 18</td> <td>1-XS-62-108</td> <td><input type="checkbox"/></td> <td>1-HS-62-108C</td> <td><input type="checkbox"/></td> </tr> <tr> <td>1B-B</td> <td>6.9 SDBD 1BB Compt 18</td> <td>1-XS-62-104</td> <td><input type="checkbox"/></td> <td>1-HS-62-104C</td> <td><input type="checkbox"/></td> </tr> </tbody> </table> <p>CUE: <u>1st Shutdown Bd</u> –</p> <ul style="list-style-type: none"> Lever is up and Switch Transferred. Initially CCP has Red Light ON – Green Light OFF. After operator places HS to Stop Bkr has green light ON, Red Light is OFF. <p>CUE: <u>2nd Shutdown Bd</u> –</p> <ul style="list-style-type: none"> Lever is up and Switch Transferred. CCP has Green Light ON – Red Light OFF. <p>STANDARD: Operator places BOTH Xfr switches in AUX and Ensures BOTH CCP are OFF. Critical time 5 minutes from time enter AOP-C.04.</p>						CCP	Breaker Location	Transfer Switch	AUX √	Control Switch	Stopped √	1A-A	6.9 SDBD 1AA Compt 18	1-XS-62-108	<input type="checkbox"/>	1-HS-62-108C	<input type="checkbox"/>	1B-B	6.9 SDBD 1BB Compt 18	1-XS-62-104	<input type="checkbox"/>	1-HS-62-104C	<input type="checkbox"/>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> <p>Time _____</p> <p>Δ minutes from AOP-C.04 entry</p> <p>_____</p> <p>(5 minutes or less to meet critical task)</p>
CCP	Breaker Location	Transfer Switch	AUX √	Control Switch	Stopped √																			
1A-A	6.9 SDBD 1AA Compt 18	1-XS-62-108	<input type="checkbox"/>	1-HS-62-108C	<input type="checkbox"/>																			
1B-B	6.9 SDBD 1BB Compt 18	1-XS-62-104	<input type="checkbox"/>	1-HS-62-104C	<input type="checkbox"/>																			
<p>STEP 5. [3] ENSURE [0-XS-82-122] GEN 1B-B Transfer switch in AUX CONT RM position. [inside SD Bd 1B-B Logic Cabinet panel 4, bottom row]</p> <p>NOTE: DO NOT ALLOW OPERATOR TO OPEN PANEL DOOR – operator can explain process, or show operator Attachment 1- Logic cabinet</p> <p>Cue: Switch is in the AUX position</p> <p>STANDARD: Operator places DG 1B-B Transfer Switch to AUX CONT RM position</p>						<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>																		
<p>STEP 6. [4] CHECK if 6.9KV Shutdown Board 1B-B is Energized – Voltmeter cmpt 12</p> <p>CUE: Voltage is as indicated (or cue ~7000 V)</p> <p>STANDARD: Operator checks SD Bd 1B is energized, using voltmeter on compartment 12, and checks YES box.</p>						<p>___ SAT</p> <p>___ UNSAT</p>																		

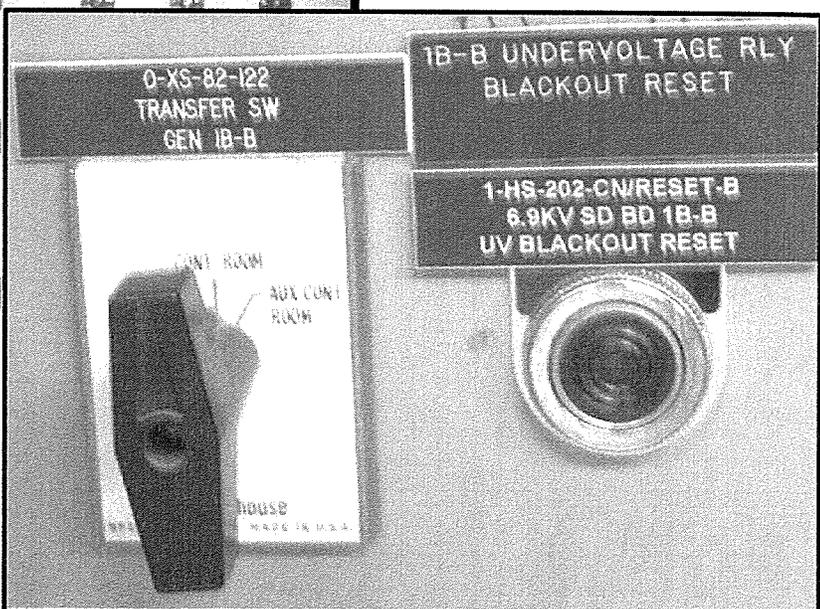
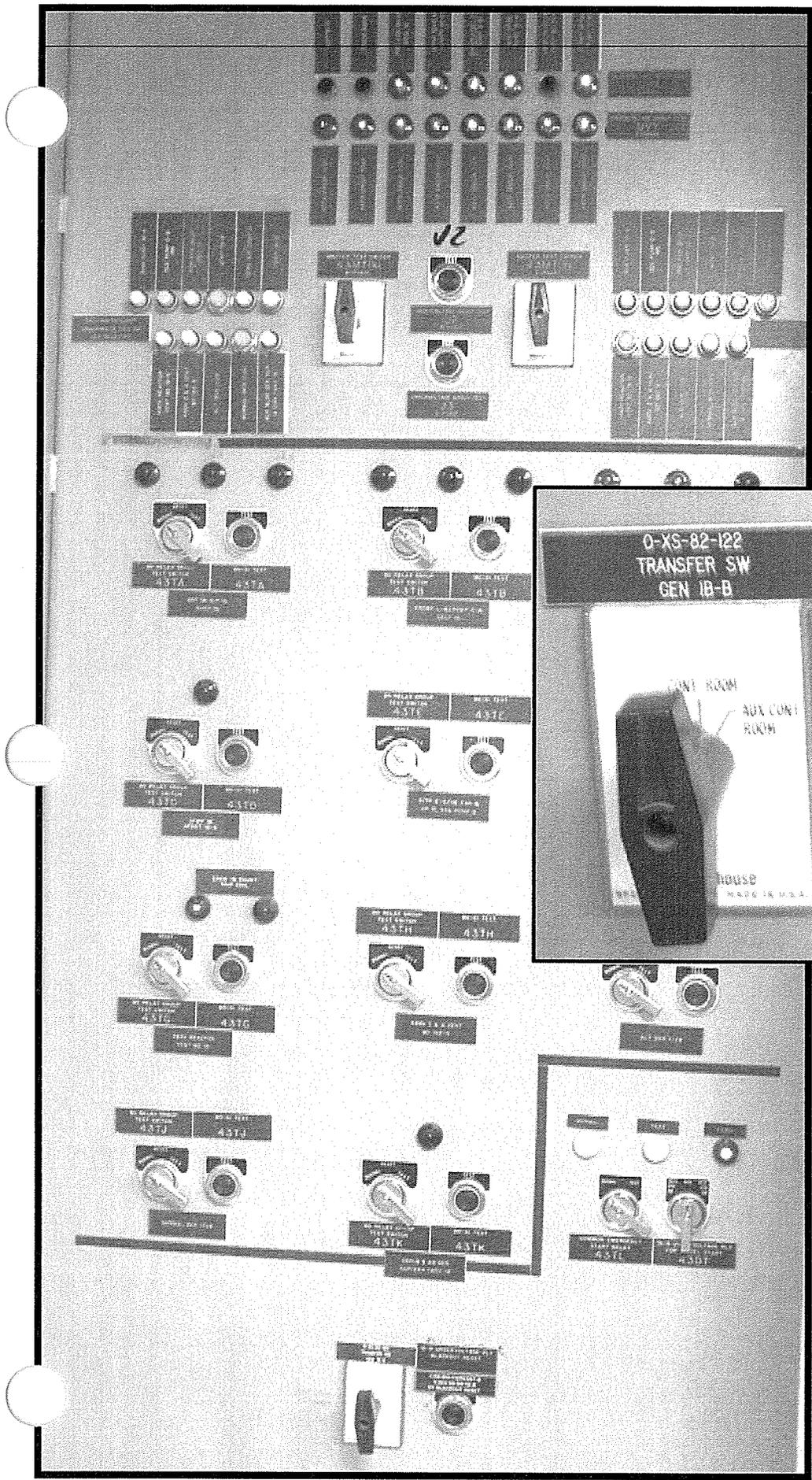
Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT																							
<p>STEP 7. [5] IF 6.9KV Shutdown Bd 1B-B is NOT energized...</p> <p>STANDARD: Operator will N/A this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>																								
<p>STEP 8. [6] PLACE the following transfer switches in AUX position on 6.9KV Shutdown Bd 1B-B:</p> <table border="1" data-bbox="142 579 1175 772"> <thead> <tr> <th>Equipment</th> <th>Compt</th> <th>Switch</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>ALT brk 6.9 UB 1D 1728</td> <td>16</td> <td>1-XS-57-71</td> <td><input type="checkbox"/> AUX</td> </tr> <tr> <td>Nor Supply Brk 6.9 UB 1C 1726</td> <td>11</td> <td>1-XS-57-68</td> <td><input type="checkbox"/> AUX</td> </tr> <tr> <td>ERCW Pump N-B</td> <td>9</td> <td>0-XS-67-452</td> <td><input type="checkbox"/> AUX</td> </tr> <tr> <td>ERCW Pump L-B</td> <td>8</td> <td>0-XS-67-440</td> <td><input type="checkbox"/> AUX</td> </tr> <tr> <td>Emerg Supply Brk 1BB 1914</td> <td>6</td> <td>1-XS-57-73</td> <td><input type="checkbox"/> AUX</td> </tr> </tbody> </table> <p>CUE 1: <i>Latch lifted, XS rotated clockwise, and indicates in the AUX position.</i></p> <p>STANDARD: All Nor/Aux switches, addressed, are correctly placed in the Auxiliary position, and placekeeping boxes are checked.</p>	Equipment	Compt	Switch	Position	ALT brk 6.9 UB 1D 1728	16	1-XS-57-71	<input type="checkbox"/> AUX	Nor Supply Brk 6.9 UB 1C 1726	11	1-XS-57-68	<input type="checkbox"/> AUX	ERCW Pump N-B	9	0-XS-67-452	<input type="checkbox"/> AUX	ERCW Pump L-B	8	0-XS-67-440	<input type="checkbox"/> AUX	Emerg Supply Brk 1BB 1914	6	1-XS-57-73	<input type="checkbox"/> AUX	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
Equipment	Compt	Switch	Position																						
ALT brk 6.9 UB 1D 1728	16	1-XS-57-71	<input type="checkbox"/> AUX																						
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ERCW Pump N-B	9	0-XS-67-452	<input type="checkbox"/> AUX																						
ERCW Pump L-B	8	0-XS-67-440	<input type="checkbox"/> AUX																						
Emerg Supply Brk 1BB 1914	6	1-XS-57-73	<input type="checkbox"/> AUX																						
<p>NOTE: The following step ensures one ERCW pump will sequence on following a blackout. If ERCW pump L-B or N-B is already running (breaker closed), the running pump should be selected.</p> <p>STEP 9: [7] PLACE breaker control switch for ERCW pump L-B OR N-B in START momentarily (1B SD BD cmpt 8 or 9) [If a pump is running the running pump should be selected]</p> <p>CUE: <i>L-B Pump Red Light ON N-B Pump Green Light ON</i></p> <p>STANDARD: Operator ensures the HS for ERCW pump L-B (Compartment 8) on 1B-B 6.9KV shutdown board has been placed to start momentarily. [If N-B pump is started this should be a comment not an Unsat]</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>																								
<p>STEP 10. [8] CHECK if 6.9KV Shutdown Board 1B-B is Energized – Voltmeter cmpt 12</p> <p>CUE: <i>Voltage is as indicated (~7000 Volts)</i></p> <p>STANDARD: Operator checks SD Bd 1BB energized utilizing voltmeter on compartment 12, and checks YES box.</p>	<p>___ SAT</p> <p>___ UNSAT</p>																								

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 11.</u> [9] IF 6.9KV Shutdown Bd 1B-B is NOT energized....</p> <p><u>STANDARD:</u> Operator N/A's this step.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE AUO performing checklist 5 notifies operator performing checklist 3, by face to face communication, that CCP suction is aligned to the RWST.</p> <p><u>STEP 12.</u> [10] WHEN Unit 1 CCP suction has been aligned to the RWST, THEN PERFORM the following [13 minutes]</p> <ul style="list-style-type: none"> • IF CCP 1A-A is NOT running THEN START CCP 1B-B [cmpt 18] <p><u>Cue 1:</u> <i>AUO with Checklist 5 has opened FCV-62-135</i></p> <p><u>NOTE:</u> Operator ensured both CCPs were off earlier and may state this, or may verify 1A-A is not running.</p> <p><u>Cue 2:</u> <i>If checked - 1A-A CCP Green Light only When Operator goes to "START" with 1B-B HS state Red Light ON- Green Light OFF [~ 32 Amps indicated]</i></p> <p><u>STANDARD:</u> Operator STARTS 1B-B CCP. TIME Critical Action 13 minutes from the time AOP-C.04 is entered.</p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p> <p style="text-align: center;">CRITICAL STEP</p> <p style="text-align: center;">Time</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">Δ minutes from AOP-C.04 entry</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">(13 minutes or less to meet critical task)</p>	
<p>NOTE Per initiating cues the operator should notify the ACR that a CCP has been started, and state they have completed their assigned task.</p>		<p style="text-align: center;">STOP Time</p> <p style="text-align: center;">_____</p>

End of JPM



ATTACHMENT 1

READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated. **WHEN ENTERING A UNIT TRIP HAZARD ZONE ENSURE YOU DO NOT TOUCH ANY SWITCHES WITHIN THAT ZONE. DO NOT OPEN ANY COMPARTMENTS.**

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) Both units were operating at 100% power, both units entered AOP-N.01 due to a fire in the spreader room.
- 2) Operators have dispatched AUO's to the AOP-C.04 cabinets. AUO's are standing by awaiting instructions.

INITIATING CUES:

- 1) You are the Control Room AUO and have been directed by the UO to report to the AOP-C.04 Cabinet in the 6.9 KV Shutdown Bd Room A.
- 2) The CRO has assigned you to report to the AOP-C.04 cabinet and review Checklist 3 for performance.
- 3) When notified that AOP-C.04 is entered, Perform Checklist 3.
- 4) NOTIFY the ACR when a CCP has been restored to service.

THIS IS A TIME CRITICAL JPM

Clock Start for Time Critical Actions is one minute prior to the operator being notified to PERFORM the checklist.