

FINAL

ES-301

Control Room/In-Plant Systems Outline

Form ES-301-2

Facility: <u>Sequoyah 1 & 2</u>		Date of Examination: <u>1/2009</u>	
Exam Level: RO <input checked="" type="checkbox"/>	SRO-I <input type="checkbox"/>	SRO-U <input type="checkbox"/>	Operating Test No.: <u>NRC</u>
Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)			
System / JPM Title	Type Code*	Safety Function	
a. 001 Control Rod Drive System (A2.11 4.4/4.7) Perform 0-SI-OPS-085-011.0	N, A, S	1	
b. 003 Reactor Coolant Pump System (A2.03 2.7/3.1) Start #1 RCP in Mode 3 (182-AP)	D, A, L, S	4P	
c. E02 SI Termination (EA1.1 4.0/3.9) Terminate SI and Re-establish Charging Flow (JPM 027)	M, A, S	3	
d. 040 Steam Line Rupture (AA2.01 4.2/4.7) Faulted SG Isolation with MSIV Stuck Open (JPM 058-AP2)	M, A, S	4S	
e. 028 Hydrogen Recombiner and Purge Control System (A4.03 3.1/3.3) Place 1B H2 Analyzer in Service	D, S	5	
f. 008 Component Cooling Water System (A3.02 3.2/3.2) Swap Thermal Barrier Booster Pumps (JPM 073)	D, S	8	
g. 015 Nuclear Instrumentation System (A4.02 3.9/3.9) Reinstate Source Range Detectors (JPM 119-AP)	D, A, L, S	7	
h. 064 Emergency Diesel Generators (A1.08 3.1/3.4) Perform D/G Load Test on 1B-B D/G (JPM 077)	D, S	6	
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)			
i. 004 Chemical and Volume Control System (A2.14 3.8/3.9) Perform Boration of RCS from Outside MCR (JPM 006)	D, E, R	1	
j. 062 Loss of Nuclear Service Water (AK3.03 4.0/4.2) Installation of Temporary Cooling (HPFP) to CCP 1A-A or 1B-B Oil Coolers	D, E, R	4S	
k. 064 Emergency Diesel Generators (K1.05 3.4/3.9) Align Starting Air for Service on 2A-A D/G (JPM 023-2)	D	6	
<p>[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>			

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

JPM Summary

- A. The rod exercise surveillance instruction will be performed for 2 banks of control rods. During the second bank movement, the rod will be moving without a demand and result in a trip of the reactor being required. New alternate path JPM
- B. With the plant in Mode 3 and the other RCPs already running, RCP #1 will be placed in service. After starting RCP #1 will experience high stator winding temperatures which will require the pump to be stopped. Bank alternate path low power JPM.
- C. With the shutdown boards being powered from the diesel generator, the steps to terminate ECCS flow and to re-establish charging flow in accordance with ES-1.1, SI Termination will be required. JPM will require using procedure RNOs to lock out a charging pump and to address the failure of the normal charging valve to open. Bank modified alternate path JPM.
- D. Response to a faulted SG with a stuck open MSIV will require completing steps to identify and isolate the faulted SG in accordance with E-2, Faulted Steam Generator Isolation. Bank modified alternate path JPM.
- E. 1B Hydrogen analyzer will be restored to service following maintenance in accordance with the system operating instruction. Bank JPM
- F. Swapping thermal barrier booster pumps will require starting the 1A-A pump and securing the 1B-B pump in accordance with 1-SO-70-1, Component Cooling Water System "A" Train. Bank JPM.
- G. A failed Intermediate Range channel will require manually reinstating Source Range detectors following a reactor trip in accordance with ES-0.1, Reactor Trip Response. Bank alternate path JPM.
- H. An operability test of D/G 1B-B will require manually starting and loading the D/G in accordance with 1-SI-OPS-082-007.B, Electrical Power System Diesel Generator 1B-B. Bank JPM.
- I. Evacuation of the Main Control Room will require manually boration the RCS using the emergency boration valve in accordance with AOP-C.04, Control Room Inaccessibility. Bank JPM.
- J. The locations, connections, and alignment required to establish temporary cooling to CCP-1A-A in accordance with AOP-M.01 due to a loss of ERCW. Bank JPM
- K. Completion of maintenance work on the 2A-A D/G starting air system will require aligning the system for service in accordance with 0-SO-82-7, Diesel Generator 2A-A Support Systems. Bank JPM.

Facility: <u>Sequoyah 1 & 2</u>		Date of Examination: <u>1/2009</u>	
Exam Level: RO <input type="checkbox"/>		SRO-I <input checked="" type="checkbox"/>	
SRO-U <input type="checkbox"/>		Operating Test No.: <u>NRC</u>	
Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)			
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f. 008 Component Cooling Water System (A3.02 3.2/3.2) Swap Thermal Barrier Booster Pumps (JPM 073)	D, S	8	
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i. 004 Chemical and Volume Control System (A2.14 3.8/3.9) Perform Boration of RCS from Outside MCR (JPM 006)	D, E, R	1	
j. 062 Loss of Nuclear Service Water (AK3.03 4.0/4.2) Installation of Temporary Cooling (HPFP) to CCP 1A-A or 1B-B Oil Coolers	D, E, R	4S	
k. 064 Emergency Diesel Generators (K1.05 3.4/3.9) Align Starting Air for Service on 2A-A D/G (JPM 023-2)	D	6	
<p>[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>			

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(EN)gineered safety feature	- / - / ≥ 1 (control room system)
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(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

JPM Summary

- A. The rod exercise surveillance instruction will be performed for 2 banks of control rods. During the second bank movement, the rod will be moving without a demand and result in a trip of the reactor being required. New alternate path JPM
- B. With the plant in Mode 3 and the other RCPs already running, RCP #1 will be placed in service. After starting RCP #1 will experience high stator winding temperatures which will require the pump to be stopped. Bank alternate path low power JPM.
- C. With the shutdown boards being powered from the diesel generator, the steps to terminate ECCS flow and to re-establish charging flow in accordance with ES-1.1, SI Termination will be required. JPM will require using procedure RNOs to lock out a charging pump and to address the failure of the normal charging valve to open. Bank modified alternate path JPM.
- D. Response to a faulted SG with a stuck open MSIV will require completing steps to identify and isolate the faulted SG in accordance with E-2, Faulted Steam Generator Isolation. Bank modified alternate path JPM.
- E. 1B Hydrogen analyzer will be restored to service following maintenance in accordance with the system operating instruction. Bank JPM
- F. Swapping thermal barrier booster pumps will require starting the 1A-A pump and securing the 1B-B pump in accordance with 1-SO-70-1, Component Cooling Water System "A" Train. Bank JPM.
- G. A failed Intermediate Range channel will require manually reinstating Source Range detectors following a reactor trip in accordance with ES-0.1, Reactor Trip Response. Bank alternate path JPM.
- H. NOT USED
- I. Evacuation of the Main Control Room will require manually boration the RCS using the emergency boration valve in accordance with AOP-C.04, Control Room Inaccessibility. Bank JPM.
- J. The locations, connections, and alignment required to establish temporary cooling to CCP-1A-A in accordance with AOP-M.01 due to a loss of ERCW. Bank JPM
- K. Completion of maintenance work on the 2A-A D/G starting air system will require aligning the system for service in accordance with 0-SO-82-7, Diesel Generator 2A-A Support Systems. Bank JPM.

**SEQUOYAH NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

JPM B.1.a

FINAL

**Perform 0-SI-OPS-085-011.0
Reactivity Control Systems
Moveable Control Assemblies**

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/REVISED BY:
0	New JPM	Y		All	

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. **Place MODE 1 sign on the simulator.**
4. This task is to be performed using the simulator in **IC 13**.
Ensure Rod Control Mode Selector Switch in **CBB position**.
5. *When the candidate begins inserting Control Bank D, insert **Malfunction RD02 with severity to "0" (uncontrolled insertion fo Bank D group 2)***
6. 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-SI-OPS-085-011.0

References:

	Reference	Title	Rev No.
1.	0-SI-OPS-085-011.0	Reactivity Control Systems Moveable Control Assemblies	28
2.	AOP-C.01	Rod Control System Malfunctions	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 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 at 48% power with a startup in progress.
2. 0-SI-OPS-085-011.0, "Reactivity Control System Moveable Control Assemblies", is in progress.

INITIATING CUES:

1. You are to perform 0-SI-OPS-085-011.0 to verify rod operability for Control Banks C and D starting at Section 6.1.7, Control Bank C.
2. Notify the SRO when the performance of the sections for Control Banks C and D are complete.

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Obtain the appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains 0-SI-OPS-085-011.0 Section 6.1.7</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p>CAUTION 1 An RPI position exceeding 12 steps (indicated position) from its respective group step counter is INOPERABLE.</p> <p>CAUTION 2 When a demand signal is present the rods may drop if moving the rod control handswitch from manual or auto to bank select because a step may be in progress.</p> <p><u>STEP 2.:</u> [1] IF [HS-85-5110], Rod Control Mode Selector Switch, is to be rotated through AUTO position, THEN ENSURE computer points [T0499A] and [T0496A] are within 1.0°F of each other.</p> <p><u>STANDARD:</u> Candidate marks the step as not applicable (N/A) because the switch will not be rotated through the AUTO position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> [2] PLACE [HS-85-5110] Rod Control Mode Selector Switch to Control Bank C position (CBC).</p> <p><u>STANDARD:</u> Candidate places 1-HS-85-5110, Rod Control Mode Selector to the CBC position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>CAUTION Insertion of Control Bank C may cause a decrease in RCS Tavg and RCS pressure resulting in operation of the backup heaters.</p> <p>NOTE 1 Window D-4, COMPUTER ALARM ROD DEV AND SEQ NIS PWR RANGE TILTS will Alarm if Control Bank C position is inserted lower than the stored Plant Computer All Rods Out (ARO) position.</p> <p>NOTE 2 Window A-7, ROD CONTROL BANKS LIMIT LOW should alarm if Control Bank C position is inserted below the Low Insertion Limit Alarm Block (225 ± 2 steps) and within 10 steps of the Low - Low Insertion Limit. (T.S. 3.1.3.6 or ZR-85-5070 Rod Insertion Limit Recorder may be used to determine Lo-Lo insertion limit.)</p> <p>NOTE 3 Window B-7, ROD CONTROL LIMIT LOW-LOW, may annunciate during testing on Control Bank C based on initial rod position and power level. Refer to Rod Insertion Limits in the COLR.</p> <p>NOTE 4 Group Step Counter may be required to indicate > 10 step movement to ensure each Rod Position Indicator has moved a minimum of 10 steps.</p>	
<p><u>STEP 4.:</u> [3] INSERT Control Bank C a minimum of 10 steps with [HS-85-5111] Rod Control Switch.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STANDARD:</u> Candidate places 1-HS-85-5111,Rod Control to the IN position until the Control Bank C rods move in at least 10 steps.</p> <p style="padding-left: 40px;">Note – the alarms in NOTE 1 and NOTE 2 above above will come in after the rods have been inserted several steps</p>	<p>Critical Step</p>
<p><u>COMMENTS:</u></p>	

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5:</u> [4] VERIFY the following: GROUP STEP COUNTER MOVEMENT ≥10 STEPS ALL ROD POSITION INDICATORS MOVEMENT ≥10 STEPS</p> <p><u>STANDARD:</u> Candidate verifies step counters 1-XI-85-5105C1 and 1-XI-85-5105C2 decrease by at least 10 steps</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>
<p>CAUTION Exercise caution when returning bank to the initial conditions so as NOT to exceed the fully withdrawn position.</p> <p><u>STEP 6:</u> [5] WITHDRAW Control Bank C to INITIAL position with [HS-85-5111] Rod Control Switch.</p> <p><u>STANDARD:</u> Candidate places 1-HS-85-5111,Rod Control, to the OUT position until the Control Bank C rods are restored to the original position of 228 steps. Required to be withdrawn to minimum of 225 steps and maximum of 231 steps to meet critical step criteria.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 7:</u> [6] IF Rods are withdrawn greater than 231 steps on the group demand rod position indicator, THEN PERFORM Appendix B to reference Step Demand Counters</p> <p><u>STANDARD:</u> Candidate marks the step as not applicable (N/A) unless rods were withdrawn greater than 231 steps. If so, then Appendix B must be performed and the step would become a critical step.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 8: [7] IF COMPUTER ALARM ROD DEV AND SEQ NIS PWR RANGE TILTS and/or ROD CONTROL BANKS LIMIT LOW alarms present THEN RESET alarms with XS-55-4A Annunciator, RESET-ACK-TEST switch.</p> <p><u>STANDARD:</u> Candidate resets the alarms using 1-XS-55-4A if lit.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE Insertion of rods below the stored Plant Computer All Rods Out position will result in an alarm.</p> <p>STEP 9: [8] ENSURE plant computer rod deviation alarm has cleared.</p> <p><u>STANDARD:</u> Candidate verifies plant computer rod deviation alarm window D-4 on 1-M-4 overhead annunciator 1-XA-55-4B is not lit. May also check the alarm clear on ICS alarm screen</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>ACCEPTANCE CRITERIA: 1. Each RPI and Demand Indicator indicates a 10 step movement in the desired direction and in proper sequence. 2. Group Demand Indicator is returned to original position and all RPI's are within 12 steps of demand position.</p> <p>CAUTION Plant Technical Specification LCO 3.1.3.1 Moveable Control Assemblies, LCO 3.1.3.2 Position Indicating Systems, and LCO 3.1.3.6 Control Rod Insertion Limits must be evaluated if the acceptance criteria are NOT fulfilled. Performance of 0-SI-NUC-000-038.0 may be required within 1 hour.</p> <p><u>STEP 10.:</u> [9] VERIFY Acceptance Criteria for operability of Control Bank C Group Demand Position Indicators (step counters) and RPI's are FULFILLED.</p> <p><u>STANDARD:</u> Candidate determines the Acceptance Criteria for operability is met.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 11.:</u> [10] IF Acceptance Criteria for operability of Control Bank C Group Demand Position Indicators (step counters) and RPIs are NOT FULFILLED, THEN NOTIFY the Unit Supervisor and comply with Technical Specifications.</p> <p><u>STANDARD:</u> Candidate marks the step as not applicable (N/A).</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 12.:</u> [11] IF performance of another bank is desired, THEN CONTINUE instruction to next subsection in accordance with Section 6.1.</p> <p><u>STANDARD:</u> Candidate continues to section 6.1.8 to perform test on Control Bank D.</p>	<p>___ SAT ___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 13.: [12] IF performance of another bank is NOT desired, THEN GO TO Section 7.2, Restoration.</p> <p><u>STANDARD:</u> Candidate marks the step as not applicable (N/A). Step may or may not be addressed.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>The following steps are contained in Section 6.1.8 of 0-SI-OPS-085-011.0.</p>	
<p>CAUTION 1 An RPI position exceeding 12 steps (indicated position) from its respective group step counter is INOPERABLE.</p> <p>CAUTION 2 When a demand signal is present the rods may drop if moving the rod control handswitch from manual or auto to bank select because a step may be in progress.</p> <p>STEP 14.: [1] IF [HS-85-5110], Rod Control Mode Selector Switch, is to be rotated through AUTO position, THEN ENSURE computer points [T0499A] and [T0496A] are within 1.0°F of each other.</p> <p><u>STANDARD:</u> Candidate determines 1-HS -85-5110 will not be rotated through AUTO and marks the step as not applicable (N/A)</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 15.: [2] PLACE [HS-85-5110] Rod Control Mode Selector Switch to Control Bank D position (CBD).</p> <p><u>STANDARD:</u> Candidate places 1-HS-85-5110, Rod Control Mode Selector to the CBD position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>Console Operator: INSERT MALFUNCTION RD02 when the Control Bank D Rods are being inserted.</p>	

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p><i>JPM Alternate Path begins during the performance of the next step.</i></p>	
<p>CAUTION Insertion of Control Bank D may cause a decrease in RCS Tavg and RCS pressure resulting in operation of the backup heaters.</p> <p>NOTE 1 Window A-7, ROD CONTROL BANKS LIMIT LOW will alarm if Control Bank D position is within 10 steps of the Low - Low Insertion Limit. (T.S. 3.1.3.6 or ZR-85-5070 Rod Insertion Limit Recorder may be used to determine Lo-Lo insertion limit.)</p> <p>NOTE 2 Group Step Counter may be required to indicate > 10 step movement to ensure each Rod Position Indicator has moved a minimum of 10 steps.</p> <p>NOTE 3 Window C-11, BANK D AUTO ROD WITHDRAWAL BLOCKED, will clear and reinitiate during testing if Bank D is above 220 steps prior to testing.</p> <p><u>STEP 16:</u> [3] INSERT Control Bank D a minimum of 10 steps with [HS-85-5111] Rod Control Switch.</p> <p><u>STANDARD:</u> Candidate places 1-HS-85-5111, Rod Control to the IN position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>The following step is contained in AOP-C.01, section 2.1.</p>	
<p><u>STEP 17:</u> [1] STOP uncontrolled rod motion [a] PLACE rod control in MAN. [b] CHECK rod motion stopped.</p> <p>RNO b. TRIP the reactor, and GO TO E-0, Reactor Trip or Safety Injection</p> <p><i>Cue: After the reactor trip breakers have been opened state ' We will stop here'</i></p> <p><u>STANDARD:</u> Candidate determines that uncontrolled bank movement is occurring and opens the reactor trip breakers in accordance with AOP-C.01. May not open the AOP prior to tripping the reactor</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> <p>Stop Time_____</p>

End of JPM

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION 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, including any required communications. I will provide initiating cues and reports on other actions when directed by you. 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 at 48% power with a startup in progress.
2. 0-SI-OPS-085-011.0, "Reactivity Control System Moveable Control Assemblies", is in progress.

INITIATING CUES:

1. You are to perform 0-SI-OPS-085-011.0 to verify rod operability for Control Banks C and D starting at Section 6.1.7, Control Bank C.
2. Notify the SRO when the performance of the sections for Control Banks C and D are complete.

**SEQUOYAH NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

B.1.b

JPM 182-AP

FINAL

Start #1 RCP in Mode 3

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s".
2. Any UNSAT requires comments.
3. Initialize the simulator in IC-179. If not available, initialize to IC#7, Stop the #1 RCP.
 - Have RCP data screen on ICS.
 - Set NR-45 to display one SRM and one IRM
 - Freeze the simulator.
 - Hand the marked up procedure (Section 5.1 through step 10) to the candidate
4. Place the Simulator in RUN when the operator assumes the task.
5. Booth operator will be required to **Insert the SCN File RCPHEATUP.scn during the JPM**
6. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

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

Tools/Equipment/Procedures Needed:
1-SO-68-2

References:

	Reference	Title	Rev No.
1.	1-SO-68-2	Reactor Coolant Pumps	30

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READ TO OPERATOR

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INITIAL CONDITIONS:

1. Unit 1 is in Mode 3
2. Preparations are being made to start #1 RCP.
3. All precautions and prerequisites are complete.
4. 1-SO-68-2, "Reactor Coolant Pumps", Section 5.1, steps 1 through 10 are complete

INITIATING CUES:

1. You have been directed to start the Loop 1 RCP in accordance with 1-SO-68-2, "Reactor Coolant Pumps", beginning at Section 5.1 step 11.
2. Notify the US when the procedure is complete.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>REAC COOL PMPS OIL LIFT PRESS LOW <i>annunciation will come in and clear during performance of the next step.</i></p>	
<p><u>STEP 1.:</u> [11] PLACE [1-HS-68-84A] No. 1 RCP Lift Oil Pump in the START position.</p> <p><u>STANDARD:</u> Places 1-HS-68-84A in start.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> <p>Start Time _____</p>
<p><u>STEP 2.:</u> [12] WHEN Lift Oil Pump for No. 1 RCP has run ≈2 minutes, THEN ANNOUNCE No. 1 RCP start on the P/A system.</p> <p><u>STANDARD:</u> Makes announcement over PA system</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> [13] IF no RCPs are running AND RCP No. 1 is the first RCP to be started, THEN MONITOR the SRMs during startup of the RCP.</p> <p><u>STANDARD:</u> Operator determines other 3 RCPs are running and N/As this step</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>VIBRATION & LOOSE PARTS MONITORING ALM <i>alarm will come in when RCP is Started, Operator may dispatch AUO and Predictive Maintenance personnel to check. If so, acknowledge the direction.</i></p>	
<p><u>STEP 4.:</u> [14] PLACE [1-HS-68-8A] No. 1 RCP in the START position.</p> <p><u>STANDARD:</u> Places 1-HS-68-8A in start</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>Booth Instructor Note:</u> Insert the SCN File RCPHEATUP.scn here</p> <p>The motor will start heating up and result in the REAC COOL PMPS MOTOR STATOR TEMPERATURE HIGH alarm on 1-M-5, Window E-1 on 1-XA-55-5B after the pump is started.</p>	

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5.:</u> [15] ENSURE No. 1 RCP motor and pump are operating within the parameters listed in Appendix D.</p> <p><u>STANDARD:</u> References Appendix D and observes parameters</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><i>JPM steps 6 and 7 may not be performed due to responding to the alarm</i></p>	
<p><u>STEP 6.:</u> [16] ENSURE [1-TCV-67-86] RCP Motor Cooler 1A is OPEN (1-HS-67-86 red light illuminated).</p> <p><u>STANDARD:</u> Verifies 1-TCV-67-86 is open</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7.:</u> [17] WHEN Lift Oil Pump has run greater than 1 minute after RCP start, THEN PLACE [1-HS-68-84A] No. 1 RCP Lift Oil Pump in the STOP position.</p> <p><u>STANDARD:</u> Places 1-HS-68-84A in STOP position</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>The following step applies after the REAC COOL PMPS MOTOR STATOR TEMPERATURE HIGH alarms on Window E-1 on 1-XA-55-5B.</p>	
<p><u>STEP 8.:</u> Responds to the alarm and/or observes rise in RCP motor stator temperatures.</p> <p><u>STANDARD:</u> Determines that RCP operating parameters are not normal. May determine the 1-SO-68-5 Appendix D limit is exceeded and stopping the RCP is necessary or may implement the annunciator respond procedure.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><i>If the actions contained in the Annunciator Response Procedure(ARP) are implemented, JPM steps 10-20 cover the actions directed by the ARP and AOP to stop the RCP. If RCP is stopped without implementing the ARP, JPM 9 step will end the JPM</i></p>	


Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 9.: STOP Loop 1 RCP</p> <p><u>STANDARD:</u> Places 1-HS-68-8A to the STOP position.</p> <p>Cue: If the RCP is stopped, State "We'll Stop Here"</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step unless step 20 is performed</p>
<i>The following steps are from the Annunciator Response Procedure</i>	
<p>STEP 10.:</p> <p>[1] DETERMINE which pump is in alarm by monitoring computer points.</p> <p>Pump 1: Point T0409A, 411A or 412A (A,B, & C Ø) Pump 2: Point T0429A, 431A or 432A (A,B, & C Ø) Pump 3: Point T0449A, 451A or 452A (A,B, & C Ø) Pump 4: Point T0469A, 471A or 472A (A,B, & C Ø)</p> <p><u>STANDARD:</u> Determines RCP #1 is in alarm from the ICS display.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 11.:</p> <p>[2] CONTACT Tech Support to obtain engineering assistance in determining the validity of the alarm.</p> <p><u>STANDARD:</u> Contacts Tech support for assistance..</p> <p>Cue: If Tech Support contacted, Acknowledge the request.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 12.:</p> <p>[3] MONITOR the following parameters for increasing trends:</p> <p>a. Motor Current b. Bearing Temperatures c. Pump/Motor Vibration d. Containment Air Temperatures</p> <p><u>STANDARD:</u> Monitors the listed parameters and determines each is normal.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 13.:</p> <p>[4] ENSURE ERCW aligned to pump cooler.</p> <p><u>STANDARD:</u> Determines ERCW aligned to pump cooler. Checks Red light lit 1-HS-67-86 to on 0-M-27A</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>



Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 14.:</u></p> <p>[5] VERIFY ERCW system temperature and pressure normal.</p> <p><u>STANDARD:</u> Determines ERCW system temperature and pressure normal using indications on ICS. (Pressure could also be checked on 0-M-27A.)</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15.:</u></p> <p>[6] VERIFY lower compartment air temperature normal.</p> <p><u>STANDARD:</u> Determines lower compartment air temperature normal using indications on Trend Recorder on 1M-1 (green pen) or ICS point 1UO983.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16.:</u></p> <p>[7] REFER TO 1-SO-68-2 for RCP operating limits.</p> <p><u>STANDARD:</u> Refers to 1-SO-68-2 Appendix D for the operating limits.</p> <p>Note: If the RCP is stopped after determining the 311°F motor winding temperature limit exceeded using Appendix D, then go back to JPM step 9</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 17.:</u></p> <p>[8] IF Ops/Engineering determines alarm is valid, THEN PERFORM the following:</p> <p>[a] CHECK pump motor amps. (normal 415 amps with 608 amps maximum.)</p> <p>[b] IF RCP motor amps approach 608 amps, THEN GO TO AOP-R.04, Reactor Coolant Pump Malfunctions.</p> <p><u>STANDARD:</u> Determines motor amps are normal.</p> <p>Cue: If Ops or Engineering contacted, state, "The alarm is valid".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 18.:</p> <p>[9] IF Ops/Engineering determines alarm is valid and pump motor stator temperature approaches 311°F (329°F for RCS temperature less than 540°F), THEN GO TO AOP-R.04, Reactor Coolant Pump Malfunctions.</p> <p>STANDARD: Determines the motor winding temperature is greater than 311°F using the ICS and Goes to AOP-R.04.</p> <p>Cue: If Ops or Engineering contacted, state, "The alarm is valid".</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><i>The following 2 steps are AOP-R.06, Section 2.4 Step 1 and Section 2.1 Step 1-3 respectively</i></p>	
<p>STEP 19.:</p> <p>CAUTION: Operating the RCP with excess winding temperature will reduce the expected life of the motor insulation.</p> <p>NOTE: RCP motor winding temperature limits are as follows:</p> <ul style="list-style-type: none"> • 329°F if RCS temperature is less than 540°F. • 311°F if RCS temperature is greater than or equal to 540°F. <p>1. MONITOR RCP Motor Stator temperature less than applicable limit by monitoring the following computer points:</p> <ul style="list-style-type: none"> • Pump 1: T0409A, 411A or 412A • Pump 2: T0429A, 431A or 432A • Pump 3: T0449A, 451A or 452A • Pump 4: T0469A, 471A or 472A <p>a. IF RCP Motor Stator temperature reaches applicable limit AND indication is verified valid, THEN PERFORM the following:</p> <p>1) IF reactor power less than 20%, THEN GO TO Section 2.1, RCP Tripped or Shutdown Required. [C.1]</p>  <p>STANDARD: Determines the motor winding temperature is greater than 311°F using the ICS and Goes to AOP-R.04.</p> <p>Cue: If Ops or Engineering contacted, state, "The alarm is valid".</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 20.:</u></p> <p>2.1 Reactor Coolant Pump Tripped or Shutdown Required</p> <p>CAUTION: A rapid drop in level and steam flow on the affected loop S/G may occur when RCP is tripped.</p> <p>1. CHECK unit in Mode 1 or 2. GO TO Step 3.</p> <p style="text-align: center;"></p> <p>NOTE: This procedure is intended to be performed concurrently with E-0, Reactor Trip or Safety Injection.</p> <p>2. TRIP the reactor, and</p> <p>GO TO E-0, Reactor Trip or Safety Injection, WHILE continuing in this procedure.</p> <p style="text-align: center;"></p> <p>3. STOP and LOCK OUT affected RCP(s).</p> <p><u>STANDARD:</u> Determines plant not in Mode 1 or 2, goes to step 3 in accordance with the RNO and stops and Locks out the RCP.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step unless RCP stopped in JPM Step 9.</p>

END of JPM

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

1. Unit 1 is in Mode 3
2. Preparations are being made to start #1 RCP.
3. All precautions and prerequisites are complete.
4. 1-SO-68-2, "Reactor Coolant Pumps", Section 5.1, steps 1 through 10 are complete.

INITIATING CUES:

1. You have been directed to start the Loop 1 RCP in accordance with 1-SO-68-2, "Reactor Coolant Pumps", beginning at Section 5.1 step 11.
2. Notify the US when the procedure is complete.

**SEQUOYAH NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**JPM B.1.c
(#027AP)
Modified**

FINAL

**Terminate SI and Re-Establish
Charging Flow**

NUCLEAR TRAINING
REVISION/USAGE LOG

Revision Number	Description Of Revision	V	Date	Pages Affected	Prepared/ Revised By:

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "S"
2. Any UNSAT requires comments
3. Acknowledge any associated alarms.
4. **Snapshot taken to IC 192** (5 and 6 below not required unless snapshot unavailable)
5. Initialize Simulator in 16 and activate **IMF RP04B f:1** [False Auto SIS, Hi Cntmt Press.]
Then insert **IMF ED01** to cause a loss of offsite power and allow DGs to recover the shutdown boards. Insert override ZDIHS6286A to F:0 to override normal charging valve closed.
6. FREEZE simulator after performing E-0 (including ES-0.5) through step #14.
7. An extra operator can be used to acknowledge alarms not associated with the JPM.
8. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 14 mins **Local** _____

Tools/Equipment/Procedures Needed:
ES-1.1

References:

	Reference	Title	Rev No.
1	ES-1.1	SI Termination	10

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READ TO OPERATOR

DIRECTIONS TO TRAINEE:

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INITIAL CONDITIONS:

- Unit 1 has experienced a spurious Safety Injection followed by a loss of off site power.
- All equipment operated as expected.

INITIATING CUES:

1. The crew entered E-0, Reactor Trip or Safety Injection and transitioned to ES-1.1, SI Termination.
2. The US directs you to complete ES-1.1 through the point of establishing charging flow.
3. Notify the Unit Supervisor when the steps to establish charging flow have been completed.

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1:</u> Obtain a copy of the procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of ES-1.1, SI Termination.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p>NOTE This procedure has a foldout page.</p> <p><u>STEP 2:</u> [1] MONITOR if containment spray should be stopped:</p> <p>a. CHECK any containment spray pump RUNNING.</p> <p><u>STANDARD:</u> Candidate determines NO Spray Pump is running and proceeds to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>The following step is the RNO for the step above</p>	
<p><u>STEP 3:</u> a. GO TO Step 3 .</p> <p><u>STANDARD:</u> Candidate to step 3 in the procedure.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> [3] RESET SI signal</p> <p><u>STANDARD:</u> Operator depresses SI Reset pushbuttons 1-HS-63-134A and 1-HS-63-134B on 1-M-6 [and checks that the "SI ACTUATED" permissive is DARK and that the "AUTO SI BLOCKED" permissive is lit (panel 1-M-4 XA-55-4A)] information inside [] not critical</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist

	STEP/STANDARD	SAT/UNSAT
<u>STEP 5:</u>	[4] MONITOR shutdown boards continuously energized. <u>STANDARD:</u> Operator addresses monitoring the SD Bds continuously energized. <u>COMMENTS:</u>	___ SAT ___ UNSAT
<u>STEP 6:</u>	[5] ENSURE only 1 CCP Running a. Check off-site power supplying shutdown boards. <u>STANDARD:</u> Operator determines that off-site power is not aligned to shutdown boards by noting the boards energized from the diesel generators and goes to the RNO. <u>COMMENTS:</u>	___ SAT ___ UNSAT
The following step is the RNO for the step above		
<u>STEP 7:</u>	a. ENSURE one CCP in PULL TO LOCK. GO TO Step 6 <u>STANDARD:</u> Operator determines both CCPs running, places the control switch for one of the charging pumps in the STOP position, (1-HS-63-108 or 1-HS-63-104), [verifies pump stops - green light comes "on", amps go to zero,] and then pulls to handswitch to the Pull-to-Lock position. <u>COMMENTS:</u>	___ SAT ___ UNSAT Critical Step
<u>STEP 8:</u>	[6] CHECK the RCS pressure stable or rising <u>STANDARD:</u> Operator verifies RCS pressure - stable or rising from RCS pressure indicators on control boards <u>COMMENTS:</u>	___ SAT ___ UNSAT

Job Performance Checklist

STEP/STANDARD

SAT/UNSAT

<i>Performance of either JPM Step 9 or Step 10 will satisfy Critical Step requirement for both steps. Step 9 is critical only if Step 10 not performed and Step 10 critical only if Step 9 not performed. (Either FCV 62-39 and 40 must be closed or FCV 62-25 and 26 must be closed.)</i>		
<p><u>STEP 9:</u> [7] ISOLATE CCPIT: a. CLOSE CCPIT inlet isolation valves FCV-63-39 and FCV-63-40.</p> <p><u>STANDARD:</u> Operator closes FCV-63-39 and FCV-63-40 as indicated by green light only lit by placing 1-HS-63-39A and 1-HS-63-40A to close on 1-M-6.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p> <p style="text-align: center;">Critical Step <i>if Step 10 not performed</i></p>	
<p><u>STEP10:</u> b. CLOSE CCPIT outlet isolation valves FCV-63-25 and FCV-63-26</p> <p><u>STANDARD:</u> Operator closes FCV-63-25 and FCV-63-26 as indicated by green light only lit by placing 1-HS-63-25A and 1-HS-63-26A to close on 1-M-6.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p> <p style="text-align: center;">Critical Step <i>if Step 9 not performed</i></p>	
<p><u>STEP 11:</u> [8] ESTABLISH charging flow: a. CLOSE seal water flow control valve FCV-62-89.</p> <p><u>STANDARD:</u> Operator closes FCV-62-89 by dialing 1-HIC-62-89A to 100% [CLOSED] on 1-M-5.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>	
<p><u>STEP 12:</u> b. OPEN charging flow isolation valves FCV-62-90 and 91.</p> <p><u>STANDARD:</u> Operator opens both FCV-62-90 and 91 as indicated by red light only lit by placing 1-HS-62-90A and 1-HS-63-91A to open on 1-M-6.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p> <p style="text-align: center;">Critical Step</p>	

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 13: c. ENSURE normal charging isolation valve FCV-62-86 OPEN.</p> <p>STANDARD: Operator verifies FCV-62-86 is closed and cannot be opened by green light lit on 1-HS -62-86A on 1-M-6 and goes to the RNO.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
The following step is the RNO for the step above	
<p>STEP 14: c. ENSURE alternate charging isolation valve FCV-62-85 OPEN.</p> <p>STANDARD: Operator places 1-HS-62-85 to OPEN to open FCV-62-85 [valve can be verified open by RED light lit and, GREEN light out on handswitch 1-M-6</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p style="text-align: center;">Critical Step</p>
<p>STEP 15: d. ESTABLISH desired charging flow USING seal water and charging flow control valves FCV-62-89 and FCV-62-93.</p> <p>STANDARD: Operator adjusts 1-HIC-62-89A & 1-HIC-62-93A to establish Seal injection flow 6-12 gpm on FIs-62-1, 14, 27, 40</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 16: [9] CONTROL charging flow to maintain pressurizer level.</p> <p>STANDARD: Operator determines that pressurizer level is not dropping and is rising until letdown is restored</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 18: Operator notifies the Unit Supervisor that charging flow is established.</p> <p>STANDARD: Operator makes notification to the Unit Supervisor that charging flow has been established.</p> <p>CUE: State "We'll stop here."</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time ___</p>

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

DIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

- Unit 1 has experienced a spurious Safety Injection followed by a loss of off site power.
- All equipment operated as expected.

INITIATING CUES:

1. The crew entered E-0, Reactor Trip or Safety Injection and transitioned to ES-1.1, SI Termination.
2. The US directs you to complete ES-1.1 through the point of establishing charging flow.
3. Notify the Unit Supervisor when the steps to establish charging flow have been completed.



SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

B.1.d

**JPM # 58AP-2
modified**

FINAL

**FAULTED STEAM GENERATOR ISOLATION
WITH MSIV STUCK OPEN**

NUCLEAR TRAINING REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0					

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: Faulted Steam Generator Isolation With MSIV Stuck OPEN

Note: This JPM satisfies Simulator Manipulation "Z".

JATA task # : 0001060501 (RO)

K/A Rating:

040 Steam Line Rupture
Ability to determine and interpret the following as they apply to the Steam Line Rupture:
(CFR: 43.5 / 45.13)
AA2.01 Occurrence and location of a steam line rupture from pressure and flow indications.
4.2 / 4.7

Task Standard:

Faulted S/G (#1) is isolated in accordance with E-2.

Evaluation Method : Simulator X In-Plant _____

=====
Performer: _____
NAME Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____ Finish Time _____

Evaluator: _____ / _____
SIGNATURE DATE

=====
COMMENTS

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Obtain a copy of the required procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of E-2.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p style="text-align: center;">CAUTION Unisolating a faulted S/G or secondary break should NOT be considered UNLESS needed for RCS cooldown.</p> <p><u>STEP 2.:</u> 1. CHECK MSIV's and MSIV bypass valves CLOSED. RNO: CLOSE valves.</p> <p><u>NOTE:</u> MSIV 1-FCV-1-11 will NOT close.</p> <p><u>STANDARD:</u> Operator places HSs-1-4, 11, 22, 29 in the closed position and verifies green (& blue) lights ON, verifies HSs-1- 147, 148, 149, 150 are in the closed position with green lights ON. Recognizes FCV-1-11 will NOT close as indicated by handswitch 1-HS-11A RED light ON.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p style="text-align: center;">Critical Step</p>
The following step is the RNO for step above.	
<p><u>STEP 3.:</u> CLOSE valves. IF any MSIV OR MSIV bypass valve CANNOT be closed, THEN CLOSE valve USING EA-1-1, Closing MSIVs Locally.</p> <p><i>Both</i> <u>CUE:</u> Acknowledge the direction to implement EA-1-1 for Loop 2. Then, Insert Remote Function <u>MSR04B</u> to AUX and Delete malfunction <u>MS04B</u>.</p> <p><u>STANDARD:</u> Operator dispatched to close loop 2 MSIV using EA-1-1.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p style="text-align: center;">Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 7.: • ISOLATE AFW.</p> <p>STANDARD: Operator depresses pushbutton controls for LCV-3-158/158A to accident reset THEN places the control switch in the manual or the manual-bypass position, [verifies amber light on XX-3-148 ON] and places the valve position switch to by turning switch to the closed position [and verifies the green lights on for each valve]. Places 1-HS-3-173 to the CLOSE position [HS may be placed in the PTL position] and [verifies valve closed by green light on XX-3-148]. [] not critical.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 8.: • CLOSE TD AFW pump steam supply from faulted S/G FCV-1-15 (SG#1) or FCV-1-16 (SG#4).</p> <p>STANDARD: Operator recognizes SG #2 does not supply the TDAFW pump and the step is not applicable</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 9.: • VERIFY S/G blowdown valves CLOSED.</p> <p>STANDARD: Operator verifies FCV-1-7 and 181 closed as indicated by green light "ON" for respective valves on 1-HS -1-14/182.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 10.: • VERIFY atmospheric relief CLOSED.</p> <p>STANDARD: Operator recognizes that SG #2 Atmospheric relief valve is open by red light lit on 1-HS-1-13</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>The following 2 steps are the RNO for the step above</p>	

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 11.:</u> • CLOSE atmospheric relief.</p> <p><u>STANDARD:</u> Operator attempts to close using 1-HS -1-13 (may place controller 1-PIC-1-13A to manual and set to '0' output. (Valve will remain open)</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12.:</u> IF Faulted S/G(s) atmospheric relief CANNOT be closed, THEN DISPATCH personnel to close atmospheric USING EA-1-2, Local Control of S/G PORV.</p> <p><u>CUE:</u> Acknowledge the direction to implement EA-1-2 for S/G #2 PORV.</p> <p><u>STANDARD:</u> Operator directs personnel to close SG #2 Atmospheric Relief Valve 1-RLV-1-13 using EA-1-2, Local control of S/G PORVs.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 13.:</u> [5] CHECK CST level greater than 5%.</p> <p>Cue: When operator start to check CST level, state "We'll Stop Here."</p> <p><u>STANDARD:</u> Operator begins to initiate action to check CST level.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

End of JPM

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

DIRECTION 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 was at 100 % RTP when a Reactor Trip and Safety injection actuated due to an RCS leak.
- After entering E-1, Loss of Reactor or Secondary Coolant, the crew determined a steam generator was faulted and transitioned to E-2 from the foldout page.

INITIATING CUES:

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

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

B.1.e

JPM # 100-2

FINAL

Place 1B H₂ Analyzer in Service

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/REVISED BY:
0	New, copied from JPM 100, changed to B train	Y	9/23/94	All	HJ Birch
pen/ink	Correct typos and Minor changes for clarification. Updated for 0-SO-43-4 Rev. 4. Validation N/A based on JPM 21.	N	12/18/01	All	L. Pauley
1	Incorporated pen/ink changes; revised to latest revision of 0-SO-43-4	N	8/21/02	All	J P Kearney
2	Updated to current IC. Made minor wording changes.	N	8/12/04	All	MG Croteau

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Initialize the Simulator in IC # 16.
4. PLACE the following switches in the CLOSED or OFF position:
 - 1-HS-43-210A, 207, 208.
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.

Validation Time: CR. 11 min Local _____

Tools/Equipment/Procedures Needed:
0-SO-43-4 Section 5.2 & 5.4

References:

	Reference	Title	Rev No.
1.	0-SO-43-4	Hydrogen Analyzer	5

=====

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

1. Unit 1 is in Mode 1 with all systems normal and operable **except** for the Train B H₂ Analyzer.
2. The Train B H₂ Analyzer remote panel had been damaged, repairs have recently been completed.
3. The clearance has been released and the power availability and valve checklists have been completed.
4. Post maintenance test requires placing the analyzer in service for a period of 24 hours.

INITIATING CUES:

1. You are the U1 CRO. The US/SRO has directed you to place the Train B H₂ Analyzer in service for the PMT using 0-SO-43-4.
2. When the analyzer has been aligned for standby and then placed in service inform the U1 US/SRO.

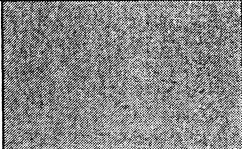
Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Operator obtains a copy of the procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of 0-SO-43-4, to perform Sections 5.2 and 5.4.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<i>NOTE: The following actions are in Section 5.2 of the SO.</i>	
<p>NOTE: The Hydrogen Analyzers should normally be in STANDBY. They are only required to be operable in modes 1 and 2.</p> <p><u>STEP 2.:</u> [1] IF placing U1 H₂ analyzer in STANDBY, THEN VERIFY 480V Rx MOV Bds 1A2-A and 1B2-B are energized.</p> <p>Cue: <i>Both Rx MOV Bds are energized.</i> NOTE: The initial conditions stated all systems normal and operable except the H₂ analyzer, provide CUE to expedite JPM.</p> <p><u>STANDARD:</u> Operator checks both Rx MOV Bds 1A2-A and 1B2-B energized. (can check by absence of alarms)</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> [2] IF placing Unit 2 Hydrogen Analyzer in STANDBY, THEN VERIFY 480V Rx MOV Bds 2A2-A and 2B2-B are energized.</p> <p><u>STANDARD:</u> Operator N/A's this step.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE: Power Checklist not performed in steps [3] and [4] may be N/A'd.</p> <p><u>STEP 4.:</u> [3] ENSURE Power Checklist complete for the appropriate unit. A. Unit 1 Power Checklist 0-43-4.01 B. Unit 2 Power Checklist 0-43-4.02</p> <p>Cue: <i>The checklist is complete with NO deviations.</i></p> <p><u>STANDARD:</u> Operator verifies checklist complete for Unit 1 and N/As for Unit 2.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 5.: [4] ENSURE Valve Checklist complete for the appropriate unit. A. Unit 1 Valve Checklist 0-43-4.03 B. Unit 2 Valve Checklist 0-43-4.04</p> <p>Cue: <i>The checklist is complete with NO deviations.</i></p> <p>STANDARD: Operator verifies checklist complete for Unit 1 and N/As for Unit 2..</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 6.: [5] ENSURE Cntmt H₂ Analyzer Fan B inlet valve [FSV-43-207] in the P-AUTO position. (Located on M-10).</p> <p>STANDARD: Operator places 1-HS-43-207 in the P-AUTO position.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 7.: [6] IF placing Unit 1 Hydrogen Analyzer in STANDBY, THEN PLACE Analyzer inlet valve handswitch [1-HS-43-452] for [1-FSV-43-452] and [1-FSV-43-453] in the P-AUTO position (located in 480v Shutdown Boardroom 1A2 near Hydrogen Analyzer).</p> <p>Cue: <i>AUO reports 1-HS-43-452 in the P-AUTO position.</i></p> <p>STANDARD: Operator directs AUO to place 1-HS-43-452 in the P-AUTO position at the panel in 480V SD Bd Rm 1A2.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 8.: [7] ENSURE Hydrogen Analyzer outlet valve [FSV-43-208] in the P-AUTO position. (Located on M-10).</p> <p>STANDARD: Operator places 1-HS-43-208 in the P-AUTO position.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 9.:</u> [8] VERIFY "Low Analyzer Temperature" light on remote panel goes out.</p> <p>Cue: <i>Play AUO: The "Low Analyzer Temperature" light is OUT.</i></p> <p><u>STANDARD:</u> Operator directs the AUO to verify the "Low Analyzer Temperature" light is OUT.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10.:</u> [9] ENSURE Cntmt H2 Analyzer Fan B control switch [1-HS-43-210A] in the STANDBY position. (Located on M-10).</p> <p><u>STANDARD:</u> Operator places 1-HS-43-210A in the STANDBY position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 11.:</u> [10] PERFORM Independent Verification for the following:</p> <ul style="list-style-type: none"> A. H2 Analyzer inlet valve [FSV-43-207] in P- B. H2 Analyzer outlet valve [FSV-43-208] in P-AUTO C. Analyzer inlet valve handswitch [1-HS-43-452] in P-AUTO. D. Cntmt H2 Analyzer Fan A Control Switch [HS-43-210A] in STANDBY. <p>Cue: <i>An IV will be performed.</i></p> <p><u>STANDARD:</u> Operator obtains an IV for the listed switch positions.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE: <i>The following actions are in Section 5.4 of the SO. The first 3 steps were addressed in Section 5.2. The operator should sign these. IF he/she asks to check the step again, Cue as appropriate.</i></p>	

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>NOTE: Power Checklist not performed in steps [1] and [2] may be N/A'd.</p> <p>STEP 12.: [1] ENSURE Power Checklist complete for the appropriate unit. A. Unit 1 Power Checklist 0-43.01 B. Unit 2 Power Checklist 0-43.02</p> <p>Cue: <i>The checklist is complete with NO deviations.</i></p> <p>STANDARD: Operator verifies checklist complete for Unit 1 and N/As for Unit 2.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 13.: [2] ENSURE Valve Checklist complete for the appropriate unit. A. Unit 1 Valve Checklist 0-43-4.03 B. Unit 2 Valve Checklist 0-43-4.04</p> <p>Cue: <i>The checklist is complete with NO deviations.</i></p> <p>STANDARD: Operator verifies checklist complete for Unit 1 and N/As for Unit 2..</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 14.: [3] VERIFY "Low Analyzer Temperature" light on remote panel NOT ILLUMINATED.</p> <p>Cue: <i>Play AUO: The "Low Analyzer Temperature" light is OUT.</i></p> <p>STANDARD: Operator directs the AUO to verify the "Low Analyzer Temperature" light is OUT.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>CAUTION The Analyzer Cell Failure Alarm may be caused by exceeding the range of the analyzer. All Alarms except high hydrogen concentration must be reset by the alarm reset pushbutton on the remote panel.</p> <p>NOTE The High-Hydrogen Alarm on remote panel will come in at 4% Hydrogen reading. If any other alarms come in, the analyzer should be considered malfunctioning and the other placed in service. (Reference 1-AR-M6-D for Unit 1 or 2-AR-M6-D for Unit 2).</p> <p><u>STEP 15.:</u> [4] IF the unit is in Modes 1-4, THEN NOTIFY the SRO that LCO 3.6.3 is applicable when the Hydrogen Analyzer valves are open. The implementation of the administrative controls of LCO 3.6.3 may be utilized.</p> <p>Cue: <i>SRO acknowledges and states the admin controls of LCO 3.6.3 have been implemented.</i></p> <p><u>STANDARD:</u> Operator notifies SRO of LCO requirements.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16.:</u> [5] PLACE Cntmt H₂ Analyzer Fan B control switch [1-HS-43-210A] in the ANALYZE position. (Located on M-10).</p> <p>NOTE: IF Operator did not perform section 5.2 first, then HS-43-452 has not yet been placed in P-Auto. This will cause annunciator window E5 on 1-XA-5-6D to alarm on low flow.</p> <p>Cue: <i>(Use only if low flow alarm received.) A MCR alarm has just sounded. If he goes to investigate or asks the CRO for the alarm, point out that the above alarm is LIT.</i></p> <p><u>STANDARD:</u> Operator places 1-HS-210A in the ANALYZE position.</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 17.: [6] VERIFY the following valves OPEN on M-10.</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; width: 80%;"> <thead> <tr> <th style="text-align: center;">DESCRIPTION</th> <th style="text-align: center;">POSITION</th> <th style="text-align: center;">INITIALS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Cntmt H₂ Analyzer Fan B inlet FSV-43-207</td> <td style="text-align: center;">OPEN</td> <td style="text-align: center;">_____</td> </tr> <tr> <td style="text-align: center;">Cntmt H₂ Analyzer outlet valve FSV-43-208</td> <td style="text-align: center;">OPEN</td> <td style="text-align: center;">_____</td> </tr> </tbody> </table> <p>STANDARD: Operator verifies FSV-43-207 and 208 OPEN by red lights on respective HSs ON.</p> <p>COMMENTS:</p>	DESCRIPTION	POSITION	INITIALS	Cntmt H ₂ Analyzer Fan B inlet FSV-43-207	OPEN	_____	Cntmt H ₂ Analyzer outlet valve FSV-43-208	OPEN	_____	<p>___ SAT</p> <p>___ UNSAT</p>
DESCRIPTION	POSITION	INITIALS								
Cntmt H ₂ Analyzer Fan B inlet FSV-43-207	OPEN	_____								
Cntmt H ₂ Analyzer outlet valve FSV-43-208	OPEN	_____								
<p>STEP 18.: [7] Verify the following valves OPEN on M-6 on XX-55-6L windows 25 and 51 [or locally in 480V SD Bd Rm]. (This step may be N/A for Unit 2.)</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; width: 80%;"> <thead> <tr> <th style="text-align: center;">DESCRIPTION</th> <th style="text-align: center;">POSITION</th> <th style="text-align: center;">INITIALS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Cntmt H₂ Analyzer Fan B Block Vlv 1-FSV-43-452</td> <td style="text-align: center;">OPEN</td> <td style="text-align: center;">_____</td> </tr> <tr> <td style="text-align: center;">Cntmt H₂ Analyzer Fan B Block Vlv 1-FSV-43-453</td> <td style="text-align: center;">OPEN</td> <td style="text-align: center;">_____</td> </tr> </tbody> </table> <p>NOTE: If operator did not perform section 5.2 first, then HS-43-452 has not yet been placed in P-Auto. Verbally change board indication.</p> <p>Cue: <i>(Use only if section 5.2 not performed.) FSV-43-452 & 453 are showing green light only.</i></p> <p>STANDARD: Operator verifies FSV-43-452 and 453 OPEN by red lights LIT on panel 6L. Windows 25 and 51.</p> <p>COMMENTS:</p>	DESCRIPTION	POSITION	INITIALS	Cntmt H ₂ Analyzer Fan B Block Vlv 1-FSV-43-452	OPEN	_____	Cntmt H ₂ Analyzer Fan B Block Vlv 1-FSV-43-453	OPEN	_____	<p>___ SAT</p> <p>___ UNSAT</p>
DESCRIPTION	POSITION	INITIALS								
Cntmt H ₂ Analyzer Fan B Block Vlv 1-FSV-43-452	OPEN	_____								
Cntmt H ₂ Analyzer Fan B Block Vlv 1-FSV-43-453	OPEN	_____								
<p>STEP 19.: Inform the US/SRO that the B Train H₂ Analyzer is in service for the PMT.</p> <p>STANDARD: Operator informs the US/SRO that the B Train H₂ Analyzer is in service for the PMT.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time_____</p>									

End of JPM

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

1. Unit 1 is in Mode 1 with all systems normal and operable **except** for the Train B H₂ Analyzer.
2. The Train B H₂ Analyzer remote panel had been damaged, repairs have recently been completed.
3. The clearance has been released and the power availability and valve checklists have been completed.
4. Post maintenance test requires placing the analyzer in service for a period of 24 hours.

INITIATING CUES:

1. You are the U1 CRO. The US/SRO has directed you to place the Train B H₂ Analyzer in service for the PMT using 0-SO-43-4.
2. When the analyzer has been aligned for standby and then placed in service inform the U1 US/SRO.



**SEQUOYAH NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

JPM B.1.f

FINAL

**SWAP THERMAL BARRIER
BOOSTER PUMPS**

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISION BY:
0	New	Y	12/10/07	All	J Roden

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:
Swap Thermal Barrier Booster Pumps

JA/TA task:
0080060101 (RO)

K/A Ratings:
008 A4.08 3.2 / 2.8

Task Standard:
1. 1A-A TBBP is placed in service and 1B-B TBBP is stopped.
2. Both 1A-A and 1B-B TBBP handswitches are placed in A-P AUTO.

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. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. This task is to be performed using the simulator in IC 16.
4. After resetting, **START 1B-B TBBP and place the handswitch in A-P-AUTO, Place the 1A-A TBBP handswitch 1-HS-70-131A in PULL TO LOCK**
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.

Validation Time: CR. 9 min Local _____

Tools/Equipment/Procedures Needed:

1-SO-70-1, Component Cooling Water System "A" Train

References:

	Reference	Title	Rev No.
1.	1-SO-70-1	Component Cooling Water System "A" Train	40

=====

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

1. Unit 1 is at 100% power.
2. Thermal Barrier Booster Pump 1B-B is currently in service.
3. The Thermal Barrier Booster Pump 1A-A was removed from service in accordance with 1-SO-70-1, "Component Cooling Water System "A" Train", Section 7.2.1 to take an oil sample and is now ready to be returned to service.
4. All 1-SO-70-1 Prerequisite Actions are complete.

INITIATING CUES:

1. The Unit Supervisor has directed you to place the 1A-A Thermal Barrier Booster Pump in service, shutdown the 1B-B pump, and leave both pumps in a normal alignment in accordance with 1-SO-70-1.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>NOTE Any CCS component to be placed in service must be properly filled and vented. If CCS piping is removed from service, it will be filled and vented under the clearance procedure.</p> <p><u>STEP 1.:</u> Obtain the appropriate procedure.</p> <p><u>STANDARD:</u> Operator identifies 1-SO-70-1, Section 8.7 is the procedure to be used.</p>	<p>Start Time____</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2.:</u> [1] ENSURE selected pump available for service.</p> <p><u>STANDARD:</u> Candidate verifies the 1A-A pump is available for service using information on the turnover sheet.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> [2] PERFORM local inspection on selected Thermal Barrier Booster Pump.</p> <p>CUE: When directed to inspect pump, acknowledge the direction and report back "Thermal Barrier Booster Pump 1A-A is ready for service."</p> <p><u>STANDARD:</u> Candidate directs AUO to perform local inspection on the 1A-A pump</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT									
<p>STEP 4: [3] START selected Thermal Barrier Booster Pump (N/A pump not started):</p> <table border="1" data-bbox="355 351 759 489"> <thead> <tr> <th>PUMP</th> <th>CONTROL</th> <th>INITIALS</th> </tr> </thead> <tbody> <tr> <td>1A-A</td> <td>1-HS-70-131A</td> <td>_____</td> </tr> <tr> <td>1B-B</td> <td>1-HS-70-130A</td> <td>_____</td> </tr> </tbody> </table> <p>CUE: If AUO directed to inspect pump prior to starting, acknowledge the direction and report back "Thermal Barrier Booster Pump 1A-A is ready to start."</p> <p>CUE: If AUO directed to inspect pump after the pump is started pump, acknowledge the direction and report back "Thermal Barrier Booster Pump 1A-A is has a good start and looks normal."</p> <p>STANDARD: Candidate places 1-HS-70-131A to the start position. May place the handswitch in A-P Auto after starting. The handswitch must be placed in A-P AUTO prior to completion of the JPM</p> <p><u>COMMENTS:</u></p>	PUMP	CONTROL	INITIALS	1A-A	1-HS-70-131A	_____	1B-B	1-HS-70-130A	_____	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
PUMP	CONTROL	INITIALS								
1A-A	1-HS-70-131A	_____								
1B-B	1-HS-70-130A	_____								
<p>STEP 5: [4] STOP selected pump (N/A pump not stopped):</p> <table border="1" data-bbox="355 1117 759 1255"> <thead> <tr> <th>PUMP</th> <th>CONTROL</th> <th>INITIALS</th> </tr> </thead> <tbody> <tr> <td>1A-A</td> <td>1-HS-70-131A</td> <td>_____</td> </tr> <tr> <td>1B-B</td> <td>1-HS-70-130A</td> <td>_____</td> </tr> </tbody> </table> <p>STANDARD: Candidate places 1-HS-70-130A to Stop position. May pull switch to A-P AUTO after going to stop</p> <p><u>COMMENTS:</u></p>	PUMP	CONTROL	INITIALS	1A-A	1-HS-70-131A	_____	1B-B	1-HS-70-130A	_____	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
PUMP	CONTROL	INITIALS								
1A-A	1-HS-70-131A	_____								
1B-B	1-HS-70-130A	_____								

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT									
<p>STEP 6: [5] IF CCS Thermal Barrier Booster Pump is to be removed from service, THEN PLACE selected handswitch in PULL-TO-LOCK (N/A the other):</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;">PUMP</th> <th style="width: 45%;">CONTROL</th> <th style="width: 40%;">INITIALS</th> </tr> </thead> <tbody> <tr> <td>1A-A</td> <td>1-HS-70-131A</td> <td>_____</td> </tr> <tr> <td>1B-B</td> <td>1-HS-70-130A</td> <td>_____</td> </tr> </tbody> </table> <p>STANDARD: Candidate does not place 1-HS-70-130A to the PULL-TO-LOCK position due to the pump being left in service. The IF/THEN conditions does not exist, so the step is N/A'd. Neither pump handswitch is placed to the Pull-to-lock position.</p> <p>COMMENTS:</p>	PUMP	CONTROL	INITIALS	1A-A	1-HS-70-131A	_____	1B-B	1-HS-70-130A	_____	<p>___ SAT</p> <p>___ UNSAT</p>
PUMP	CONTROL	INITIALS								
1A-A	1-HS-70-131A	_____								
1B-B	1-HS-70-130A	_____								
<p>STEP 7: [6] IF CCS Thermal Barrier Booster Pump is to be returned to normal, THEN ENSURE Control switch for CCS Booster Pump in A-P AUTO: (N/A pump not returned to normal):</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;">PUMP</th> <th style="width: 45%;">CONTROL</th> <th style="width: 40%;">INITIALS</th> </tr> </thead> <tbody> <tr> <td>1A-A</td> <td>1-HS-70-131A</td> <td>_____</td> </tr> <tr> <td>1B-B</td> <td>1-HS-70-130A</td> <td>_____</td> </tr> </tbody> </table> <p>STANDARD: Both 1-HS-70-130A and 1-HS-70-131A are placed in the A-P AUTO position since both are being returned to normal.</p> <p>COMMENTS:</p>	PUMP	CONTROL	INITIALS	1A-A	1-HS-70-131A	_____	1B-B	1-HS-70-130A	_____	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> <p>Stop Time _____</p>
PUMP	CONTROL	INITIALS								
1A-A	1-HS-70-131A	_____								
1B-B	1-HS-70-130A	_____								

END of JPM

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

DIRECTION 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, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

1. Unit 1 is at 100% power.
2. Thermal Barrier Booster Pump 1B-B is currently in service.
3. The Thermal Barrier Booster Pump 1A-A was removed from service in accordance with 1-SO-70-1, "Component Cooling Water System "A" Train", Section 7.2.1 to take an oil sample and is now ready to be returned to service.
4. All 1-SO-70-1 Prerequisite Actions are complete.

INITIATING CUES:

1. The Unit Supervisor has directed you to place the 1A-A Thermal Barrier Booster Pump in service, shutdown the 1B-B Thermal Barrier Booster Pump, and leave both pumps in a normal alignment in accordance with 1-SO-70-1.



**SEQUOYAH NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**JPM B.1.g
(#119AP)**

FINAL

**Reinstate Source Range Detectors
Following a Reactor Trip**

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/REVISED BY:
0	Transfer from WP. Minor enhancements.	N	1994	All	HJ Birch
1	Incorporate Rev B changes.	N	9/23/95	All	HJ Birch
pen/ink	Minor enhancements based on validation performance. Chgd time.	N	11/15/95	4,5,6	
pen/ink	ES-0.1 revision had no impact. Revised K/A ratings. Reformatted critical steps	N	9/23/98	All	JP Kearney
pen/ink	ES-0.1 Rev update only	N	9/27/99	4	SR Taylor
pen/ink	ES-0.1 Rev update only	N	09/06/01	4	WR Ramsey
2	Incorporated pen/ink changes	N	8/22/02	All	J P Kearney
3	Updated to latest revision of EOPs.	N	9/15/03	All	MG Croteau
4	Updated to current IC and revision. Minor enhancements.	N	8/16/04	All	MG Croteau
5	Updated references, updated setup.	N	11/30/05	4	JJ Tricoglou
6	Updated references, updated setup. Revised format and added candidate cue sheet.	N	11/13/07	All	R Putnam

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Snapshot taken - Initialize simulator to IC-190. If unavailable then perform 7-11 below.
4. Initialize simulator in IC-16 or 61, initiate a reactor trip.
5. Insert malfunction **IMF NI04A f:40**.
6. Once plant has stabilized, place steam dumps in the **pressure mode**.
7. Allow simulator to run until channel 2 IRM has decreased to $<10^{-5}$ % power then freeze simulator until operator has been briefed.
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. 8 mins **Local** _____

Tools/Equipment/Procedures Needed:
ES-0.1, Reactor Trip Response

References:

	Reference	Title	Rev No.
1.	ES-0.1	Reactor Trip Response	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:

1. Unit was inadvertently tripped from 100% power ~20 minutes ago.
2. ES-0.1, Reactor Trip Response was entered and the crew just completed Step 13.

INITIATING CUES:

1. The US directs you as the OATC to ensure source range monitors are reinstated per ES-0.1, Step 14.
2. Inform the US when the source range monitors have been reinstated and all functions of the source range monitors are in service.

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1:</u> Operator obtains copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of ES-0.1, Reactor Trip Response.</p> <p><u>COMMENTS:</u></p>	<p>Start Time ____</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> a. CHECK intermediate range flux less than $10^{-4}\%$ power.</p> <p><u>NOTE:</u> Since one is less than $10^{-4}\%$ power, operator should continue.</p> <p><u>CUE:</u> <i>If operator recommends transitioning to AOP-I.01 for IR NI failure, respond that another operator will perform that procedure and continue restoring the SRNI.</i></p> <p><u>CUE:</u> <i>If operator asks for SRO direction, ask what the candidate recommends.</i></p> <p><u>STANDARD:</u> Operator identifies N-35 at approx. $10^{-4}\%$ power and N-36 at less than $10^{-5}\%$ power.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> b. CHECK source range detectors REINSTATED.</p> <p>RNO: REINSTATE source range channels by simultaneously placing both SRM TRIP RESET-BLOCK switches to RESET position [M-4]</p> <p><u>NOTE:</u> Both source range detectors will be indicating down scale prior to being reinstated and will indicate upscale after being reinstated.</p> <p><u>STANDARD:</u> Operator confirms source range detectors not reinstated (indication down scale), goes to RNO and reinstates by simultaneously placing 1-HS-92-5001 AND 1-HS-92-5002 momentarily to the reset position, and confirms indication on Source Range indicators are up scale.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 4:</u> c. SELECT one SRM and one IRM on NR-45 Recorder.</p> <p><u>STANDARD:</u> One SRM and IRM 36 selected to record on NR-45 by using the touch screen on the recorder.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 5: d. ENSURE Audio Count Rate operations.</p> <p><u>STANDARD:</u> At Audio Count Rate Drawer, 1-XX-92-5039, on 1-M-13 operator selects setting on Audio Multiplexer for a slow continuous beeping and adjusts volume as desired.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 6: RESET shutdown monitor alarm setpoints [M-13]</p> <p><u>STANDARD:</u> At 1-XIS-92-5001 and 1-XIS-92-5002, the Operator depresses reset buttons to right of "alarm setpoint" and verifies alarm lights at the lower left corner go out.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 7: WHEN shutdown monitor ALARM LEDs dark and HIGH FLUX AT SHUTDOWN bistable lights dark, THEN PLACE HI FLUX AT SHUTDOWN alarm block switches in normal.[M-13]</p> <p><u>STANDARD:</u> Operator verifies alarm LEDs dark on 1-XIS-92-5001 & 1-XIS-92-5002 and the Hi flux at shutdown bistables dark on SR monitors. Then places hi flux at shutdown alarm block switches to normal on 1-XX-92-5001 (CH-1) and 1-XX-92-5002 (CH 2) on 1-M-13.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 8: Inform US that source range detectors have been placed in service.</p> <p><u>STANDARD:</u> US informed source range detectors have been placed in service manually due to IRM Channel 1 not being below 10^{-4}% power.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time ___</p>

END OF JPM

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

DIRECTION 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 was inadvertently tripped from 100% power ~20 minutes ago.
2. ES-0.1, Reactor Trip Response was entered and the crew just completed Step 13.

INITIATING CUES:

1. You are the OATC and have been instructed by the US to ensure source range monitors are reinstated per ES-0.1, Step 14.
2. Inform the US when the source range monitors have been reinstated and all functions of the source range monitors are in service.

**SEQUOYAH NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**JPM B.1.h
(#77)**

FINAL

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

NUCLEAR TRAINING REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/REVISED BY:
13	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	N	10/14/99	All	SR Taylor
pen/ink	minor change to step 6, and Revision update	N	8/16/00	4,7	SR Taylor
pen/ink	Procedure rev. Update, changed SI steps referenced in JPM step 18	N	12/4/01	4, 9	L. Pauley
pen/ink	minor enhancement changes and 1-SI-OPS-082-007.B Revision update	N	03/21/02	ALL	WR Ramsey
14	Incorporated pen/ink changes; revised per recent revisions to 1-SI-OPS-082-007.B; No impact on JPM flow	N	8/20/02	All	J P Kearney
15	Updated references Changed remote function configuration to match new simulator	N N	12/10/2003	4 8	JJ Tricoglou
16	Updated to current procedure and IC.	N	8/11/04	All	MG Croteau
17	Updated to current procedure. Minor step changes.	N	9/19/05	All	SR Taylor
18	Updated to current procedure. Note: Unable to locate Revs. 16 & 17	N	06/05/07	All	John Addison
19	Update Ref. Enhance step 5, Made a separate JPM step to record stop watch time as per proced.	N	5/20/08	4, 6, 7	H J Birch

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Acknowledge any associated alarms.
4. Initialize Simulator in IC: #16.
5. **This JPM will require a console operator to reset 86 LOR at JPM step 10 (IRF EG08 f:1)**
6. Operator will need assistance during D/G start and loading. An extra simulator operator or the console operator needs to be present to perform this timing.
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 minutes Local _____

Tools/Equipment/Procedures Needed:

1. 1-SI-OPS-082-007.B, through Section 6.1, Appendix "C", and Attachment 1 (Optional).
2. "Signed off" copy of Section 4 and Section 6.1 through Step 6.

References:

	Reference	Title	Rev No.
1.	1-SI-OPS-082-007.B	Electrical Power System Diesel Generator 1B-B	47

Turnover Information

See next Page

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. 0-GO-16, "System Operability Checklists" has been completed on all Train "A" equipment.
3. Maintenance has been completed on the 1B-B D/G and the clearance has been removed.
4. The D/G has been rolled and is in standby alignment using 0-SO-82-2, "Diesel Generator 1B-B".
5. The AUO at the D/G building has completed 1-SI-OPS-082-007.B, "Electrical Power System Diesel Generator 1B-B" Appendix A and all parameters are within limits.
6. The U1 Control Room AUO has verified breaker 1934 is in the Disconnect position.
7. DG-DAQ has been installed.
8. Room fire protection is in service.
9. Section 4.0 of 1-SI-OPS-082-007.B is complete.
10. Section 6.1 of 1-SI-OPS-082-007.B is complete through Step 7.

INITIATING CUES:

1. 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.
2. All other periodic testing requirements have been completed.
3. As the extra Unit Operator you have been assigned to perform the SI on 1B-B D/G.
4. The PMT requires the AMBIENT MANUAL START method for testing.
5. Notify the US when the test is complete.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Operator obtains a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of 1-SI-OPS-082-007.B. Performance of task will start at Section 6.1 Step [7]. Note: Initial conditions cover steps through Section 6.1 step 6 which directs the use of App "C".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
The following step is Section 6.1 Step [7]. A caution and note precede the step.	
<p><u>STEP 2.:</u> [7] IF any of the following conditions exist:</p> <p style="padding-left: 40px;">A. Calendar date is January or July, and this is the first performance during the month,</p> <p style="padding-left: 80px;">OR</p> <p style="padding-left: 40px;">B. Performance is to satisfy a PMT ONLY and a manual start is required,</p> <p style="padding-left: 80px;">OR</p> <p style="padding-left: 40px;">C. Performance is to satisfy a PMT AND Periodic Testing Requirements and a manual start is required,</p> <p style="padding-left: 80px;">THEN</p> <p style="padding-left: 40px;">PERFORM Appendix C, Ambient Manual Start Method.</p> <p><u>STANDARD:</u> Appendix C is selected as the appropriate appendix.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
The following step starts use of Appendix C	
<p>NOTE All steps in this Appendix refer to 1B-B Diesel Generator (D/G) and are performed from Main Control Room Panel 0-M-26B unless otherwise specifically noted.</p> <p><u>STEP 3.:</u> [1] ENSURE 0-HS-82-48 1B-B D/G mode selector switch in the UNIT position.</p> <p><u>STANDARD:</u> 0-HS-82-48 in UNIT position on 0-M-26. Green light ON.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 4.: [2] PLACE 1-HS-57-74 D/G 1B-B Synchronize Switch in the SYN position.</p> <p><u>STANDARD:</u> Operator places 1-HS-57-74 in "SYN" position on 0-M-26.</p> <p>Note: 0-EI-82-35 and 0-XI-82-33 will indicate running voltage & frequency.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>Note: 4 procedure NOTES precede the step</p>	
<p><u>STEP 5.</u> [3] PERFORM the following to initiate the D/G start signal:</p> <p>a. 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 should coordinate the start of the D/G-DAQ just prior to D/G start actuation.</p> <p>Cue Console operator Play role of D/G-DAQ operator: D/G-DAQ computer is running.</p> <p><u>STANDARD:</u> Operator notifies the <i>D/G-DAQ</i> operator to start the <i>D/G-DAQ</i>.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE: The operator will NOT be able to manipulate switches and stop watch alone, allow the console operator to time the D/G. Start stopwatch when HS depressed Stop when >6800 V & >58.8 HZ [Time will be 9.4 sec – to Approx the Dac time in step 12]</p> <p><u>STEP 6.:</u></p> <p>b. PROCEED with the countdown: 3,2,1, START,</p> <p>c. DEPRESS 0-HS-82-46A, DG 1B-B Emergency Start Switch AND START Stopwatch.</p> <p>d. When voltage >6800 volts AND frequency > 58.8 Hz, THEN STOP stopwatch</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: D/G running alarm will annunciate to indicate D/G > 40 rpm. Incoming voltage and frequency are verified on 0-EI-82-34 and 0-XI-82-32.]</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 7.: [4] ENSURE 1-FCV-67-67, ERCW cooling water supply valve is OPEN.</p> <p>STANDARD: ERCW valve 1-FCV-67-67 red light comes "on" and green light goes "out" on 0-M-27A panel.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>				
<p>STEP 8.: [5] RECORD the Time from the stopwatch(es)</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Seconds</td> <td style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Stopwatch ID Number</td> </tr> <tr> <td style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Seconds</td> <td style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Stopwatch ID Number</td> </tr> </table> <p>Acceptance Criteria D/G 1B-B starts from ambient condition and achieves, in less than or equal to 10 seconds, generator voltage ≥ 6800 volts and frequency of ≥ 58.8 Hz</p> <p>Cue: <i>Stopwatch time is <u>9.4 sec</u> & ID Number <u>E18081</u></i></p> <p>STANDARD: Operator obtains and records the stopwatch time.</p> <p>COMMENTS:</p>	Seconds	Stopwatch ID Number	Seconds	Stopwatch ID Number	<p>___ SAT</p> <p>___ UNSAT</p>
Seconds	Stopwatch ID Number				
Seconds	Stopwatch ID Number				
<p>STEP 9.: [6] RECORD the steady state values for the following:</p> <p>A. 0-EI-82-34, DG 1B-B incoming Voltage. B. 0-XI-82-32, DG 1B-B incoming Frequency.</p> <p>STANDARD: Operator determines 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</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>				

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 10.:</u> [7] RECORD Voltage Regulator Control Current. [Pnl 1 of Exciter Cab]</p> <p>ACCEPTANCE CRITERIA: Voltage Regulator Control Current between 1.0 - 2.5 dc amps. The Voltage regulator card must be functioning properly to consider DG operable.</p> <p><u>Cue:</u> Voltage Regulator Control Current is 1.8 dc amps.</p> <p><u>STANDARD:</u> Operator records Voltage Regulator Control Current.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11.:</u> [8] ENSURE D/G 1B-B 86 LOR red light NOT ILLUMINATED, at D/G local relay panel.</p> <p><u>Cue:</u> Role play as D/G operator - 86 LOR local red light is not illuminated.</p> <p><u>STANDARD:</u> Operator verifies red light on 86 LOR at D/G is not illuminated.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12.:</u> [9] RESET 86 LOR lockout relay, on D/G local relay panel. .</p> <p><u>Cue:</u> When the D/G AUO is requested to reset 86LOR, the Console operator should insert IRF EGR08 f:1 (RESET) to reset 86LOR and then notify operator that 86 LOR is reset.</p> <p><u>STANDARD:</u> Operator directs AUO to Reset 86 LOR lockout relay.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 13.:</u> [10] VERIFY [86LOR] is reset by amber light [0-XI-82-49] ILLUMINATED on 0-M-26B.</p> <p><u>STANDARD:</u> 86 LOR is reset and amber light on 0-M-26 is verified lit.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 14.: [11] IF the D/G-DAQ was used, THEN RECORD the time required to achieve ≥ 58.8 HZ and ≥ 6800 Volts from the <i>D/G-DAQ</i> computer.</p> <p>Cue: <i>Time was 9.5 seconds for D/G-DAQ.</i></p> <p>STANDARD: Operator ensures the DG accelerates to at least 900 rpm and Voltage and Frequency are within limit within the required 10 seconds. (Evaluator can sign for Tech Support)</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 15.: [12] IF step [6] frequency is , < 59.9 Hz or > 60.1 Hz, THEN INITIATE a PER.</p> <p>STANDARD: Operator determines frequency was within range and marks the step N/A.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 16.: [13] RECORD start as ambient in 0-SI-OPS-082-007.M.</p> <p>CUE: <i>State that the start will be recorded by another operator.</i></p> <p>STANDARD: Operator addresses logging the start in 0-SI-OPS-082-007.M. Note: This SI is NOT available on the simulator,</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 17.: [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>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>The following steps are contained in Section 6.1 of the SO.</p>	

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 18.:</u> [10] Perform the following to wipe the Automatic Voltage Control Rheostat [a] RECORD voltage from 0-EI-82-34.</p> <p><u>STANDARD:</u> Operator record voltage from 0-EI-82-34</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19.:</u> [b] ENSURE 0-HS-82-42 is in PULL-P-AUTO position.</p> <p><u>STANDARD:</u> Operator ensures that 0-HS-82-42 is in the PULL-P-AUTO position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20.:</u> [c] DECREASE voltage to 6700 volts on 0-EI-82-34 using 0-HS-82-42.</p> <p><u>STANDARD:</u> Operator lowers voltage to 6700 volts using 0-HS-82-42 while observing 0-EI-82-34.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 21.:</u> [d] INCREASE voltage to 7300 volts on 0-EI-82-34 using 0-HS-82-42.</p> <p><u>STANDARD:</u> Operator raises voltage to 7300 volts using 0-HS-82-42 while observing 0-EI-82-34.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 22.:</u> [e] RETURN voltage to value recorded in [10][a].</p> <p><u>STANDARD:</u> Operator lowers voltage to previously recorded value using 0-HS-82-42 while observing 0-EI-82-34.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 23.:</u> [11] PLACE [0-HS-82-48], DG 1B-B Mode Selector Switch, in PARALLEL position.</p> <p><u>STANDARD:</u> Operator places 0-HS-82-48 to the PARALLEL position. Red light "on" & green light "off".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 24.:</u> [12] ADJUST [0-HS-82-43] DG 1B-B Speed Control Switch to obtain a synchroscope indication of slowly rotating in the [FAST] direction.</p> <p><u>STANDARD:</u> Operator adjusts speed control hand switch 0-HS-82-43 such that synchroscope (0-XI-82-31) is moving slowly in the fast direction (slowly clockwise).</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>Several notes and a table are located prior to the next step.</p> <p>Note 5 addresses the CSST A LTC X, Tap Position Indication on 0-ECB-5 which is not simulated. It states the tap changer indication should be observed prior to and during paralleling to the 6.9 kv Shutdown Board because the Tap changer operation during this time can cause a D/G voltage change.</p> <p><u>Cue:</u> When addressed, state" another operator will monitor the tap changer</p>	<p style="background-color: #cccccc;"> </p>
<p><u>STEP 25.:</u> [13] ENSURE [0-HS-82-42] DG 1B-B Voltage Regulator Switch in the PULL-P-AUTO position, AND ADJUST to match incoming voltage with running voltage.</p> <p><u>STANDARD:</u> Operator places HS-82-42 in PULL-P-AUTO and adjusts D/G voltage such that incoming voltage (0-EI-82-34) and running voltage (0-EI-82-35) are approximately equal.</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 26.: [14] WHEN synchroscope DG 1B-B 0-XI-82-31 indicates 12 O'clock position, THEN CLOSE breaker 1914 via 1-HS-57-73A, 1914 DG 1B-B to SD BD 1B-B, AND START Stopwatch.</p> <p>STANDARD: Breaker 1914 Closes and remains closed as indicated by red light "on" & green light "off" above 1-HS-57-73A. (Operator should close D/G 1B-B breaker 1914 when synchroscope indicates 12:00 (o'clock) position) NOTE: The operator will NOT be able to manipulate switches and stop watch alone, allow the console operator to time the loading of the D/G.</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>
The next 2 steps must be completed within 60 seconds. Start Time _____	
<p>NOTE: SI steps 15 and 16 must be completed within 60 seconds to satisfy the SI acceptance criteria.</p> <p>STEP 27.: [15] IMMEDIATELY LOAD D/G to ≥ 1 MW by performing the following:</p> <ol style="list-style-type: none"> a. PLACE [0-HS-82-43] in RAISE and obtain ≥ 1 MW on 0-EI-82-40A. b. ADJUST 0-HS-82-42 to 0.75 MVARs outgoing as indicated on [0-EI-82-41A], DG 1B-B Megavars. c. ENSURE DG indications match the expected indications of Table in NOTE 4. d. IF DG indications NOT as expected, THEN NOTIFY US. <p>STANDARD: Operator raises DG speed adjust and adjusts MVARs to achieve ≥ 1 MW on 0-EI-82-40A and 0.75 MVARs outgoing as indicated on 0-EI-82-41A. [Not Critical] Operator ensures MW and amps are as expected for MW load per table in Note 4 of section 6.1 of 1-SI-OPS-082-007.B.</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 28.: [16] IMMEDIATELY LOAD D/G to ≥ 3.96 and ≤ 4.4 MW. [a] PLACE 0-HS-82-43 in RAISE and obtain ≥ 3.96 and ≤ 4.4 MW within 60 seconds on 0-EI-82-40A. [b] ADJUST 0-HS-82-42 to ≥ 0.75 MVARs and ≤ 2.37 MVARs outgoing as indicated on 0-EI-82-41A. [c] STOP stopwatch</p> <p>NOTE: The operator will NOT be able to manipulate switches and stop watch alone, allow the console operator to time the loading of the D/G.</p> <p>STANDARD: Operator loads D/G to ≥ 3.96 MW in ≤ 60 seconds as indicated on EI-82-40A. [Not Critical] Operator ensures MVARs and AMPS are as expected for MW load per table in Note 4 of section 6.1 of 1-SI-OPS-082-007.B. Stop Time _____</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> <p>Time < 60 seconds</p>
<p>STEP 29.: [17] RECORD the following: A) loading time B) load achieved [0-EI-82-40A] C) time load achieved.</p> <p>STANDARD: Operator records the required data.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 30.: [18] NOTIFY the AUO at the D/G bldg to PERFORM Appendix B AND PROVIDE D/G Bldg AUO time D/G achieved final load. (Step[17])</p> <p>Cue: <i>Acknowledge load time. Inform UO that the first set of readings for Appendix B is in progress.</i></p> <p>STANDARD: Operator contacts the AUO and instructs him/her to perform Appendix B of 1-SI-OPS-082-007.B.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 31.:</u> [19] MAINTAIN load at predetermined test value for ≥ 60 minutes by adjusting [0-HS-82-43], DG 1B-B Speed Control Switch as needed.</p> <p><u>Cue:</u> <i>After the operator checks load stable state: The US informs you that the unit 2 CRO will shut down the D/G at the end of the 1 hour run.</i></p> <p><u>STANDARD:</u> Operator checks load to ensure stable between 3.96 & 4.4 MW.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

End of JPM

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

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. 0-GO-16, "System Operability Checklists" has been completed on all Train "A" equipment.
3. Maintenance has been completed on the 1B-B D/G and the clearance has been removed.
4. The D/G has been rolled and is in standby alignment using 0-SO-82-2, "Diesel Generator 1B-B".
5. The AUO at the D/G building has completed 1-SI-OPS-082-007.B, "Electrical Power System Diesel Generator 1B-B" Appendix A and all parameters are within limits.
6. The U1 Control Room AUO has verified breaker 1934 is in the Disconnect position.
7. DG-DAQ has been installed.
8. Room fire protection is in service.
9. Section 4.0 of 1-SI-OPS-082-007.B is complete.
10. Section 6.1 of 1-SI-OPS-082-007.B is complete through Step 7.

INITIATING CUES:

1. 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.
2. All other periodic testing requirements have been completed.
3. As the extra Unit Operator you have been assigned to perform the SI on 1B-B D/G.
4. The PMT requires the AMBIENT MANUAL START method for testing.
5. Notify the US when the test is complete.



SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

In-plant
JPM B.1.i
(#006)

FINAL

Perform Boration of the RCS From
Outside the Main Control Room

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
9	Transfer from WP. Minor enhancements.	N	7/26/94	All	HJ Birch
10	AOI-27 Rev changed steps	N	9/10/94	All	HJ Birch
11	Added dates to cover sheep. corrected task number. Made step 4 critical, since task is to borate 250 gal.	N	10/4/95	1,3,6	HJ Birch
12	AOI-27 chgd to AOP-C.04. Chgd initiating cues and made minor step chgs to match new procedure.	N	3/12/96	All	HJ Birch
pen/ink	Revision to AOP-C.04 had no impact. Revised K/A ratings. Reformatted critical steps.	N	9/22/98	All	JP Kearney
pen/ink	AOP-C.04 rev update only changed AOI-27 to AOP-C.04	N	8/29/00	4	SR Taylor
pen/ink	AOP-C.04 rev update only	N	6/14/01	4	WR Ramsey
13	Incorporated pen/ink changes and recent revisions to AOP-C.04; Changes did not affect the overall flow of the JPM.	N	8/15/02	All	J P Kearney
14	Incorporated review comments and updated references	N	9/10/03	All	G S Poteet
15	Updated to current revision.	N	9/1/04	All	MG Croteau
16	Updated to current revision.	N	10/30/05	All	MG Croteau
pen/ink	AOP-C.04 rev update only	N	04/04/06	4	MD Lackey
17	Updated to current revision.	N	10/2/06	4	MD Lackey
18	Update Proced Rev level only	N	06/15/07	4	SR Taylor
	Update Proced Rev level only – removed separate Handout page only	N	6/4/08	4	H J Birch

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Task should begin at the Unit 1 Blender EI 690.
4. Supply the operator with a copy of AOP-C.04 (appropriate section), when he is given initial conditions and cues.
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.

Validation Time: CR. _____ **Local** 12 mins

Tools/Equipment/Procedures Needed:

AOP-C.04, Control Room Inaccessibility, Appendix H

References:

	Reference	Title	Rev No.
A.	AOP-C.04	Control Room Inaccessibility	15

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READ TO THE 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. The Control Room has been abandoned due to a fire in the Spreader Room.
2. The Shift Technical Advisor has calculated a need to borate 250 gallons to adequately borate the RCS for 450°F conditions.
3. Operators have placed the Boric Acid Transfer Pumps in Fast speed per AOP-C.04, Appendix H, Step 2.b.
4. FCV-62-138, Emergency Borate valve will NOT open from the 480V Rx MOV BD.

INITIATING CUES:

1. As the Auxiliary Building AUO you are assigned to the U-1 blender and the UO has instructed you to borate the RCS 250 gallons using 1-FCV-62-138 per AOP-C.04 Appendix H, starting at Step 2.d.
2. Boration flow rate is to be approximately 50 gpm.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Operator obtains appropriate instruction.</p> <p><u>STANDARD:</u> Operator obtains a copy AOP-C.04 Appendix H and begins at step 2.d.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2.:</u> Open FCV-62-138 emergency boration valve (LOCALLY).</p> <p><u>Cue:</u> <i>If the operator attempts using local pushbutton, cue him/her the motor failed to operate or heard no motor operation.</i></p> <p><u>Cue:</u> <i>After the operator simulates manually engaging clutch and turning handwheel CCW, inform operator that "valve stem is traveling upwards"</i> <i>If UO is contacted: State 50 gpm is indicated on FI-62-137C in the ACR.</i> <i>If operator references FI-62-137B: State 50 gpm is indicated.</i></p> <p><u>STANDARD:</u> The emergency boration valve FCV-62-138 is opened by manually engaging the clutch and turning HW in CCW direction and indicated flow on FI-62-137C in the ACR or FI-62-137B.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 3.:</u> DETERMINE the time required to inject the amount of boric acid determined in step 1 based on the established flowrate _____ minutes.</p> <p><u>NOTE:</u> Operator must indicate a time sufficient to get 250 gallons of boric acid into the RCS, then inform him/her that the stated time has elapsed.</p> <p><u>STANDARD:</u> Operator determines the time required to be 5 minutes. (Must inject at least 250 gallons if different than 50 gpm is used).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 4.:</u> When the required amount of boron added, THEN CLOSE FCV-62-138.</p> <p><u>Cue:</u> <i>"Stated time" has elapsed. HW turned in CW direction until snug, flow indication is 0 gpm.</i></p> <p><u>STANDARD:</u> FCV-62-138 is closed by manually engaging clutch and turning HW in CW direction, verified via 0 gpm flow indicated on FI-62-137C in ACR or FI-62-137B, after borating for ≥ 5 minutes.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 5.:</u> Inform the UO in the ACR that boration to 250 gallons has been completed and can return the boric acid transfer switches to slow.</p> <p><u>STANDARD:</u> Operator informs the UO in the ACR that boration of 250 gallons has been completed and he can return the boric acid transfer pumps to slow.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

End of JPM

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

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. The Control Room has been abandoned due to a fire in the Spreader Room.
2. The Shift Technical Advisor has calculated a need to borate 250 gallons to adequately borate the RCS for 450°F conditions.
3. Operators have placed the Boric Acid Transfer Pumps in Fast speed per AOP-C.04, Appendix H, Step 2.b.
4. FCV-62-138, Emergency Borate valve will NOT open from the 480V Rx MOV BD.

INITIATING CUES:

1. As the Auxiliary Building AUO you are assigned to the U-1 blender and the UO has instructed you to borate the RCS 250 gallons using 1-FCV-62-138 per AOP-C.04 Appendix H, starting at Step 2.d.
2. Boration flow rate is to be approximately 50 gpm.



SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

**In-plant
B.1.j
JPM # 400**

FINAL

Installation of Temporary Cooling (HPFP)
to CCP 1A-A or 1B-B Oil Coolers
(AOP-M.01 Appendix I)

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER		V	DATE	PAGES AFFECTED	PREPARED/REVISED BY:
0	Initial Issue	Y	3/31/04	ALL	G. S. Poteet
Pen/ink	Incorporated validation comments	N	4/6/04	ALL	G.S. Poteet
1	Incorporate validation comments and to make JPM	Y	5/19/04	ALL	G.S. Poteet
2	Updated to current revision.	N	9/1/04	All	MG Croteau
3	Updated to current revision.	N	11/3/05	All	MG Croteau
4	Updated to current revision, changed location of AOP-M.01 Aux Bldg storage locker and made minor editorial changes.	N	10/19/06	All	A. F. Roddy
5	Updated based on current procedure revision. Corrected Numbering error and included 2 additional minor procedure steps.	N	06/15/07	All	SR Taylor
6	Added candidate cue sheet. Updated based on current procedure revision. Unable to locate R5	N	11/05/07	11	R Putnam
	Review only. Removed attached handout pg. H3 button will produce this handout.	N	7/16/08	none	H J Birch

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by Critical Step in Bold type
2. Sequenced steps identified by an "s"
3. Any UNSAT requires comments
4. **Determine which CCP is operating and then run the JPM on the CCP which is OUT OF SERVICE. This will help safeguard running equipment, minimize dose, and exposure to noble gas radioactivity from the running CCP. The JPM is written to address either pump. The B pump related valves are in parentheses.**
5. **This JPM provides the option of opening the sealed storage locker. IF the seal on the storage locker is broken, THEN ENSURE a conditional performance of 1-PI-OPS-000-002.0 Appendix D, Monitoring of EOI support items is performed and storage box is sealed after the last performance of the JPM.**
6. 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 40 min.

Tools/Equipment/Procedures Needed

AOP-M.01, Appendix I Installation of Temporary Cooling (HPFP) to CCP Oil Coolers.
Fire hoses (two 50 ft sections), 4 ft rubber hose, tee connections and tools from EOI/AOP Storage Locker [Unit 1 PD pump room, AB el. 669]

References:

	Reference	Title	Rev No.
A.	AOP-M.01	Loss of Component Cooling Water	19

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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 complete loss of ERCW has occurred.
2. The operating crew is performing AOP-M.01, Section 2.11, Loss of All ERCW Flow.
3. RCPs and CCPs have been placed in STOP/PULL TO LOCK.

INITIATING CUES:

1. The Unit 1 UO has determined that temporary cooling will be established to the designated CCP 1A-A using AOP-M.01, Appendix I.
2. You are the Rad Waste AUO and have been directed to perform Appendix I, Installation of Temporary Cooling (HPFP) to CCP Oil Coolers.
3. Inform Unit 1 UO when temporary cooling has been established to the designated CCP 1A-A.

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 AOP-M.01, Appendix I.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p>Note: The procedure has a CAUTION and 3 NOTES before the first step.</p> <p style="text-align: center;">APPENDIX I Page 1 of 7</p> <p style="text-align: center;">Installation of Temporary Cooling (HPFP) to CCP Oil Coolers</p> <p>CAUTION This appendix should be completed as quickly as possible. Normal RADCON requirements may be waived to expedite installation of temporary cooling.</p> <p>NOTE 1 If the accountability siren sounds, operator should continue performing this appendix. SM should be aware of task assignments and personnel locations.</p> <p>NOTE 2 Temporary cooling to the CCP oil coolers is accomplished by installing hose connection from a HPFP hose station to the oil heat exchangers on CCP pump skid. This appendix requires removal of a portion of permanent ERCW supply piping to Bearing Oil Heat Exchanger to allow hookup of the temporary hoses.</p> <p>NOTE 3 Fire hose lengths, pre-fabricated tee connections and tools required for hookup are maintained in the EO/AOP supply box on Aux Bldg el 669' (next to door for HUT B Room).</p>	
<p><u>STEP 2:</u> [1] DETERMINE which CCP to connect temporary cooling: (N/A pump not connected)</p> <p style="padding-left: 40px;">A-A CCP B-B CCP</p> <p><u>STANDARD:</u> Operator determines from Initiating Cues that the 1A-A CCP will be connected.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT											
<p>STEP 3.: [2] OBTAIN fire hoses (two 50 ft sections), 4 ft red rubber hose, tee connections and tools from EOI/AOP Storage Locker. [outside of B HUT room, AB el.669]</p> <p>Cue: <i>If desired for operator to open the locker, then cue the operator to open EOI/AOP storage locker if sealed.</i></p> <p>NOTE: The following materials are located in the sealed EOI/AOP Locker [for both units]:</p> <p>Valve wrenches 2 fire hoses (in bag) Red rubber Hose Tee connections Gated wye connection</p> <p>STANDARD Operator locates fire hoses, tee connections and tools.</p>	<p>___ SAT</p> <p>___ UNSAT</p>												
<p>NOTE: All manipulated valves are located in the associated CCP Room.</p> <p>STEP 4.: [3] CLOSE ERCW Supply Valve to CCP Oil Cooler. (NA valve not operated)</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Pump</th> <th>Valve ID</th> <th>Description</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>A-A CCP</td> <td>VLV-67-704A</td> <td>ERCW Sup A-A CCP Oil Cooler</td> <td>CLOSED <input type="checkbox"/></td> </tr> <tr> <td>B-B CCP</td> <td>VLV-67-704B</td> <td>ERCW Sup B-B CCP Oil Cooler</td> <td>CLOSED <input type="checkbox"/></td> </tr> </tbody> </table> <p>Cue: <i>When valve 1-VLV-67-704A and direction of movement are identified, tell the operator the valve handwheel rotates clockwise and eventually will not rotate any further. Stem went down.</i></p> <p>STANDARD Operator locates and closes VLV-67-704A for 1A-A CCP. Operator N/A's valve not operated.</p>	Pump	Valve ID	Description	Position	A-A CCP	VLV-67-704A	ERCW Sup A-A CCP Oil Cooler	CLOSED <input type="checkbox"/>	B-B CCP	VLV-67-704B	ERCW Sup B-B CCP Oil Cooler	CLOSED <input type="checkbox"/>	<p>___ SAT</p> <p>___ UNSAT</p> <p style="text-align: center;">Critical Step</p>
Pump	Valve ID	Description	Position										
A-A CCP	VLV-67-704A	ERCW Sup A-A CCP Oil Cooler	CLOSED <input type="checkbox"/>										
B-B CCP	VLV-67-704B	ERCW Sup B-B CCP Oil Cooler	CLOSED <input type="checkbox"/>										
<p>STEP 5.: [4] CLOSE ERCW Return Valve to CCP Oil Cooler. (NA valve not operated)</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Pump</th> <th>Valve ID</th> <th>Description</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>A-A CCP</td> <td>VLV-67-705A</td> <td>ERCW Ret A-A CCP Oil Cooler</td> <td>CLOSED <input type="checkbox"/></td> </tr> <tr> <td>B-B CCP</td> <td>VLV-67-705B</td> <td>ERCW Ret B-B CCP Oil Cooler</td> <td>CLOSED <input type="checkbox"/></td> </tr> </tbody> </table> <p>Cue: <i>When valve 1-VLV-67-705A and direction of movement are identified, tell the operator the valve handwheel rotates clockwise and eventually will not rotate any further.</i></p> <p>STANDARD: Operator locates and closes VLV-67-705A for 1A-A CCP by turning in the CW direction. Operator N/A's valve not operated.</p>	Pump	Valve ID	Description	Position	A-A CCP	VLV-67-705A	ERCW Ret A-A CCP Oil Cooler	CLOSED <input type="checkbox"/>	B-B CCP	VLV-67-705B	ERCW Ret B-B CCP Oil Cooler	CLOSED <input type="checkbox"/>	<p>___ SAT</p> <p>___ UNSAT</p> <p style="text-align: center;">Critical Step</p>
Pump	Valve ID	Description	Position										
A-A CCP	VLV-67-705A	ERCW Ret A-A CCP Oil Cooler	CLOSED <input type="checkbox"/>										
B-B CCP	VLV-67-705B	ERCW Ret B-B CCP Oil Cooler	CLOSED <input type="checkbox"/>										

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT											
<p>STEP 6.: [5] REMOVE Drain Plug and OPEN ERCW Drain Valve to CCP Oil Cooler. (NA valve not operated)</p> <table border="1" data-bbox="398 353 1191 470"> <thead> <tr> <th>Pump</th> <th>Valve ID</th> <th>Description</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>A-A CCP</td> <td>VLV-67-1547A</td> <td>ERCW Drain A-A CCP Oil Cooler</td> <td>OPEN <input type="checkbox"/></td> </tr> <tr> <td>B-B CCP</td> <td>VLV-67-1546B</td> <td>ERCW Drain B-B CCP Oil Cooler</td> <td>OPEN <input type="checkbox"/></td> </tr> </tbody> </table> <p>Cue: <i>When drain plug is identified, tell the operator he has removed it. When valve 1-VLV-67-1547A (1A-A CCP) and direction of movement are identified, tell the operator the valve handwheel rotates counter-clockwise and eventually will not rotate any further. Some water is seen coming from the drain.</i></p> <p>STANDARD: Operator locates and opens valve 1-VLV-67-1547A (1A-A CCP) by turning in the CCW direction. Operator N/A's valve not operated.</p>	Pump	Valve ID	Description	Position	A-A CCP	VLV-67-1547A	ERCW Drain A-A CCP Oil Cooler	OPEN <input type="checkbox"/>	B-B CCP	VLV-67-1546B	ERCW Drain B-B CCP Oil Cooler	OPEN <input type="checkbox"/>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>
Pump	Valve ID	Description	Position										
A-A CCP	VLV-67-1547A	ERCW Drain A-A CCP Oil Cooler	OPEN <input type="checkbox"/>										
B-B CCP	VLV-67-1546B	ERCW Drain B-B CCP Oil Cooler	OPEN <input type="checkbox"/>										
<p>NOTE: Piping is identified with ID tags at disconnect points.</p> <p>STEP 7.: [6] DISCONNECT ERCW INLET (Supply) piping at the compression Fittings (two places) shown in Figure 2 of this Appendix and REMOVE piping section.</p> <p>Cue: <i>Once the fittings are identified, tell the operator they can be disconnected and the piping removed.</i></p> <p>STANDARD: Operator uses Figure 2 to locate, disconnect, and remove piping.</p>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>												
<p>STEP 8.: [7] CONNECT temporary hose compression fittings to Oil Cooler and ERCW inlet valve as shown in Figure 3.</p> <ul style="list-style-type: none"> • Compression fitting connected to Oil Cooler (6" hard tubing with compression nut from tee connection) • Compression fitting connected to ERCW inlet valve (4 foot red rubber hose with compression nut) <p>Cue: <i>Once the fitting locations are identified, tell the operator the stated hose can be connected to the respective fitting.</i></p> <p>STANDARD: Operator uses Figure 3 to install temporary hose connections at proper points.</p>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>												

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 9.:</u>	<p>[8] CONNECT gated WYE hose connection to the nearest HPFP hose connection:</p> <ul style="list-style-type: none"> • 1-26-668 (near Waste Gas Decay Tank Gallery) • 2-26-668 (Between Boric Acid Evaporator control panels) • 0-26-662 (near elevator) <p>Cue: <i>After connection explained, state "the Wye is installed".</i></p> <p>STANDARD: Operator locates appropriate hose connection point and connects hose.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<u>STEP 10.:</u>	<p>[9] ENSURE valves on Gated WYE are CLOSED.</p> <p>Cue: <i>When asked, inform the operator that the valves on the gated wye are closed. (handles are at right angles to flow)</i></p> <p>STANDARD: Operator ensures valves are closed.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<u>STEP 11.:</u>	<p>[10] ROLL out fire hose (with female end at gated wye and male connection in pump room) and CONNECT two 50 ft. lengths together.</p> <p>Cue: <i>If any hose station other than the 3 listed in JPM step 9 are used and are further away, when hoses are rolled out and connection described, State "The hose will not reach the connection."</i></p> <p>Cue: <i>When the operator correctly reports the location and method of placement of the hoses, inform them that the hoses are rolled out and connected.</i></p> <p>STANDARD: Operator properly positions and connects fire hose sections together.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<u>STEP 12.:</u>	<p>[11] CONNECT Fire hose to gate wye.</p> <p>Cue: <i>When asked, inform the operator that the hose can be connected to the gated wye at the fire valve.</i></p> <p>STANDARD: Operator connects fire hose to gated wye.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<u>STEP 13.:</u>	<p>[12] CONNECT Fire hose to tee connection.</p> <p>Cue: <i>When asked, inform the operator that the hose can be connected to the tee connection near the charging pump.</i></p> <p>STANDARD: Operator connects fire hose to tee connection.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT											
<p>STEP 14.: [13] CHECK all hose connections are complete and hose not kinked.</p> <p>Cue: <i>When asked, tell the operator the status of the connections and hose (as long as the stated manipulations were correct, conditions are as expected).</i></p> <p>STANDARD: The operator checks connections are complete and inspects hose for kinks.</p>	<p>___ SAT</p> <p>___ UNSAT</p>												
<p>STEP 15.: [14] CLOSE ERCW Drain Valve to CCP Oil Cooler. (NA valve not operated)</p> <table border="1" data-bbox="355 649 1176 766"> <thead> <tr> <th>Pump</th> <th>Valve ID</th> <th>Description</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>A-A CCP</td> <td>VLV-67-1547A</td> <td>ERCW Drain A-A CCP Oil Cooler</td> <td>CLOSED <input type="checkbox"/></td> </tr> <tr> <td>B-B CCP</td> <td>VLV-67-1546B</td> <td>ERCW Drain B-B CCP Oil Cooler</td> <td>CLOSED <input type="checkbox"/></td> </tr> </tbody> </table> <p>Cue: <i>When valve 1-VLV-67-1547A (1A-A CCP) and direction of movement is identified, tell the operator the valve handwheel rotates clockwise and eventually will not rotate any further</i></p> <p>STANDARD: Operator locates and closes valve 1-VLV-67-1547A (1A-A CCP)).</p>	Pump	Valve ID	Description	Position	A-A CCP	VLV-67-1547A	ERCW Drain A-A CCP Oil Cooler	CLOSED <input type="checkbox"/>	B-B CCP	VLV-67-1546B	ERCW Drain B-B CCP Oil Cooler	CLOSED <input type="checkbox"/>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
Pump	Valve ID	Description	Position										
A-A CCP	VLV-67-1547A	ERCW Drain A-A CCP Oil Cooler	CLOSED <input type="checkbox"/>										
B-B CCP	VLV-67-1546B	ERCW Drain B-B CCP Oil Cooler	CLOSED <input type="checkbox"/>										
<p>STEP 16.: [15] ENSURE ERCW Isolation Valves to CCP Oil Coolers OPEN. (NA valve not operated)</p> <table border="1" data-bbox="393 1064 1219 1202"> <thead> <tr> <th>PUMP</th> <th>VALVE ID</th> <th>DESCRIPTION</th> <th>POSITION</th> </tr> </thead> <tbody> <tr> <td>A-A CCP</td> <td>VLV-67-1545A</td> <td>ERCW Supply to Gear Oil Cooler</td> <td>OPEN <input type="checkbox"/></td> </tr> <tr> <td>B-B CCP</td> <td>VLV-67-1545B</td> <td>ERCW Supply to Gear Oil Cooler</td> <td>OPEN <input type="checkbox"/></td> </tr> </tbody> </table> <p>Cue: <i>When valve 1-VLV-67-1545A is identified, tell the operator cues consistent with the valves being open (if asked, valve moves freely in clockwise but not counter-clockwise direction, etc.).</i></p> <p>STANDARD: Operator locates and ensures open VLV-67-1545A ERCW Supply to Gear Oil Cooler for A-A CCP.</p>	PUMP	VALVE ID	DESCRIPTION	POSITION	A-A CCP	VLV-67-1545A	ERCW Supply to Gear Oil Cooler	OPEN <input type="checkbox"/>	B-B CCP	VLV-67-1545B	ERCW Supply to Gear Oil Cooler	OPEN <input type="checkbox"/>	<p>___ SAT</p> <p>___ UNSAT</p>
PUMP	VALVE ID	DESCRIPTION	POSITION										
A-A CCP	VLV-67-1545A	ERCW Supply to Gear Oil Cooler	OPEN <input type="checkbox"/>										
B-B CCP	VLV-67-1545B	ERCW Supply to Gear Oil Cooler	OPEN <input type="checkbox"/>										
<p>STEP 17.: [16] OPEN ERCW Return Valve from CCP Oil Cooler. (NA valve not operated)</p> <table border="1" data-bbox="399 1564 1230 1702"> <thead> <tr> <th>PUMP</th> <th>VALVE ID</th> <th>DESCRIPTION</th> <th>POSITION</th> </tr> </thead> <tbody> <tr> <td>A-A CCP</td> <td>VLV-67-705A</td> <td>ERCW Ret A-A CCP Oil Cooler</td> <td>OPEN <input type="checkbox"/></td> </tr> <tr> <td>B-B CCP</td> <td>VLV-67-705B</td> <td>ERCW Ret B-B CCP Oil Cooler</td> <td>OPEN <input type="checkbox"/></td> </tr> </tbody> </table> <p>Cue: <i>When valve 1-VLV-67-705A and direction of movement are identified, tell the operator the valve handwheel rotates counter-clockwise and eventually will not rotate any further.</i></p> <p>STANDARD: Operator locates and opens 1-VLV-67-705A for A-A CCP.</p>	PUMP	VALVE ID	DESCRIPTION	POSITION	A-A CCP	VLV-67-705A	ERCW Ret A-A CCP Oil Cooler	OPEN <input type="checkbox"/>	B-B CCP	VLV-67-705B	ERCW Ret B-B CCP Oil Cooler	OPEN <input type="checkbox"/>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
PUMP	VALVE ID	DESCRIPTION	POSITION										
A-A CCP	VLV-67-705A	ERCW Ret A-A CCP Oil Cooler	OPEN <input type="checkbox"/>										
B-B CCP	VLV-67-705B	ERCW Ret B-B CCP Oil Cooler	OPEN <input type="checkbox"/>										

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>STEP 18.: [17] OPEN Gated Wye routing valve that supplies the hose connection.</p> <p>Cue: <i>When location at hose station and direction of motion are identified, tell the operator that the identified valve on gated wye opens. (lever on side connected to hose is parallel to flow)</i></p> <p>STANDARD: Operator locates and opens Gated Wye routing valve that supplies the hose connection.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p>STEP 19.: [18] OPEN Hose Station valve to provide HPFP to CCP Oil Coolers.</p> <p>Cue: <i>When the hose station valve (1-26-668, 2-26-668, or 0-26-662) with the Wye connected and direction of movement are identified, tell the operator the appropriate valve handwheel rotates counter-clockwise and eventually will not rotate any further.</i></p> <p>STANDARD: Operator opens hose station valve.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>	
<p>STEP 20.: [19] VERIFY fire hose pressurized.</p> <p>Cue: <i>If the operator has made proper connections, inform them the hose indicates pressurized.</i></p> <p>STANDARD: Operator verifies fire hose is pressurized.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>STEP 21.: [20] NOTIFY UO that temporary cooling water connection to CCP is Complete.</p> <p>Cue: <i>Acknowledge the information as the Unit Operator. Another operator will address the door breach and contact Maintenance to install smoke removal fan.</i></p> <p>STANDARD: Operator notifies UO that temporary cooling has been established to 1A-A (1B-B) CCP.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>NOTE: This step is optional since JPM step 21 completes the JPM task per the initiating cues.</p> <p>STEP 22.: [21] BREACH CCP room door OPEN to allow room cooling.</p> <p>Cue: <i>When operator address breaching door, cue that door is breached.</i></p> <p>STANDARD: Operator addresses breaching CCP room door for cooling.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>NOTE: This step is optional JPM step 21 completes the JPM task per the initiating cues.</p> <p>STEP 23.: [22] COORDINATE with Maintenance or Fire Ops to install smoke removal fan to circulate air through CCP room.</p> <p>Cue: <i>When Operator addresses contacting Maintenance or Fire OPS, acknowledge request and report that the fan will be installed as soon as possible.</i></p> <p>STANDARD: Operator addresses installation of smoke removal fan.</p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<p>NOTE IF AOP-M.01 storage box seal was broken then a conditional performance of 1-PI-OPS-000-002.0 Appendix D, Monitoring of EOI support items must be performed and the storage box sealed after the last performance of the JPM.</p>		

End of JPM

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

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 complete loss of ERCW has occurred.
2. The operating crew is performing AOP-M.01, Section 2.11, Loss of All ERCW Flow.
3. RCPs and CCPs have been placed in STOP/PULL TO LOCK.

INITIATING CUES:

1. The Unit 1 UO has determined that temporary cooling will be established to the designated CCP 1A-A using AOP-M.01, Appendix I.
2. You are the Rad Waste AUO and have been directed to perform Appendix I, Installation of Temporary Cooling (HPFP) to CCP Oil Coolers.
3. Inform Unit 1 UO when temporary cooling has been established to the designated CCP 1A-A.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

Inplant
JPM B.1.k
(#23-2)

FINAL

Align Starting Air For Service
On The 2A-A D/G

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	New JPM to replace JPM 23 which was cancelled due to DC/N.	Y	09/21/05	All	MG Croteau
1	Updated format.	N	10/2/06	All	MD Lackey
2	Updated references – no chgs to Procedure or JPM. Removed separate handout attachment	N	5/29/08	4, 7	H J Birch
Typo	Reference Number was not actually chgd in the prev revision.	N	8/05/08	4	H J Birch

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

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

Validation Time: Local 20 mins

Tools/Equipment/Procedures Needed:

0-SO-82-7, Diesel Generator 2A-A Support Systems, Section 5.1

References:

	Reference	Title	Rev No.
1.	0-SO-82-7	Diesel Generator 2A-A Support Systems	13

=====

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

- Both Units are at 100% power. All equipment is operable on both Units with the exception of 2A-A Diesel Generator.
- Work has been completed on the 2A-A Diesel Starting Air System and the clearance tags have been removed.
- The Starting Air System is ready to be returned to service.
- 0-SO-82-7, "Diesel Generator 2A-A Support Systems", prerequisites have been completed.

INITIATING CUES:

1. The U2 CRO has directed you as the Control Room AUO to align the Starting Air System for service on the 2A-A D/G per 0-SO-82-7, "Diesel Generator 2A-A Support Systems", Section 5.1.
2. Notify the U2 CRO when starting air has been aligned.

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 1:</u> Obtain a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of 0-SO-82-7, Section 5.1.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time _____</p>
<p>NOTE 1 Air receivers 2A1(B) and 2A2(B) pressures for 2A-A Diesel Generator are required to have equal to or greater than 150 psig for D/G OPERABILITY. (This note is not applicable for the affected engine's air start system during implementation of DCN D21854A if engineering has performed a technical evaluation supporting D/G operability utilizing the air start system of only one engine.)</p> <p>NOTE 2 Steps [1],[a],[b],[2],[a] & [b] may be performed out of sequence.</p> <p><u>STEP 2:</u> [1] CHECK intake filters clear of obstructions:</p> <p style="padding-left: 40px;">[a] Compressor 1</p> <p style="padding-left: 40px;">[b] Compressor 2</p> <p><u>Cue:</u> <i>The intake filters are clear for each filter.</i></p> <p><u>STANDARD:</u> Operator checks the intake filters clear of obstructions.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> [2] CHECK lube oil level in crankcase normal:</p> <p style="padding-left: 40px;">[a] Compressor 1</p> <p style="padding-left: 40px;">[b] Compressor 2</p> <p><u>Cue:</u> <i>The lube oil level is normal for each crankcase.</i></p> <p><u>STANDARD:</u> Operator locates the compressor crankcase lube oil dipstick and verifies level normal.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *4:</u> [3] PLACE the air dryer control switches to RUN:</p> <p style="padding-left: 40px;">[a] Air Dryer 2A1</p> <p style="padding-left: 40px;">[b] Air Dryer 2A2</p> <p><u>Cue:</u> <i>Both air dryer control switches are in RUN. (Rotated to the left)</i></p> <p><u>STANDARD:</u> Operator places both air dryer control switches to RUN.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP *5:</u> [4] PLACE aftercooler 2A1 controls to the following positions:</p> <p style="padding-left: 40px;">[a] Man Control - OFF.</p> <p style="padding-left: 40px;">[b] Maint Lockout - ON.</p> <p><u>Cue:</u> <i>The 2A1 aftercooler man control is OFF and maint lockout is ON.</i></p> <p><u>STANDARD:</u> Operator places 2A1 aftercooler controls in required position.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

**CANDIDATE CUE SHEET
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Directions to Trainee:

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INITIAL CONDITIONS:

- Both Units are at 100% power. All equipment is operable on both Units with the exception of 2A-A Diesel Generator.
- Work has been completed on the 2A-A Diesel Starting Air System and the clearance tags have been removed.
- The Starting Air System is ready to be returned to service.
- All 0-SO-82-7, "Diesel Generator 2A-A Support Systems", prerequisites have been completed.

INITIATING CUES:

1. The U2 CRO has directed you as the Control Room AUO to align the Starting Air System for service on the 2A-A D/G per 0-SO-82-7, Diesel Generator 2A-A Support Systems, Section 5.1.
2. Notify the U2 CRO when starting air has been aligned.

