

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM 1-AP

Emergency Boration (Stuck Rods)

PREPARED/
REVISED BY:

Date/

VALIDATED BY:

*

Date/

APPROVED BY:

Date/

(Operations Training Manager)

CONCURRED:

**

Date/

(Operations Representative)

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

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

NUCLEAR TRAINING

REVISION/USAGE LOG

| REVISION NUMBER | DESCRIPTION OF REVISION | V | DATE | PAGES AFFECTED | PREPARED/ REVISED BY: |
|-----------------|---|---|-----------|----------------|-----------------------|
| 8 | Transfer from WP. Minor enhancements. | N | 8/12/94 | All | HJ Birch |
| 9 | Boron Conc. changes | N | 9/16/94 | All | HJ Birch |
| 10 | Chg due to Rev B procedure. | Y | 9/9/95 | All | HJ Birch |
| 11 | Incorp previous pen/inks: which corrected step 10 to continue with procedure instead of transition (JPM performance comment. Moved Tave cue from step 14 to 17 added step to determine fully inserted, 12 steps. Latest EA-68-4 & ES-0.1 Rev Chgd 'rods full out' to 'rods >12 steps', added step to use the computer to verify Rods position | N | 1/19/96 | 6 | HJ Birch |
| 12 | Major flow change for the start of EA-68-4 | Y | 2/2/98 | All | HJ Birch |
| 13 | Revision to ES-0.1 had no impact. Made step 28 a critical step. Revised K/A ratings. Reformatted critical steps. | N | 9/23/98 | All | JP Kearney |
| pen/ink | ES-0.1 procedure revision had no impact | N | 8/22/00 | 4 | S. R. Taylor |
| pen/ink | Minor clarification | N | 11/27/01 | 4, 6, 7, 9 | L. Pauley |
| 14 | Incorporated change to EA-68-4. Change was editorial in nature | N | 8/12/02 | All | J P Kearney |
| 15 | Incorporated REV. 1C changes to ES-0.1 and EA-68-4 | Y | 9/8/03 | All | G S Poteet |
| 16 | Incorporated comments | N | 3/30/04 | All | G.S. Poteet |
| 17 | Made minor editorial changes throughout. Updated to current revisions of EA-68-4 and ES-0.1. | N | 7/27/04 | All | MG Croteau |
| 18 | Updated to current revisions of EA-68-4 and ES-0.1. Made minor editorial changes throughout. | Y | 9/20/2005 | All | JJ Tricoglou |
| 19 | Revised format and updated IC. Added candidate cue sheet and minor revisions to match procedure references. | N | 11/21/07 | All | R Putnam |
| 20 | Added H3 auto generate of Handout. Remove handout page. Minor step chgs base on previous procedure changes. | N | 7/15/08 | 5, 7, 9 | H J Birch |
| 21 | Updated procedure revisions, deleted steps to realign Emergency Boration, validation time change to 15 minutes. | Y | 11/30/09 | All | M Hankins |

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

SEQUOYAH NUCLEAR PLANT

RO/SRO
JOB PERFORMANCE MEASURE

Task:

Emergency Boration (Stuck Rods)

Note: This JPM satisfies Simulator Manipulation "T".

J/TA task # : 0000980501 (RO)

K/A Ratings:

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

Task Standard:

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

Evaluation Method : Simulator In-Plant

=====
Performer: _____
NAME

Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish Time _____

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

=====
COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Initialize the simulator in IC-118.
4. **Insert the following:**
 - a. **IMF RD13A f:1**
 - b. **IMF RD13E f:1**
 - c. Override **IOR ZDIHS62138A f:0**
 - d. **IMF RD07C5 (F-8)**
 - e. **IMF RD07D8 (H-14)**
 - f. **IMF AN_OV_325** CPU alarm for Control Rods Dev & Seq- Nuisance alarm
5. **INITIATE** a reactor trip.
6. Close TDAFW valves and freeze the simulator after you have acknowledged the control board alarms.
7. The Console operator can be used to acknowledge alarms not associated with the JPM.
8. Ensure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 15 mins Local _____

Tools/Equipment/Procedures Needed:

1. EA-68-4,
2. ES-0.1

REFERENCES:

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

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READ TO OPERATOR

Directions to Trainee:

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. The reactor has tripped with no safety injection and the Immediate Actions of E-0, Reactor Trip or Safety Injection, were completed.
2. The transition was made to ES-0.1 "Reactor Trip Response".

INITIATING CUES:

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

Job Performance Checklist:

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

Job Performance Checklist:

| | STEP/STANDARD | SAT/UNSAT |
|------------------|---|-------------------------------|
| <u>STEP 6.</u> | <p>IF entering this instruction from ES-0.1 AND any of the following conditions are met:</p> <ul style="list-style-type: none"> • RCS temperature less than 540°F AND core burnup is greater than 12,000 MWD/MTU <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • RCS temperature less than 530°F <p><u>Cue:</u> <i>If checked, cue that RCS temperature reads 547 degrees on all loops.</i></p> | <p>___ SAT ___ UNSAT</p> |
| <u>STANDARD:</u> | Operator recognizes that emergency boration is not required based on temperature. | |
| <u>STEP 7.</u> | <p>IF rod positions CANNOT be verified due to RPS's de-energized,</p> | <p>___ SAT ___ UNSAT</p> |
| <u>STANDARD:</u> | Operator determines this step is N/A, since procedure entry was from ES-0.1, Reactor Trip Response due to two stuck rods, continue with next step. | |
| <u>STEP 8.</u> | <p>IF entering this instruction from ES-0.1 AND any of the following conditions are met:</p> <ul style="list-style-type: none"> • Two or more control rods indicating greater than 12 steps <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Two or more rod positions CANNOT be determined due to RPIs unavailable <p>THEN PERFORM the following:</p> <ol style="list-style-type: none"> a. IF using BAT as a boration source GO TO Section 4.2, Emergency Boration from BAT b. IF using RWST as a boration source GO TO Section 4.3, Emergency Boration from RWST | <p>___ SAT ___ UNSAT</p> |
| <u>NOTE:</u> | Since section 4.3 is an acceptable path, if the operator chooses this path give the following cue: | |
| <u>Cue:</u> | <i>If the operator chooses to go to section 4.3, role play as US and state that the preferred boration method is via the BAT.</i> | |
| <u>STANDARD:</u> | Operator selects Section 4.2. | |

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|---|---|
| <p>NOTE: The following steps are from Section 4.2.</p> <p>STEP 9.: PLACE boric acid transfer pumps to fast speed.</p> <p>Cue: IF asked, BAT "A" is aligned to unit 1 via the 1A pump.</p> <p>NOTE: Standard 1 and 2 can be done in any order.</p> <p>STANDARD: 1) Pump(s) stopped. Green light on HS 2) Speed selector switch placed on "FAST" position 3) Pump(s) restarted, Red light on right comes on for fast speed. 4) (Starting only 1A pump is acceptable)</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 10.: ADJUST emergency borate valve [FCV-62-138] to maintain flow between 35 and 150 gpm on [FI-62-137A].</p> <p>NOTE: FCV-62-138 will not operate.</p> <p>STANDARD: Operator recognizes that FCV-62-138 will not operate. Operator continues with procedure.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP 11.: MONITOR emergency boration flow:</p> <ol style="list-style-type: none"> a. CHECK emergency boration flow established on [FI-62-137A]. b. IF boric acid flow less than 35 gpm, THEN CLOSE recirculation valve for the BAT aligned to the blender: <ul style="list-style-type: none"> • [1-FCV-62-237] for BAT A. <p>NOTE: Since FCV-62-138 will not operate, this step will have no affect on flow. Operator continues to next step.</p> <p>Cue: If asked, BAT A is aligned to unit 1.</p> <p>STANDARD: Operator determines FCV-62-138 will not open and no flow is available. Continues to next step</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP 12.: IF emergency boration flow NOT established, THEN ALIGN normal boration path:</p> <ol style="list-style-type: none"> a. VERIFY VCT outlet valves [LCV-62-132] and [LCV-62-133] OPEN <p>STANDARD: Control board positions indicator lights for LCV-62-132 and 133 indicate open by red lights.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|--|---|
| <p><u>STEP 13.:</u> b. ALIGN normal boration to VCT outlet:</p> <ul style="list-style-type: none"> • OPEN [FCV-62-140]. • OPEN [FCV-62-144]. <p><u>STANDARD:</u> Operator verifies FCV-62-140 is OPEN and ensures FCV-62-144 OPEN and verifies control board indicator lights for FCV-62-140 and 144 indicate open by RED lights illuminated.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 14.:</u> c. CHECK boration flow greater than 35 gpm on [FI-62-139].</p> <p><u>NOTE:</u> Flow should be kept on scale, less than or equal to 50 gpm, to allow calculation of total flow. Flow rate may be controlled by throttling 1-HIC-62-237, 1A BAT recirc valve.</p> <p><u>CUE:</u> <i>If operator notifies the SRO that emergency boration has been established acknowledge flow has been established.</i></p> <p><u>STANDARD:</u> Operator ensures flow rate is greater than 35 gpm. May notify SRO that emergency boration flow has been established.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 15.:</u> IF boration flow NOT established, THEN PERFORM one of the following...</p> <p><u>STANDARD:</u> Operator N/A's this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 16.:</u> VERIFY charging flow established.</p> <p><u>STANDARD:</u> Operator verifies charging flow established.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 17.:</u> MAINTAIN boric acid flow between 35 and 150 gpm.</p> <p><u>STANDARD:</u> Operator monitors flow and ensures it remains between 35 and 150 gpm.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 18.:</u> Monitor BAT level.</p> <p><u>STANDARD:</u> Operator monitors BAT level.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 19.:</u> IF FR-S.1 ATWS or FR-S.2 Loss of core Shutdown condition exists, THEN....</p> <p><u>STANDARD:</u> Operator N/A's this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |

Job Performance Checklist:

| | STEP/STANDARD | SAT/UNSAT |
|--|----------------------|---|
| <p>STEP 20.: IF emergency boration required for RCS cooldown, THEN DETERMINE required boric acid volume based on RCS Temperature</p> <p>STANDARD: Operator N/As this step.</p> | | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP 21.: IF any of the following conditions are met:</p> <ul style="list-style-type: none"> • 2 or more control rods greater than 12 steps <li style="text-align: center;">OR • 2 or more control rods positions CANNOT be determined <p>THEN PERFORM one of the following:</p> <ul style="list-style-type: none"> • Determine Boric Acid Volume from Table <li style="text-align: center;">OR • CALCULATE required boric acid volume USING 0-SI-NUC-000-038.0 and TI-44. <p>STANDARD: Operator Determines boric acid volume using table and determines that 5040 gallons of boric acid are required. [If 0-SI-NUC-000-038.0 is used and a different number is obtained using correctly from the SI, this is acceptable.]</p> | | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 22.: CALCULATE time to inject boric acid volume determined in EA-68-4 step 11 at established flow rate:</p> <p>NOTE: 5040 / (flow indicated by FI-62-139) = _____ minutes</p> <p>STANDARD: Operator determines the time required to inject 5040 gallons of boric acid based on the flow rate they establish. 5040 gal/ 35 gpm = 144 minutes Max time to inject, 5040 gal/ 35 gpm = 101 minutes min time to inject.</p> <p>*NOTE: If 0-SI-NUC-000-038.0 and TI-44 were used instead of table to determine boration amount, substitute value determined using these procedures.</p> | | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 23.: WHEN either of the following conditions exists:</p> <ul style="list-style-type: none"> • FR-0 Subcriticality Status Tree is GREEN <li style="text-align: center;">AND • Required Boric Acid Volume has been injected to RCS <li style="text-align: center;">OR Adequate SDM verified <li style="text-align: center;">OR Conditions which require Emergency Boration no longer exist, <p>THEN GO TO Section 4.4 for Termination of Boron.</p> <p>Cue: When the operator determines the time, cue them that the JPM is complete.</p> <p>STANDARD: Operator notifies the US that boration has been established to RCS.</p> | | <p>___ SAT</p> <p>___ UNSAT</p> |

End of JPM

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM13AP1

Transfer to Hot Leg Recirculation

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

VALIDATED BY: * _____ Date/

APPROVED BY: _____ Date/
(Operations Training Manager)

CONCURRED: ** _____ Date/
(Operations Representative)

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

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

| NUCLEAR TRAINING | | | | | |
|---------------------------|--|----------|-------------|-----------------------|-----------------------------|
| REVISION/USAGE LOG | | | | | |
| REVISION NUMBER | DESCRIPTION OF REVISION | V | DATE | PAGES AFFECTED | PREPARED/REVISED BY: |
| 0 | Transfer from Word Perfect | N | 1994 | All | HJ Birch |
| 1 | Add cover sheep and Incorporate Rev B minor changes. Chgd performance time to based on validation. | Y | 9/12/95 | All | HJ Birch |
| pen/ink | Chg intiat cue to since time of event to match ES-1.3. Comment from student. | N | 1/25/96 | 4 | HJ Birch |
| pen/ink | Chg due to procedure revision and chg recirc criteria from 12 hr to 5.5 hr | N | 03/19/02 | 4 | WR Ramsey |
| 2 | Incorporated pen/ink changes | N | 8/22/02 | 4 | J P Kearney |
| 3 | Updated to current revision of EOP. | N | 9/22/03 | All | MG Croteau |
| 4 | Corrected IC. Corrected typos. 5 vice 5.5 hours. | N | 8/2/04 | All | MG Croteau |
| 5 | Corrected IC. Revised JPM to conform to latest revision of ES-1.4. | Y | 9/30/2005 | All | JJ Tricoglou |
| 6 | Updated special instructions to the Evaluator, deleted extra page for directions to trainee | Y | 11/30/09 | 4 | M Hankins |

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified.
2. Any **UNSAT** requires comments.
3. Initialize Simulator to IC #24, after automatic containment sump swapover is initiated, perform required alignment of ECCS to Containment Sump per ES-1.3. Insert the following remote functions:
 - a. **IRF RHR14 f:1**
 - b. **IRF SIR06 f:0)**
 - c. **IOR ZDIHS63172A f:0 (Fails FCV-63-172 closed)**
5. If sump recirc IC is not available, then initialize to IC #16 and complete the following setup:
 - a. Insert **IMF TH01A f:10** (10% LOCA on Loop #1 Hot Leg) and trip RCPs.
 - b. After automatic containment sump swapover is initiated, perform required alignment of ECCS to containment sump per ES-1.3.
 - c. Place operating power on FCV-63-1 (remote function **IRF RHR14 f:1**).
 - d. When RWST level decreases to 8% realign containment spray pump suction to containment sump per ES-1.3.
 - e. Place operating power on FCV-63-22 (remote function **IRF SIR06 f:0**).
 - f. Insert override **IOR ZDIHS63172A f:0 (Fails [FCV-63-172] CLOSED)**
 - g. Acknowledge and clear ALL alarms.
 - h. Freeze simulator after realignment of containment spray suction to containment sump.
6. Insert overrides to silence following nuisance alarms:
 - a. **IMF AN_OV_304 f:3** (Saturation Margin Trouble)
 - b. **IMF AN_OV_420 f:3** (Lower Compt Moisture High)
 - c. **IMF AN_OV_96 f:3** (Turbine Zero Speed)
 - d. Change plaque next to FCV-63-22 to indicate power restored to valve.
7. Ensure Operator performs the following required actions for **SELF-CHECKING**;
 - a. Reviews the intended action and expected response.
 - b. Compares the actual response to the expected response.

Validation Time: CR. 15 mins Local _____

Tools/Equipment/Procedures Needed:

ES-1.4, Transfer to Hot Leg Recirculation

References:

| | Reference | Title | Rev No. |
|----|-----------|-----------------------------------|---------|
| 1. | ES-1.4 | Transfer to Hot Leg Recirculation | 5 |

READ TO OPERATOR

Directions to Trainee:

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INITIAL CONDITIONS:

1. All ECCS components and Containment Spray pumps are aligned and taking suction from containment sump per ES-1.3, Transfer To RHR Containment Sump.
2. RCS pressure is less than 180 psig. RHR spray is NOT in service.
3. Both RHR pumps are in service.

INITIATING CUES:

1. 5 hours have elapsed since the time of the event.
2. As the OATC, you are directed to transfer to hot leg recirculation in accordance with ES-1.4, Transfer To Hot Leg Recirculation.
3. Notify the US/SRO when you have completed ES-1.4.

Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

| | |
|---|---|
| <p><u>STEP 1:</u> Obtain a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of ES-1.4.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p> |
| <p><u>STEP 2:</u> 1. DETERMINE if RHR spray should be isolated:</p> <p>a. CHECK RHR spray IN SERVICE:</p> <ul style="list-style-type: none"> • Train A RHR spray valve FCV-72-40 OPEN OR • Train B RHR spray valve FCV-72-41 OPEN. <p><u>STANDARD:</u> Operator determines FCV-72-40 and FCV-72-41 closed, verifies green lights ON and red lights OFF for both valves. Operator goes to step 2.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 3:</u> 2. CHECK RHR pump A-A RUNNING.</p> <p><u>STANDARD:</u> Operator checks RHR pump A-A running, verifies red light ON and green light OFF. Operator may also verify pump amps normal.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP *4:</u> 3. ALIGN RHR Train A for hot leg recirculation:</p> <p>a. CLOSE RHR Train A cold leg isolation valve FCV-63-93.</p> <p><u>STANDARD:</u> Operator places FCV-63-93 to Close, verifies green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 5:</u> 3. ALIGN RHR Train A for hot leg recirculation:</p> <p>b. ENSURE RHR Train B discharge crosstie valve FCV-74-35 CLOSED.</p> <p><u>STANDARD:</u> Operator ensures FCV-74-35 Closed, verifies green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |

Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

| | |
|---|---|
| <p>STEP *6: 3. ALIGN RHR Train A for hot leg recirculation: c. OPEN RHR Train A discharge crosstie valve FCV-74-33.</p> <p>STANDARD: Operator places FCV-74-33 to Open, verifies red light ON and green light OFF.</p> <p>COMMENTS:</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP *7: 3. ALIGN RHR Train A for hot leg recirculation: d. OPEN RHR HL injection valve FCV-63-172.</p> <p>NOTE: FCV-63-172 fails to open. Operator must transition to RNO Column and realign RHR trains to cold legs.</p> <p>STANDARD: Operator places FCV-63-172 to Open. Operator determines FCV-63-172 will NOT open, verifies green light remains ON. Operator goes to RNO Column. → <i>Step 11 Check SI pump A-A RUNNING</i></p> <p>COMMENTS:</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>NOTE: Begin alternate path steps.</p> <p>STEP 8: 1) ENSURE RHR hot leg injection valve FCV-63-172 CLOSED.</p> <p>STANDARD: Operator ensures FCV-63-172 Closed, verifies green light ON and red light OFF.</p> <p>COMMENTS:</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP *9: 2) ENSURE RHR Train A discharge crosstie valve FCV-74-33 CLOSED.</p> <p>STANDARD: Operator places FCV-74-33 to Close, verifies green light ON and red light OFF.</p> <p>COMMENTS:</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |

Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

| | |
|--|---|
| <p><u>STEP *10:</u> 3) ENSURE RHR Train A cold leg isolation valve FCV-63-93 OPEN.</p> <p><u>STANDARD:</u> Operator places FCV-63-93 to Open, verifies red light ON and green light OFF.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 11:</u> 4) IF FCV-63-172 is NOT capable of opening from MCR, THEN GO TO Step 11.</p> <p><u>STANDARD:</u> Operator determines FCV-63-172 not able to be opened and goes to Step 11.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 12:</u> 11. CHECK SI pump A-A RUNNING.</p> <p><u>STANDARD:</u> Operator checks SI pump A-A running, verifies red light ON and green light OFF. Operator may also verify pump amps normal.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP *13:</u> 12. ALIGN SI pump A-A for hot leg recirculation: a. ENSURE SI pump A-A STOPPED.</p> <p><u>STANDARD:</u> Operator places SI pump A-A to Stop, verifies green light ON and red light OFF (HS-63-10A).</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP *14:</u> 12. ALIGN SI pump A-A for hot leg recirculation: b. CLOSE SI Train A crossie valve FCV-63-152.</p> <p><u>STANDARD:</u> Operator places FCV-63-152 to Close, verifies green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |

Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

| | |
|---|--|
| <p>STEP *15: 12. ALIGN SI pump A-A for hot leg recirculation: c. WHEN FCV-63-152 closed, THEN PERFORM the following: 1) OPEN SI Train A hot leg injection FCV-63-156.</p> <p>STANDARD: Operator places FCV-63-156 to Open, verifies red light ON and green light OFF.</p> <p>COMMENTS:</p> | <p>___ SAT ___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP *16: 12. ALIGN SI pump A-A for hot leg recirculation: c. WHEN FCV-63-152 closed, THEN PERFORM the following: 2) START SI pump A-A.</p> <p>STANDARD: Operator places SI pump A-A to Start, verifies red light ON and green light OFF (HS-63-10A).</p> <p>COMMENTS:</p> | <p>___ SAT ___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 17: 13. VERIFY SI Train A discharge flow on FI-63-151.</p> <p>STANDARD: Operator verifies SI Train A discharge flow indicated on FI-63-151.</p> <p>COMMENTS:</p> | <p>___ SAT ___ UNSAT</p> |
| <p>STEP 18: 14. CHECK SI pump B-B RUNNING.</p> <p>STANDARD: Operator checks SI pump B-B running, verifies red light ON and green light OFF. Operator may also verify pump amps normal.</p> <p>COMMENTS:</p> | <p>___ SAT ___ UNSAT</p> |
| <p>STEP *19: 15. ALIGN SI pump B-B for hot leg recirculation: a. STOP SI pump B-B.</p> <p>STANDARD: Operator places SI pump B-B to Stop, verifies green light ON and red light OFF (HS-63-15A).</p> <p>COMMENTS:</p> | <p>___ SAT ___ UNSAT</p> <p>Critical Step</p> |

Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

| | |
|---|---|
| <p><u>STEP *20:</u> 15. ALIGN SI pump B-B for hot leg recirculation: b. CLOSE SI Train B crosstie FCV-63-153.</p> <p><u>STANDARD:</u> Operator places FCV-63-153 to Close, verifies green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP *21:</u> 15. ALIGN SI pump B-B for hot leg recirculation: c. WHEN FCV-63-153 closed, THEN PERFORM the following: 1) OPEN SI Train B hot leg injection FCV-63-157.</p> <p><u>STANDARD:</u> Operator places FCV-63-157 to Open, verifies red light ON and green light OFF.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP *22:</u> 15. ALIGN SI pump B-B for hot leg recirculation: c. WHEN FCV-63-153 closed, THEN PERFORM the following: 2) START SI pump B-B.</p> <p><u>STANDARD:</u> Operator places SI pump B-B to Start, verifies red light ON and green light OFF (HS-63-15A).</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 23:</u> 16. VERIFY SI Train B discharge flow on FI-63-20.</p> <p><u>STANDARD:</u> Operator verifies SI Train B discharge flow indicated on FI-63-20.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 24:</u> 17. ISOLATE SI pump flow to cold legs: a. CHECK BOTH SI pumps ALIGNED for hot leg recirculation.</p> <p><u>STANDARD:</u> Operator checks both SI pumps aligned for hot leg recirculation per previous steps.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |

Job Performance Checklist:

STEP/STANDARD

SAT/UNSAT

| | |
|--|---|
| <p>STEP 25: 17. ISOLATE SI pump flow to cold legs: b. CHECK power AVAILABLE to SI pump cold leg injection valve FCV-63-22.</p> <p>NOTE: Console Operator insert IRF SIR06 f:0 to place power on FCV-63-22.</p> <p>Cue: Inform Operator that power is restored to FCV-63-22.</p> <p>STANDARD: Operator contacts AUO to restore power to FCV-63-22.</p> <p>COMMENTS:</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP 26: 17. ISOLATE SI pump flow to cold legs: c. CLOSE SI pump cold leg injection valve FCV-63-22.</p> <p>STANDARD: Operator checks FCV-63-22 Closed, verifies green light ON and red light OFF.</p> <p>COMMENTS:</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP 27: Notify US/SRO that ES-1.4 is completed with hot leg recirculation established.</p> <p>STANDARD: Operator notifies US/SRO that ES-1.4 is completed.</p> <p>COMMENTS:</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p> |

End of JPM

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

1. All ECCS components and Containment Spray pumps are aligned and taking suction from containment sump per ES-1.3, Transfer To RHR Containment Sump.
2. RCS pressure is less than 180 psig. RHR spray is NOT in service.
3. Both RHR pumps are in service.

INITIATING CUES:

1. 5 hours have elapsed since the time of the event.
2. As the OATC, you are directed to transfer to hot leg recirculation in accordance with ES-1.4, Transfer To Hot Leg Recirculation.
3. Notify the US/SRO when you have completed ES-1.4.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 2 RO/SRO

Remove Excess Letdown from Service

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

VALIDATED BY: * _____ *Date/*

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

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

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

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

| NUCLEAR TRAINING | | | | | | |
|---------------------------|--------------------------------|----------|-------------|-----------------------|-----------------------------|--|
| REVISION/USAGE LOG | | | | | | |
| REVISION NUMBER | DESCRIPTION OF REVISION | V | DATE | PAGES AFFECTED | PREPARED/REVISED BY: | |
| 0 | Initial Issue | Y | 11/30/09 | All | M. Hankins | |

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. A **Critical step** is identified bold type in the SAT/UNSAT column.
2. Any **UNSAT** requires comments
3. Task should begin at the IC198, B CCP I/S, Excess LD I/S, LD I/S at ~73 gpm.
5. Ensure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR 7 min Local _____

Tools/Equipment/Procedures Needed:

REFERENCES:

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

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

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READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

The Unit is operating at 100% power. After repair of a leaking valve, normal letdown has been restored to service. Excess letdown had been placed in service while the repairs were made. Excess letdown temperature is ~207°F and 45 psig on 1-PI-62-57. Normal Letdown has been restored to service in accordance with 1-SO-62-1.

INITIATING CUES:

You are the U-1 OATC. You have been directed to remove excess letdown from service using 1-SO-62-6. Report to Unit supervisor when excess letdown has been removed from service.

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|--|---|
| <p><u>STEP 1.:</u> IF letdown is to be placed in service, THEN RETURN to service per 1-SO-62-1.</p> <p><u>STANDARD:</u> Operator verifies letdown is in service. Initial conditions stated</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 2.:</u> CLOSE [1-FCV-62-56] Excess Letdown Heat Exchanger outlet valve.</p> <p><u>STANDARD:</u> Operator verifies valve closes, green light illuminated and red light dark; and temperature and pressure decrease on TI-62-58 and PI-62-57.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>CRITICAL STEP</p> |
| <p><u>STEP 3.:</u> VERIFY [1-FCV-62-59] Excess Letdown 3-way valve in NORMAL.</p> <p><u>STANDARD:</u> Operator verifies the HS for FCV-62-59 is in NORMAL.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 4.:</u> CLOSE [1-FCV-62-55] Excess Letdown containment isolation valve.</p> <p><u>STANDARD:</u> Operator places HS in closed and verifies green light illuminated and red light dark</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 5.:</u> CLOSE [1-FCV-62-54] COLD LEG Loop #3 Excess Letdown valve.</p> <p><u>STANDARD:</u> Operator places HS to close and verifies green light illuminated and red light dark</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>CRITICAL STEP</p> |

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|---|---|
| <p>STEP 6.: IF charging is in service, THEN ADJUST seal injection flow to 6-11 gpm using [1-FCV-62-89]</p> <p><u>STANDARD:</u> Operator checks seal injection flow between 6-11 gpm and makes adjustments as required.</p> | <p>___ SAT ___ UNSAT</p> |
| <p>STEP 7.: IF auto operation is desired and system conditions will allow it, THEN PLACE [1-FCV-62-93] in AUTO.</p> <p><u>STANDARD:</u> Operator should adjust Pressurizer level, if needed, prior to placing charging in automatic.</p> | <p>___ SAT ___ UNSAT</p> |
| <p>STEP 8.: NOTIFY RADCON that Excess Letdown is REMOVED from SERVICE.</p> <p><u>CUE:</u> <i>Acknowledge as RADCON that Excess Letdown has been removed from service.</i></p> <p><u>STANDARD:</u> Operator should call RADCON and notify them Excess Letdown has been removed from service on Unit 1.</p> | <p>___ SAT ___ UNSAT</p> |
| <p>STEP 9.: ENSURE [1-FCV-70-85] Excess Letdown HX CCS FCV is CLOSED.</p> <p><u>NOTE</u> Operator should address the need to have a CV (Concurrent Verifier) present prior to operating the valve.</p> <p><u>STANDARD:</u> Operator takes the HS for 1-FCV-70-85 to CLOSE position and verifies green light illuminated and red light dark.</p> | <p>___ SAT ___ UNSAT</p> <p>CRITICAL STEP</p> |
| <p>STEP 10.: ENSURE [1-HS-70-85A] is in the A-Auto position.</p> <p><u>NOTE</u> Operator should address the need to have a CV (Concurrent Verifier) present prior to operating the valve.</p> <p><u>STANDARD:</u> Operator places the HS in the A-Auto position.</p> | <p>___ SAT ___ UNSAT</p> <p>CRITICAL STEP</p> |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|--|---------------------------------|-----------|
| <p>STEP 11.: INDEPENDENTLY VERIFY....</p> <p>NOTE The next four steps are independent verification of manipulations previously made by the operator</p> <p> CUE: Tell the operator the independent verifications were performed by another operator.</p> <p> STANDARD: Operator requests an independent verification for previous manipulations.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p>STEP 12.: IF operation at greater than 200°F has occurred, THEN CONTACT Systems Engineering to evaluate Grinnell Valve maintenance requirements.</p> <p>STANDARD: Operator notifies the US that excess letdown temperature exceeded 200°F, therefore System Engineering must be notified to evaluate Grinnell Valve maintenance requirements.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

End Of JPM

Directions to Trainee:

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

INITIAL CONDITIONS:

The Unit is operating at 100% power. After repair of a leaking valve, normal letdown has been restored to service. Excess letdown had been placed in service while the repairs were made. Excess letdown temperature is ~207°F and 45 psig on 1-PI-62-57.

Normal Letdown has been restored to service in accordance with 1-SO-62-1.

INITIATING CUES:

You are the U-1 OATC. You have been directed to remove excess letdown from service using

1-SO-62-6. Report to Unit supervisor when excess letdown has been removed from service.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 152-1

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

PREPARED/
REVISED BY:

Date/

VALIDATED BY:

*

Date/

APPROVED BY:

Date/

(Operations Training Manager)

CONCURRED:

**

Date/

(Operations Representative)

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

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

NUCLEAR TRAINING
REVISION/USAGE LOG

| REVISION NUMBER | DESCRIPTION OF REVISION | V | DATE | PAGES AFFECTED | PREPARED/ REVISED BY: |
|------------------------|---|----------|-------------|-----------------------|------------------------------|
| 0 | New JPM based on JPM 152, changed to swap from Train B to Train A RHR pump. | Y | 12/03/09 | All | M Hankins |

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Initialize IC-197. Ensure Train B RHR is in service with flow aligned through FCV-63-94 to Loops 1 & 4.
2. An extra operator will be required to acknowledge alarms and monitor S/G levels, RCS temp, RCS press.
3. Any UNSAT requires comments
4. Ensure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.
 - d.

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

Tools/Equipment/Procedures Needed:

0-SO-74-1, Section 8.3.1

REFERENCES:

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

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READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

1. Unit 1 had been in Mode 5 for 72 hours to repair a leak on the #1 Steam Line.
2. RCS boron is 1400 ppm and the previous shift determined that Train A RHR boron concentration is 1450 ppm.
3. Shutdown margin required boron concentration is 1200 ppm.
4. Train B RHR pump needs to be shutdown to allow Maintenance to add oil to the motor.
5. Train A RHR has been checked out locally by the Auxiliary Bldg. AUO and is ready for service.
The AUO is standing by in the Auxiliary Building

INITIATING CUES:

You are the Unit 1 OATC and the SRO has directed you to place Train A RHR in service and remove Train B RHR from service. Align Train A injection flowpath to loops 2 & 3. Notify the SRO when you have Train A RHR in service.

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|--|--|------------------|
| <p>STEP 1.: Obtain copy of 0-SO-74-1 and determine appropriate section</p> <p>STANDARD: Operator obtains a copy of 0-SO-74-1 and determines Section 8.3.1 is the section for Placing Train A RHR I/S.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p>Start Time ___</p> | |
| <p>STEP 2.: IF adjustment is required on CCS flow through RHR Hxs, THEN ENSURE [FCV-70-156] RHR Hx B CCS outlet is THROTTLED.</p> <p>NOTE: Operator may decide to keep FCV-70-156 Open</p> <p>STANDARD: Operator ensures HS-70-156 has a RED & GREEN light LIT with flow indicated on 0-M-27A.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> | |
| <p>STEP 3.: ENSURE [FCV-74-16] RHR Hx A Outlet is CLOSED.</p> <p>STANDARD: Operator ensures FCV-74-16 RHR Hx A Outlet CLOSED, HIC-74-28 @ 100%.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> | |
| <p>STEP 4.: START RHR Pump A-A with [HS-74-10A].</p> <p>STANDARD: Operator should address making a plant announcement prior to starting 1A-A RHR Pump, Starts pump and verifies RED light LIT on HS, verifies amps.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Critical Step</p> | |
| <p>STEP 5.: VERIFY [FCV-74-12] RHR Pump A-A miniflow OPENS or greater than 500 gpm in indicated on FI-74-12.</p> <p>Cue: IF dispatched: FI-74-12 indicates >500 gpm.</p> <p>STANDARD: Operator verifies FCV-74-24 is open by Red light LIT on handswitch or checks with AUO locally to verify >500 gpm flow indicated on local flow indicator FI-47-24.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> | |
| <p>STEP 6.: IF aligning Train A RHR cooling to loops 2 and 3, THEN PERFORM the following: [a] ENSURE [FCV-63-93] OPEN.</p> <p>STANDARD: Operator ensures FCV-63-93 OPEN, red light illuminated, green light dark.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Critical Step</p> | |

Job Performance Checklist:

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

Job Performance Checklist:

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

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|--|------------------|
| <p>STEP 19.: THROTTLE one or both of the following to maintain desired cooling rate: FCV-74-16, RHR Hx A Outlet, AND/OR FCV-74-32, RHR Hx Bypass.</p> <p>STANDARD: Operator throttles open FCV-74-16 and/or FCV-74-32 to stabilize RCS temperature and establish RHR flowrates at approximately the same values that were present prior to the flowpath realignment.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Critical Step</p> | |
| <p>STEP 20.: WHEN injection flow is > 1250 gpm, THEN VERIFY [FCV-74-12] RHR Pump A-A miniflow is CLOSED.</p> <p>STANDARD: Operator verifies FCV-74-24 closed, GREEN light LIT on handswitch.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> | |
| <p>STEP 21.: IF cooling water is to be removed from Train B Hx, THEN CLOSE [FCV-70-153].</p> <p>Cue: <i>Leave cooling water aligned to Train B at its current flowrate.</i></p> <p>STANDARD: Operator NA's step.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> | |
| <p>STEP 22.: NOTIFY U1 US that Train A of RHR is in service to loops 2 & 3 and Train B of RHR has been removed from service.</p> <p>STANDARD: None.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Stop Time___</p> | |

End of JPM

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

1. Unit 1 had been in Mode 5 for 72 hours to repair a leak on the #1 Steam Line.
2. RCS boron is 1400 ppm and the previous shift determined that Train A RHR boron concentration is 1450 ppm.
3. Shutdown margin required boron concentration is 1200 ppm.
4. Train B RHR pump needs to be shutdown to allow Maintenance to add oil to the motor.
5. Train A RHR has been checked out locally by the Auxiliary Bldg. AUO and is ready for service. The AUO is standing by in the Auxiliary Building

INITIATING CUES:

You are the Unit 1 OATC and the SRO has directed you to place Train A RHR in service and remove Train A RHR from service. Align Train A injection flowpath to loops 2 & 3.
Notify the SRO when you have Train A RHR in service.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 34-1

Establishing Secondary Heat Sink Using Main Feedwater or Condensate

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

VALIDATED BY: * _____ Date/ _____

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

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

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

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

NUCLEAR TRAINING
REVISION/USAGE LOG

| REVISION NUMBER | DESCRIPTION OF REVISION | V | DATE | PAGES AFFECTED | PREPARED/ REVISED BY: |
|------------------------|--------------------------------|----------|-------------|-----------------------|------------------------------|
| 0 | Initial issue | Y | 12/03/09 | All | M Hankins |

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps are identified.
2. Any UNSAT requires comments
3. Acknowledge any associated alarms.
4. Initialize simulator in **IC: 119** Steam Dump Pressure Mode Setpoint-968 psig
All AFW pumps are shutdown, MDAFW A-A tagged, TDAFW pump and MDAFW B-B trip on Reactor Trip. RX trip due Rod control problems (multiple rod drops), adjust steam dumps in pressure mode to control Tavg 544-546°F.
5. Allow S/G narrow range levels are <~20%. (allow SD to steam off to reduce S/G level if necessary)
6. Console operator will role play as CRO and acknowledge/clear alarms as needed.
7. Ensure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 30 mins Local _____

Tools/Equipment/Procedures Needed:

EA-2-2

References:

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

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READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

1. Unit 1 has experienced a Reactor Trip due multiple dropped rods.
2. MDAFW pump A-A is tagged out for maintenance, MDAFW pump B-B tripped on electrical fault and the TDAFW pump tripped on electrical overspeed just after RX trip.
3. Unit has transitioned to ES-0.1 and are ready to perform the RNO for STEP 5.
4. All four S/G levels have been decreasing.
5. AFW Flow to the S/Gs can NOT be established.

INITIATING CUES:

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

| | |
|---|---|
| <p><u>STEP 1.:</u> Obtain copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Operator may obtain a copy of ES-0.1 and review step 5 RNO.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p> |
| <p><u>STEP 2.:</u> IF directed by ES-0.1, Reactor Trip Response, to establish main Feedwater flow, THEN PERFORM Section 4.2.</p> <p><u>STANDARD:</u> Operator recognizes Section 4.2 is the correct section for performance.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 3.</u> REFER TO the following EAPs to attempt to restore AFW flow in parallel with this procedure:</p> <ul style="list-style-type: none"> • EA-3-10 Establishing MDAFW flow • EA-3-9, establishing TDAFW flow <p>CUE: <i>Maintenance and Ops personnel have been dispatched to restore MDAFW pumps A and B and the TDAFWP, EA-3-10 and EA-3-9 are in progress.</i></p> <p><u>STANDARD:</u> Operator contacts the US and or the MSS to have personnel dispatched to establish AFW flow.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 4.:</u> CLOSE MFW Regulating valves.</p> <p><u>STANDARD:</u> Operator ensures the MFW reg valves output signal is zero, on 1-FIC 3-35, 48, 90 and 103 and check lights for MFW reg valves on 1-XX-3-35.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 5.:</u> ENSURE MFW regulating bypass valves CLOSED.</p> <p><u>STANDARD:</u> Operator ensures MFW bypass valves CLOSED using 1-LIC-3-35, 48, 90, 103</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 6.:</u> CYCLE Reactor Trip breakers.</p> <p><u>STANDARD:</u> Operator places 1-HS-99-7 in the CLOSE position, and places 1-RT-1 in the trip position. Rx trip breaker lights turn red and then green.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 7.:</u> RESET FW Isolation signal.</p> <p><u>STANDARD:</u> Operator depresses pushbuttons 1-HS-3-99A and 99B, and Annunciator Window 1-XA-55-6B, LOW Tavq Reactor Trip MFW Vales Actuated alarm clears.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |

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| <p><u>STEP 8.:</u> OPEN FW isolation vavles for S/G's to be fed.</p> <p><u>STANDARD:</u> Operator opens applicable FWI valves, using 1-HS-3-33A, 47A, 87A and 100A.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 9.:</u> PERFORM Section 4.4 to establish manin feedwater flow to S/G's.</p> <p><u>STANDARD:</u> Operator transitions to Section 4.4.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 10.:</u> DISPATCH operator to PERFROM Appendix A, Part I to remove fuses to disable intermediate heater string Isolation.</p> <p><i>Cue</i> <i>Respond as an AUO and tell operator you will perform Appendix A to remove fuses to disable intermediate heater string isolation.</i></p> <p><u>STANDARD:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 11.:</u> ENSURE Condensate inlet and outlet vavles for at least one LP heater String OPEN.</p> <p><u>STANDARD:</u> Operator verifies LP Heater Inlet/Outlet valves OPEN, red light and green lights illuminated for 1-HS 2-46A, 66A, 56A, 55A, 65A and 75A.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 12.:</u> ENSURE the following condensate pumps RUNNING:</p> <ul style="list-style-type: none"> • 2 Hotwell pumps • 1 CBP (suction valve open) • 1 Injection water pump <p><u>STANDARD:</u> Operator ensures 2 HW pumps, 1 CBP with suction valve open and 1 injection water pump running.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 13.:</u> ENSURE MFPT Recirc Valves in MANUAL and CLOSED:</p> <p><u>STANDARD:</u> Operator ensures recirc valves for the MFP's are in manual and closed, 1-FIC-3-70 and 3-84.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 14.:</u> ENSURE MFW reg controllers in MANUAL and CLOSED:</p> <p><u>STANDARD:</u> Operator ensures Main FRV are in manual and closed using 1-FIC-3-35, 48, 90, 103, and checks status lights green on 1-XX-3-35.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |

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| <p>STEP 15.: ENSURE MFW bypass reg valves controllers in MANUAL and output ZERO.</p> <p>STANDARD: Operator ensures all MFW reg bypass valves are in Manual (amber light illuminated) and output ZERO using 1-LIC-3-35, 48, 90-103.</p> | <p>___ SAT ___ UNSAT</p> |
| <p>STEP 16.: IF a flowpath is not available through at least one Intermediate Heater string.....</p> <p>STANDARD: Operator N/A's this step, flow path is available.</p> | <p>___ SAT ___ UNSAT</p> |
| <p>STEP 17.: ENSURE Inlet and outlet valves for at least one string of Intermediate and High Pressure Heaters OPEN:</p> <ul style="list-style-type: none"> • High Pressure FW Heaters • Intermediate Pressure FW Heaters <p>STANDARD: Operator verifies all HP (M-3) and IP (M-2) heater string isolation valves are OPEN.</p> | <p>___ SAT ___ UNSAT</p> |
| <p>STEP 18.: IF starting MFW pump A, THEN PERFORM the following:</p> <ul style="list-style-type: none"> a. ENSURE MFP a drain hand-switch [HS-46-14] in OPEN position b. ENSURE the following vavles are OPEN: <p>FCV-2-205 [M-2] FCV-2-210 [M-2] FCV-2-221 [M-2] FCV-3-67 [M-3]</p> <p>STANDARD: OPERATOR ensures the MFPT condenser Inlet and Outlet Isolation valves are OPEN, FCV-2-205 and 210, and the MFP Inlet and Outlet isol Valves are open, FCV-2-221 and 3-67.</p> | <p>___ SAT ___ UNSAT</p> |
| <p>STEP 19.: IF [VLV-1-611] MFP pump A HP steam Isolation</p> <p>CUE: <i>When operator dispatches personnel to open valve Inform them that VLV-1-611 is already open.</i></p> <p>STANDARD: Operator dispatches an operator to check valve open locally.</p> | <p>___ SAT ___ UNSAT</p> |

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| <p>STEP 20.: RESET MFPT A USING [HS-46-9A].</p> <p><u>STANDARD:</u> Operator places HS in the reset position and verifies the red light illuminates green light is dark, alarm clears for MFP trip.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 21.: PLACE MFPT A [SIC-46-20A] in MANUAL and with ZERO output.</p> <p><u>STANDARD:</u> Operator places MFPT A SIC-46-20 to manual and sets output signal to 0.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 22.: ENSURE MFPT A and B mater speed controller [PC-46-20] in MANUAL and with output at 0.</p> <p><u>STANDARD:</u> Operator places MFPT A and B mater speed controller [PC-46-20] in MANUAL and sets output at 0.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 23.: DO NOT CONTINUE until section flow path established to MFP.</p> <p><u>STANDARD:</u> Operator verifies flow path is available to MFP suction.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP 24.: ENSURE [FIC-3-70] MFPTA recirc valve in MANUAL and OPEN.</p> <p><u>STANDARD:</u> Operator verifies the MFP A recirc valve is in manual, amberlight illuminated and opens valve.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 25.: PLACE MFPT A speed controller [SIC-46-20A] in AUTO.</p> <p><u>STANDARD:</u> Operator places MFPT A speed controller in AUTO.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |

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| <p><u>STEP 26.:</u> VERIFY the governor valve positioner is indicating CLOSED.</p> <p><u>STANDARD:</u> Operator verifies 1-HS-46-13A green light illuminated and/or checks 1-ZI-46-13B (M-3) indicating 0.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 27.:</u> IF MFPT governor valve NOT indicating CLOSED, THEN</p> <p><u>STANDARD:</u> Operator N/A's this step, valve is closed.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 28.:</u> OPEN MFPT A stop valves by placing HP stop valve switch [HS-46-15A] to raise.</p> <p>NOTE: HP and LP stop valve will open when the HS is placed in raise.</p> <p><u>STANDARD:</u> OPERATOR holds the HS-46-15A in raise position until the red light is illuminated and green light is dark.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 29.:</u> RAISE MFPT A speed by PERFORMING one of the following:</p> <p>1) IF MCR operation of governor valve positioner is available, PLACE [HS-47-13A] to RAISE to open the steam chest valves.</p> <p><u>STANDARD:</u> OPERATOR places HS-47-13A in RAISE to open GV while monitoring MFP loading. MFP speed should stabilize at 3300 rpm as seen on 1-SI-46-20A.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 30.:</u> 2) IF MCR operation of governor valve positioner unavailable, THEN...</p> <p><u>STANDARD:</u> Operator N/A's this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |

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| <p>STEP 31.: WHEN MFPT speed controller controlling MFPT speed, THEN ENSURE governor valve positioner is fully raised.</p> <p>NOTE: MFPT speed controller takes over speed control when MFPT accelerates to ~ 3300 rpm on 1-SI-46-20A.</p> <p>STANDARD: Operator ensures Governor Valves Positioner is fully raised, red light illuminated and green light dark.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 32.: ADJUST MFPT speed USING Master Controller [PC-46-20] UNTIL feedwater header pressure is ~ 80 psid greater than steam header pressure.</p> <p>NOTE: Operator may use ICS to monitor delta P, Secondary Mimics, Feedwater.</p> <p>STANDARD: Operator adjusts [PC-46-29] in manual to increase FW header pressure while monitoring PI-3-1, # 1 HTR Inlet Pressure, and PI-1-33, Main Steam Header Pressure.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p>STEP 33.: IF starting MFP pump B.....</p> <p>STANDARD: OPERATOR N/A's this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP 34.: IF RCS temperature is less than 550°F, THEN GO TO Step 13.</p> <p>STANDARD: OPERATOR verifies temperature is <550°F and and continues with step 13.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP 35.: ADJUST MFW regulating bypass valve controller to establish required feed flow.</p> <p>STANDARD: Operator adjust MFW reg bypass valve to establish feed water flow. Monitors flow on FW flow Indicators on M-4. Operator notifies the US when FW flow has been established.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |

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|---|---|
| <p>STEP 36.: MONITOR Hotwell level and CONTROL as necessary.</p> <p>NOTE: If operator notified US that FW was established in previous step then this step is not required.</p> <p>STANDARD: Operator may state that they are monitoring HW level on 1-LR-2-12 (M-3), and using 1-LIC-2-3 and 1-LIC-2-9 for auto makeup and dumpback.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p>STEP 37.: Inform the US/SRO when feedwater flow has been established.</p> <p>STANDARD: Operator informs the US/SRO FW flow has been established.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |

End of JPM

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

1. Unit 1 has experienced a Reactor Trip due multiple dropped rods.
2. MDAFW pump A-A is tagged out for maintenance, MDAFW pump B-B tripped on electrical fault and the TDAFW pump tripped on electrical overspeed just after RX trip.
3. Unit has transitioned to ES-0.1 and are ready to perform the RNO for STEP 5.
4. All four S/G levels have been decreasing.
5. AFW Flow to the S/Gs can NOT be established.

INITIATING CUES:

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

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 65

Re-establishment of Containment Pressure Control Following High Pressure Conditions

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

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

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

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

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

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

**NUCLEAR TRAINING
REVISION/USAGE LOG**

| REVISION NUMBER | DESCRIPTION OF REVISION | V | DATE | PAGES AFFECTED | PREPARED/ REVISED BY: |
|-----------------|---|---|----------|----------------|-----------------------|
| 5 | Revised to incorporate changes in 0-SO-30-8. Reformatted critical steps. | Y | 9/16/98 | All | JP Kearney |
| pen/ink | SO-30-8 revision had no impact | N | 7/15/99 | All | S.R. Taylor |
| pen/ink | Revised to incorporate changes in 0-SO-30-8. Updated Rev level. | N | 8/15/00 | 4,6,7 | SR Taylor |
| pen/ink | 0-SO-30-8 Rev chg. and corrected minor format errors | N | 01/04/01 | All | W. R. Ramsey |
| pen/ink | 0-SO-30-8 Rev chg. | N | 09/05/01 | All | W. R. Ramsey |
| pen/ink | Deleted Steps 32, 33, and 34 for returning EAM bistables to normal. These steps were deleted from the SO in REV 12. Also changed instructions and step 40 (previously 43) appropriately. | | 9/17/01 | ALL | SR Taylor |
| 6 | Incorporated pen/ink changes; revised to the latest revision of 0-SO-30-8; no impact on JPM flow | N | 8/20/02 | All | J P Kearney |
| pen/ink | Made minor enhancement changes due to performance feedback. Flow was not affected. | N | 10/25/02 | All | W. R. Ramsey |
| 7 | Updated to latest revision of 0-SO-30-8 and IC (Rad Monitor readings). Create SCENS files to facilitate performance. Editorial Changes. | N | 9/9/05 | All | SR Taylor |
| 8 | Updated to latest revision of 0-SO-30-8, reduced pressure spike reached in containment to between 0.5 and 0.7 psig, deleted requirement to perform section 5.1, since Containment Vacuum Relief Valves were not affected by the pressure increase in containment. | Y | 11/16/09 | All | M Hankins |

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any UNSAT requires comments.
2. Acknowledge any associated alarms.
3. Initialize Simulator in IC: #116.
4. **Set malfunctions CH01A, CH01B, CH01C, CH01D** to 10, to fail the containment pressure indicators at ~ .5 to .7 psid. **Override ZAOPDIR30133 to .5** to put PDIR-30-133 upscale. **Override ZAOPDI30133 to 4.5** to put PDI-30-133 near top scale. (Run **SCENS File JPM065a** if available)
5. **CLOSE FCV-30-46, 47, 48** and FREEZE simulator until turnover completed.
6. **Note: A console operator will be needed for JPM step 24 to Delete malfunctions and overrides.**
7. When the operator begins venting containment **delete malfunctions CH01A, B, C, & D** to return cntmt press to normal **AND delete overrides** on PDIR-30-133 & PDI-30-133. (Run **SCENS file JPM065b** if available to return values to normal over a 3 min ramp)
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 25 min Local _____

Tools/Equipment/Procedures Needed:

0-SO-30-8 Sections 3.0, 4.0, 5.1, 5.2, and 7.2

References:

| | Reference | Title | Rev No. |
|----|-----------|------------------------------|---------|
| A. | 0-SO-30-8 | Containment Pressure Control | 29 |

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READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

Unit 1 is in Mode 1 recovering from an Air Line break in containment. The air leak was discovered on a section of the header that allowed isolation without affecting any equipment. During isolation efforts, containment pressure increased to approximately 0.5 to 0.7 psig.

INITIATING CUES:

1. The US has directed you to vent containment using the normal flow path to within normal operating limits.
2. Inform the US when Containment has been vented **and** the Vacuum Control system is aligned NORMAL.
3. Precautions and Limitations and Prerequisite Actions are complete for 0-SO-30-8.

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|---|-----------|
| <p><u>STEP 1.</u> OBTAIN the appropriate procedure</p> <p><u>STANDARD:</u> Operator obtains a copy of 0-SO-30-8, starting with Section 4.0.</p> <p>NOTE Operator may review Precautions and Limitations and Prerequisite actions, per initial conditions these sections have been completed</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p> | |
| <p><u>STEP 2.</u> ENSURE instruction to be used is a copy of the effective version.</p> <p>CUE: <i>Tell the operator the procedure is the latest revision.</i></p> <p><u>STANDARD:</u> Operator verifies procedure using BSL or hard copy from MCR.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 3.</u> ENSURE Precaution and Limitation Section 3.0 has been reviewed.</p> <p><u>STANDARD:</u> Operator reviews P & L and goes to next step.</p> <p>NOTE Operator may review Precautions and Limitations and Prerequisite actions, per initial conditions these sections have been completed</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 4.:</u> IF ventilation alignment changes are made which could impact door closure, THEN NOTIFY Fire Operations.</p> <p>Cue: <i>Play role of SRO, and state you will perform any required notifications.</i></p> <p><u>STANDARD:</u> Operator informs the US/SRO that the ventilation changes may affect door closure which could be of a concern to Fire Ops.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 5.:</u> ENSURE each performer documents their name and initials.</p> <p><u>STANDARD:</u> Operator prints name and initials.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 6.:</u> INDICATE section to be performed</p> <p><u>STANDARD:</u> Operator checks section 5.0 and 7.0 to be performed and goes to section 5.2.1.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|--|---------------------------------|
| <p>NOTE: The following steps are from Section 5.2.1 of 0-SO-30-8:</p> <p><u>STEP 7.:</u> ENSURE 1-30-8.02 power checklist complete.</p> <p>Cue: <i>Power checklist 1-30-8.02 is complete with NO deviations.</i></p> <p><u>STANDARD:</u> Operator checks configuration log to ensure power checklist 1-30-8.02 is complete.</p> | | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 8.:</u> ENSURE the check valve portion of the containment vacuum relief assembly is capable of closing by observing monitor lights on panel (panel M-9).</p> <p><u>STANDARD:</u> Operator checks monitor lights on panel (panel M-9) to ensure valves are closed, green lights ON.</p> | | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 9.:</u> IF the unit is in MODES 1, ,2 or 3, THEN NOTIFY the US/SRO that the EAM will be placed in the Adverse</p> <p>Cue: <i>Play role of SRO and acknowledge EAM will be placed in Adverse Containment condition for venting containment.</i></p> <p><u>STANDARD:</u> Operator informs the US/SRO that EAM's will be placed in the Adverse Cntmt condition for venting containment.</p> | | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 10.:</u> EVALUATE entry into LCO 3.6.6. Vacuum Relief Lines.</p> <p>Cue: <i>Play role of SRO and state you will evaluate the LCO.</i></p> <p><u>STANDARD:</u> Operator informs the US/SRO LCO 3.6.6, Vacuum Relief Lines needs to be evaluated.</p> | | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 11.:</u> IF the Unit is in Modes 1, 2, 3, THEN PERFORM the following:</p> <p>a. IF the EAM is not in the Adverse Cntmt condition, THEN PLACE OR DIRECT AUO to PLACE the EAM in the Adverse Cntmt condition by depressing the ACTUATE button in each rack.</p> <p><u>STANDARD:</u> Operator recognizes the EAMs are in the Adverse Cntmt condition. Operator should N/A step [5.1] and complete [5.2] and [5.3].</p> | | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 12.:</u> ENSURE blue purge/vent operation permissive lights illuminated for each steam generator.</p> <p><u>STANDARD:</u> Operator verifies blue purge/vent permissive lights are illuminated for each S/G (M-4 above SG NR levels indicators).</p> | | <p>___ SAT</p> <p>___ UNSAT</p> |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|--|---------------------------------|-----------|
| <p><u>STEP 13.:</u> VERIFY window 30 "S/G Level Adverse Setpoint" illuminated on XA-55-3C.</p> <p><u>STANDARD:</u> Operator verifies XA-55-3C window 30 illuminated.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 14.:</u> IF the Unit is in Modes 1-4, THEN VERIFY Radiochemical Laboratory has a current weekly performance of 0-SI-CEM-030-410.1 in progress.</p> <p><u>Cue:</u> <i>SI-410.1 is in progress and signed by the SRO and Rad Chem Supervisor. Provide operator with current copy of 0-SI-CEM-030-410.1, containment vent to AB Exhaust.</i></p> <p><u>STANDARD:</u> Operator verifies SI-410.1 and approved by SRO and Radiochemical Laboratory Supervisor approval.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 15.:</u> IF the noble gas countrate for lower containment radiation monitor has increased by more than 50% since the last sample time, THEN TRANSMIT the release permit to the Chem Lab to obtain another (noble gas and tritium) set of samples.</p> <p><u>Cue:</u> <i>SI-410.1 data shows RM-90-106 Gas = 1.0 E3</i></p> <p><u>STANDARD:</u> Operator reviews Initial countrate at time on sample in SI-410.0 and current reading on RM-90-106; determines that conditions have not changed by more than 50% and N/As this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 16.:</u> IF the lower containment noble gas radiation monitor is inoperable, THEN VERIFY from the Chemistry Shift Supervisor that grab sample from lower containment is analyzed to satisfy ODCM 1.1.2.6.a Action 47, prior to each event.</p> <p><u>STANDARD:</u> Operator looks at RM-90-106 and determines that monitor is operable and N/As this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 17.:</u> ENSURE that the Shield Building Annulus Vacuum Control System is in service and maintaining a negative 5.0 inches of H₂O as indicated on M-9, [PDI-30-126] or [PDI-30-127] OR EGTS in service OR EGTS testing in progress.</p> <p><u>Cue:</u> <i>If NOTE prior to step is addressed, state "Purge is not in progress".</i></p> <p><u>STANDARD:</u> Operator obtains reading from PDI-30-126 or 127 on panel M-9.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|--|---------------------------------|
| <p><u>STEP 18.:</u> VERIFY NO abnormal or unexplainable radiation levels exist inside containment.</p> <p><u>STANDARD:</u> Operator checks RM-90-106 and 112 for abnormal radiation levels in containment.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 19.:</u> VERIFY that NO containment vent isolation signal exists.</p> <p><u>STANDARD:</u> Operator checks XA-55-6C windows C5 & C6 to verify that a cntmt vent isolation signal is not present.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 20.:</u> ENSURE at least ONE of the following radiation monitors in service:</p> <p style="padding-left: 40px;">U-1 Containment 1-RM-90-130</p> <p style="padding-left: 40px;">Purge Exhaust Monitors 1-RM-90-131</p> <p>CUE: <i>AB AUO reports the 1-RM-90-130 is I/S.</i></p> <p><u>STANDARD:</u> Operator verifies the RM-90-130 is in service (No Alarms and Not Blocked).</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 21.:</u> VERIFY that all personnel have been evacuated from the annulus and that all doors are closed.</p> <p>Cue: <i>Role play as NSS or Rad Con and state all personnel are out of the annulus and the doors are closed.</i></p> <p><u>STANDARD:</u> Operator calls Nuclear Security or Rad Con and verifies that all personnel have been evacuated from the annulus and that all doors are closed.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 22.:</u> ENSURE at least one of the following radiation monitors in service for the appropriate unit::</p> <p style="padding-left: 40px;">AB Vent: 0-RM-90-101B</p> <p style="padding-left: 40px;">Upper Compartment: 1-RM-90-112 A, B</p> <p style="padding-left: 40px;">Lower compartment: 1-RM-90-106 A, B</p> <p><u>STANDARD:</u> Operator verifies the absence of applicable instrument malfunction alarms on 0-M-12.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT | | | | | | | | |
|-------------------------|--|---|----------------|---------------|-------------|---------------|-------------|---------------|--------------|---------------------------------|
| <p>STEP 23.:</p> | <p>ENSURE PROTECTED EQUIPMENT DO NOT INOP tags placed on the following radiation monitors block switches as appropriate: (N/A tags not placed).</p> <table border="0" data-bbox="326 359 792 541"> <tr> <td>BLOCK SWITCH</td> <td>MONITOR</td> </tr> <tr> <td>0-HS-90-136A1</td> <td>1-RM-90-130</td> </tr> <tr> <td>0-HS-90-136A2</td> <td>1-RM-90-131</td> </tr> <tr> <td>0-HS-90-136A3</td> <td>0-RM-90-101B</td> </tr> </table> <p>Cue: <i>Extra Operator will place Protected Equipment tags.</i></p> <p>STANDARD: Operator places Do Not Inop (Protected Equipment) Tags on Rad Monitor Block Switches.</p> | BLOCK SWITCH | MONITOR | 0-HS-90-136A1 | 1-RM-90-130 | 0-HS-90-136A2 | 1-RM-90-131 | 0-HS-90-136A3 | 0-RM-90-101B | <p>___ SAT</p> <p>___ UNSAT</p> |
| BLOCK SWITCH | MONITOR | | | | | | | | | |
| 0-HS-90-136A1 | 1-RM-90-130 | | | | | | | | | |
| 0-HS-90-136A2 | 1-RM-90-131 | | | | | | | | | |
| 0-HS-90-136A3 | 0-RM-90-101B | | | | | | | | | |
| <p>STEP 24.:</p> | <p>IF aligning the lower compartment purge isolation valves using the NORMAL flow path, THEN PERFORM steps [a] thru [f].</p> <p>Cue: <i>US prefers normal flow path.</i></p> <p>STANDARD: None</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | |
| <p>STEP 25.:</p> | <p>ENSURE [FCV-30-37] is CLOSED.</p> <p>STANDARD: Operator verifies green light ON for FCV-30-37</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | |
| <p>STEP 26.:</p> | <p>ENSURE [FCV-30-40] is CLOSED.</p> <p>STANDARD: Operator verifies green light ON for FCV-30-40</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | |
| <p>STEP 27.:</p> | <p>OPEN [FCV-30-14 & 56] with [HS-30-14].</p> <p>STANDARD: Operator places HS-30-14 in the OPEN position and places HS-30-14 in the A-AUTO position.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | | | | | | | | |
| <p>STEP 28.:</p> | <p>VERIFY [FCV-30-14 & 56] OPEN.</p> <p>STANDARD: Operator verifies red lights illuminated ON [FCV-30-14 & 56].</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | |
| <p>STEP 29.:</p> | <p>OPEN [FCV-30-15 & 57] with HS-30-15</p> <p>STANDARD: Operator places HS-30-15 in the OPEN position and places HS-30-15 in the A-AUTO position.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | | | | | | | | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|--|---|------------------|
| <p><u>STEP 36.:</u> IF a high radiation alarm occurs on any of the following Radiation Monitors, THEN...</p> <p><u>STANDARD:</u> Operator addresses step and potential for action required if radiation levels increase.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 37.:</u> WHEN containment vent is completed, THEN perform [Section 7.2.1].</p> <p><u>STANDARD:</u> Operator monitors containment pressure by observing Pdl-30-133. When pressure differential within -0.1 and +0.3 psig, then go to Section 7.2.1.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 38.:</u> ENSURE log entry is made into Narrative Logs detailing the time and the valves which were opened for venting.</p> <p><u>STANDARD:</u> Operator should describe the log entry that would be made including all valves which were opened for the Normal flowpath for venting and the time they were opened.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p>NOTE: <i>Operator transitions to Section 7.2.1 to shutdown vent.</i></p> <p><u>STEP 39.:</u> IF lower Compartment Purge Isolation Valves are aligned through the Normal Flowpath, THEN PERFORM the following steps: PLACE [HS-30-14] in the CLOSED position.</p> <p><u>STANDARD:</u> Operator places HS-30-14 in the closed</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 40.:</u> PLACE [HS-30-15] in the CLOSED position</p> <p><u>STANDARD:</u> Operator places HS-30-15 in the closed position and Verifies FCV-30-15, -57 are closed, green light ON their respective indicating lights. Should request independent verification of action.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 41.:</u> VERIFY [1-FCV-30-14] is CLOSED.</p> <p><u>STANDARD:</u> Operator verified FCV-30-14 is closed and green light is ON</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 42.:</u> VERIFY [1-FCV-30-56] is CLOSED.</p> <p><u>STANDARD:</u> Operator verified FCV-30-56 is closed and green light is ON</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|--|---|-----------|
| <p>STEP 43.: VERIFY [1-FCV-30-15] is CLOSED.</p> <p><u>STANDARD:</u> Operator verified FCV-30-15 is closed and green light is ON</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p>STEP 44.: VERIFY [1-FCV-30-7] is CLOSED.</p> <p><u>STANDARD:</u> Operator verified FCV-30-57 is closed and green light is ON</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 45.:</u> IF Lower Compartment Purge Isolation Valves are aligned through the ALTERNATE flow path, THEN...</p> <p><u>STANDARD:</u> Operator should N/A this step since the NORMAL flow path was used to vent containment.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 46.:</u> CLOSE the Annulus Exhaust isolation valve[FCV-30-54] with HS-30-54.</p> <p><u>STANDARD:</u> Operator places HS-30-54 in the closed position and verifies green light ON.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 47.:</u> RESTORE the Annulus Vacuum Pressure Control per 0-SO-65-1 Section 8.1.</p> <p><u>CUE:</u> <i>Another operator will restore Annulus Vacuum Control per 0-SO-65-1.</i></p> <p><u>STANDARD:</u> Operator addresses restoration of Annulus Vacuum Pressure Control per 0-SO-65-1.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 48.:</u> IF both Annulus Vacuum Control Fans are running, THEN STOP one of the Annulus Vacuum Control Fans.</p> <p><u>STANDARD:</u> Operator stops one of the Annulus Vacuum Control Fans</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 49.:</u> ENSURE log entry is made into Narrative Logs detailing the time and the valves which were closed for venting.</p> <p><u>CUE:</u> <i>After Operator describes what the log entry would state, then tell them the log entry has been made.</i></p> <p><u>STANDARD:</u> Operator discusses what would be written in the Narrative log detailing the time and the vavles that were closed in the normal flow path.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|---|-----------|
| <p><u>STEP 50.:</u> IF Unit One is in Modes 1, 2, or 3, THEN PERFORM the following: RETURN the Environmental Allowance Monitor (EAM) to normal by pushing the RESET button in each rack as follow...</p> <p> <u>CUE:</u> <i>Another operator will ensure EAMs are returned to normal, perform IVs.</i></p> <p> <u>STANDARD:</u> Operator address EAM's and IV's will be performed by another operator and continues in section 7.2.1.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 51.:</u> IF LCO 3.6.6 is to be exited, THEN LOG time in the UO journal.</p> <p> <u>STANDARD:</u> Operator recognizes LCO 3.6.6 was not entered and N/A's this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 52.:</u> ENSURE PROTECTED EQUIPMENT DO NOT INOP tags removed from the following Radiation Moniotrs block switches as appropriate: (N/A tags NOT removed)</p> <p> <u>STANDARD:</u> Operator removes all Protected Equipment from RM's and checks tag removed.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p> <u>NOTE:</u> Next step is performed per the initiating cues.</p> <p><u>STEP 53.:</u> INFORM the US/SRO that the containment has been vented and that the automatic vacuum control system has been placed back in service.</p> <p> <u>STANDARD:</u> Operator informs the US/SRO that the containment has been vented and that the automatic vacuum control system has been placed back in service.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p> | |

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

Unit 1 is in Mode 1 recovering from an Air Line break in containment. The air leak was discovered on a section of the header that allowed isolation without affecting any equipment. During isolation efforts, containment pressure increased to approximately 0.5 to 0.7 psig.

INITIATING CUES:

4. The US has directed you to vent containment using the normal flow path to within normal operating limits.
5. Inform the US when Containment has been vented **and** the Vacuum Control system is aligned NORMAL.
6. Precautions and Limitations and Prerequisite Actions are complete for 0-SO-30-8.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 77-1AP

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

**PREPARED/
REVISED BY:**

Date/

VALIDATED BY:

*

Date/

APPROVED BY:

Date/

(Operations Training Manager)

CONCURRED:

**

Date/

(Operations Representative)

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

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

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

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

SEQUOYAH NUCLEAR PLANT
RO/SRO
JOB PERFORMANCE MEASURE

Task:

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

J/TA task # :

0640020101 0640040101 0640060101 (RO)

K/A Ratings:

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

Task Standard:

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

Evaluation Method : Simulator X In-Plant

Performer:

NAME

Start Time _____

Performance Rating : SAT UNSAT Performance Time

Finish Time _____

Evaluator:

_____ / _____

SIGNATURE

DATE

=====

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any UNSAT requires comments
2. Acknowledge any associated alarms.
3. Initialize Simulator in IC: #16.
4. A console operator will be needed to insert override and play role of AUO on Radio.
5. Operator will need assistance during D/G start (at step 5). An extra simulator operator or the console operator needs to be present to perform this timing.
6. **When operator starts JPM step #25, prior to D/G breaker closure, insert IMF AN_OV_958 f:2.**
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 and Appendix "C".
2. "Signed off" copy of entire section 4.
3. 0-AR-M26-B window D-2.

References:

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

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

1. Both units are at 100% RTP.
2. All systems are OPERABLE, except for the 1B-B D/G, 0-GO-16 has been completed on all the A train 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.
5. The AUO at the D/G building has completed Appendix A of 1-SI-OPS-082-007.B and all parameters are within limits.
6. The U1 Control Room AUO has verified breaker 1934 is in the Disconnect position.
7. SI-166.36 is NOT required.
8. D/G-DAQ has been installed per Appendix J.
9. Applicable steps of Appendix J, Monitoring the D/G Starting Air System, completed.
10. Room fire protection is in service.
11. Section 4.0 of 1-SI-OPS-082-007.B is complete.

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. You are an extra unit operator and have been assigned to perform the SI on 1B-B D/G.
3. The PMT requires the AMBIENT MANUAL START method for testing.
4. 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>NOTE: Initial conditions cover steps up to transition to App "C".</p> <p><u>STANDARD:</u> Operator obtains a copy of 1-SI-OPS-082-007.B. Performance of task will start with Appendix C.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p> | |
| <p><u>STEP 2.:</u> 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>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 3.:</u> PLACE 1-HS-57-74 D/G 1B-B Synchronize Switch in the SYN position.</p> <p>NOTE: 0-EI-82-35 and 0-XI-82-33 will indicate running voltage & frequency.</p> <p><u>STANDARD:</u> 1-HS-57-74 in "SYN" position on 0-M-26</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 4.</u> PERFORM the following to initiate D/G start signal: 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><u>STANDARD:</u> Operator notifies the D/G-DAQ operator to start the D/G-DAQ.</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 starting of the D/G. Only one stopwatch is required when the DAC is used.</p> <p><u>STEP 5.:</u> PROCEED with the countdown: 3,2,1, START, DEPRESS 0-HS-82-46A, DG 1B-B Emergency Start Switch AND START Stopwatch(es).</p> <p><u>STANDARD:</u> 0-HS-82-46A momentarily depressed. Green light will go "out" and red light will come "on" above D/G mimic. [Not critical: D/G running alarm will ANN to indicate D/G > 40 rpm. Incoming voltage and frequency are verified on 0-EI-82-34 and 0-XI-82-32.]</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 6.:</u> When voltage >6800 volts and Frequency >58.8 HZ, THEN STOP stopwatch.</p> <p><u>STANDARD:</u> Stop stopwatch when voltage >6800 volts and Frequency >58.8 HZ.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| | | Critical Step |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|--|--|-----------|
| <p><u>STEP 7.:</u> ENSURE 1-FCV-67-67, ERCW cooling water supply valve is OPEN.</p> <p><u>STANDARD:</u> ERCW valve 1-FCV-67-67 red light comes "on" and green light goes "out" on 0-M-27A panel.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p style="text-align: right;">Critical Step</p> | |
| <p><u>STEP 8.:</u> Record the time from the Stopwatches:</p> <p><u>CUE:</u> STOP WATCH 1 TIME 9.48 SECONDS</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 9.:</u> RECORD the steady state values for the following:</p> <p>A. 0-EI-82-34, DG 1B-B incoming Voltage.</p> <p>B. 0-XI-82-32, DG 1B-B incoming Frequency.</p> <p><u>STANDARD:</u> 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 ≥ 58.8 Hz and ≤ 61.2 Hz</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 10.:</u> RECORD Voltage Regulator Control Current.</p> <p><u>Cue:</u> <i>Voltage Regulator Control Current is 1.8 dc amps.</i></p> <p><u>STANDARD:</u> Operator records Voltage Regulator Control Current.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 11.:</u> ENSURE D/G 1B-B 86 LOR red light NOT ILLUMINATED, at D/G local relay panel.</p> <p><u>Cue:</u> <i>Role play as D/G operator - 86 LOR local red light is not illuminated.</i></p> <p><u>STANDARD</u> Operator verifies red light on 86 LOR at D/G is not illuminated.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 12.:</u> RESET 86 LOR lockout relay, on D/G local relay panel and</p> <p><u>Cue:</u> When the D/G AUO is requested to reset 86LOR, the Console operator should insert IRF EGR08 f:1 to reset 86LOR and then notify operator - 86 LOR is reset.</p> <p><u>STANDARD:</u> 86 LOR is reset.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p style="text-align: right;">Critical Step</p> | |
| <p><u>STEP 13.:</u> VERIFY reset by amber light 0-XI-82-49 illuminated on 0-M-26.</p> <p><u>STANDARD:</u> Amber light on 0-M-26 is verified lit.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|--|---|-----------|
| <p><u>STEP 14.:</u> 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><u>STANDARD:</u> 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 DG-DAQ Operator)</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 15.:</u> IF step 1.0[6]] is <59.9 or >60.1, THEN INITIATE a PER.</p> <p><u>STANDARD:</u> Parameters in Step 1.0 [6] were within limits, no PER required, operator continues with procedure.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 16.:</u> RECORD start as ambient in 0-SI-OPS-082-007.M.</p> <p> NOTE: Another operator will record D/G start in 0-SI-OPS-082-007.M, Cue the operator to continue.</p> <p><u>STANDARD:</u> Operator addresses logging the start in 0-SI-OPS-082-007.M.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 17.:</u> RETURN to Section 6.1, Step 10.</p> <p><u>STANDARD:</u> Operator returns to the appropriate section and step of the procedure. (Exits Appendix C)</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 18.:</u> PERFORM the following to wipe the Automatic Voltage Control Rheostat: RECORD voltage from 0-EI-82-24</p> <p><u>STANDARD:</u> OPERATOR records voltage and continues with next step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 19.:</u> ENSURE 0-HS-82-42, DG 1B-B voltage Regualtor Switch in the Pull-to P-AUTO position</p> <p><u>STANDARD:</u> Operator ensures 0-HS-82-42 in the Pull To PAUTO position.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 20.:</u> DECREASE voltage to 6700 volts on 0-EI-82-34 B 0-HS-82-42.</p> <p><u>STANDARD:</u> Operator ensures voltage decreases to 6700 volts on EI-82-34.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|---|------------------|
| <p><u>STEP 21.:</u> INCREASE voltage to 6700 volts on 0-EI-82-34 B 0-HS-82-42.</p> <p><u>STANDARD:</u> Operator ensures voltage increases to 7300 volts on EI-82-34.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 22.:</u> RETURN voltage to value recorded in 6.1 [10.1]</p> <p><u>STANDARD:</u> Operator ensures voltage returned to reading recorded in step 6.1[10.1]</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 23.:</u> PLACE 0-HS-82-48, DG 1B-B Mode Selector Switch, in PARALLEL position.</p> <p><u>STANDARD:</u> 0-HS-82-48 rotated to the PARALLEL position. Red light "on" & green light "off".</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 24.:</u> ADJUST 0-HS-82-43 DG 1B-B Speed Control Switch to obtain a synchroscope indication of slowly rotating in FAST direction.</p> <p><u>STANDARD:</u> Operator adjusts speed control hand switch 0-HS-82-43 such that synchroscope (XI-82-31) is moving slowly in the fast direction (slowly clockwise).</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 25.:</u> RESPOND TO annunciator panel 0-M-26B window D-2.</p> <p><u>STANDARD:</u> Operator pulls AR 0-M-26B and consults for window D-2, or depresses the emergency stop button for D/G 1B-B.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 26.:</u> IF D/G running with no valid accident (blackout or SI) signal present, THEN ENSURE D/G shutdown by depressing emergency stop pushbutton 0-HS-82-47A.</p> <p><u>STANDARD:</u> Operator depresses emergency stop button for Diesel Generator 1B-B.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 27.:</u> DISPATCH personnel to D/G Bldg to verify alarm, AND CHECK crankcase trip device actuated [0-PS-82-5026/2] or [0-PS-82-5025/2].</p> <p><u>Cue:</u> AUO informs Unit Operator that crankcase pressure alarm is in on local panel and 0-PS-82-5026/2 is actuated on engine 2.</p> <p><u>STANDARD:</u> Operator contacts AUO at the Diesel Generator Building to confirm crankcase pressure alarm.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|--|-----------------|
| <u>STEP 28.:</u> NOTIFY US/SRO of Emergency stop of Diesel Generator 1B-B. | ___ SAT |
| <u>Cue:</u> <i>US/SRO instructs operator to standby for further instructions.</i> | ___ UNSAT |
| <u>STANDARD:</u> Operator informs US/SRO of Emergency stop of Diesel Generator 1B-B. | Stop Time___ |

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 has been completed on all the A train 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.
5. The AUO at the D/G building has completed Appendix A of 1-SI-OPS-082-007.B and all parameters are within limits.
6. The U1 Control Room AUO has verified breaker 1934 is in the Disconnect position.
7. SI-166.36 is NOT required.
8. D/G-DAQ has been installed per Appendix J.
9. Applicable steps of Appendix J, Monitoring the D/G Starting Air System, completed.
10. Room fire protection is in service.
11. Section 4.0 of 1-SI-OPS-082-007.B is complete.

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. You are an extra unit operator and have been assigned to perform the SI on 1B-B D/G.
3. The PMT requires the AMBIENT MANUAL START method for testing.
4. Notify the US when the test is complete.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM21-1A

Respond to a Failure of PRM N-41

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

VALIDATED BY: * _____ Date/ _____

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

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

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

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

NUCLEAR TRAINING
REVISION/USAGE LOG

| REVISION NUMBER | DESCRIPTION OF REVISION | V | DATE | PAGES AFFECTED | PREPARED/ REVISED BY: |
|------------------------|--------------------------------|----------|-------------|-----------------------|----------------------------------|
| 0 | Initial Issue | Y | 12/02//09 | All | M Hankins |

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any UNSAT requires comments.
2. Acknowledge any associated alarms.
3. Initialize simulator in IC #13.
4. **Booth operator:**
 - a. Select N-41 on NR45.
 - b. Verify Rx power <75% on PRNIs, NR-45 and ΔT recorder, TR-68-2A
1. Approximately 1 minute after operator assumes shift, Activate **IMF NI07A f:120**.
2. Ensure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 9 mins **Local** _____

Tools/Equipment/Procedures Needed:

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

References:

| | Reference | Title | Rev No. |
|----|-----------|-----------------------------------|---------|
| 1. | AOP-I.01 | Nuclear Instrument Malfunction | 9 |
| 2. | 1-AR-M6-A | Reactor Protection and Safeguards | 15 |

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READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

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

INITIATING CUES:

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

STEP/STANDARD

SAT/UNSAT

| | |
|---|--|
| <p>STEP 1.: Operator performs Immediate Operator action in AOP-C.01 to place rods in manual and Check Rod Motion stopped.</p> <p>AOP-C.01 [2] CHECK reactor power and T-avg STABLE.</p> <p>STANDARD: Operator determines reactor power and T-avg are stable. [3] CHECK for Instrument Malfunction: a. CHECK nuclear instrumentation OPERABLE.</p> <p>STANDARD: Operator determines N-41 has failed high and goes to the RNO column. a. (RNO) GO TO AOP-I.01, Nuclear Instrument Malfunction.</p> <p style="text-align: center;">OR</p> <p>1-AR-M6-A</p> <p>Respond to alarm on XA-M6-A window B-1 or D-1 AND:</p> <p>Window B-1: IF no reactor trip, PLACE rod control in Man. Checks for dropped rod (rod bottom lights LIT or RPIs on bottom. Checks 1-XX-55-5 trip status panel for tripped bistables. Evaluate reactor trip criteria with SRO. Evaluates failed power range channel, goes to AOP-I.01</p> <p>Window D-1: IF alarm due to instrument failure, THEN PLACE Rod control in MANUAL, AND GO TO AOP-I.01, Nuclear Instrument Malfunction</p> <p>STANDARD: Operator responds to either alarm, places rod control in Man, checks for dropped rods, checks bistable trip status, evaluates no reactor trip required and GOES TO AOP-I.01.</p> <p>COMMENTS:</p> | <p style="text-align: center;"> <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT</p> <hr/> <p style="text-align: center;">Start Time</p> <p style="text-align: center;">Critical Step</p> |
| <p>STEP 2.: Obtains a copy of AOP-I.01 and determines the appropriate section.</p> <p>Cue: <i>After operator locates AOP-I.01 procedure provide operator a copy</i></p> <p>STANDARD: Operator obtains a copy of AOP-I.01 and determines appropriate section to be 2.3</p> <p>COMMENTS:</p> | <p style="text-align: center;"> <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT</p> |

| STEP/STANDARD | SAT/UNSAT |
|---|---|
| <p><u>STEP 3.:</u> 2.3 [1] PLACE rod control in Man.</p> <p>NOTE: The rods may have been already placed in Manual in accordance with AOP-C.01, 1-AR-M6-A, or as a prudent operator action.</p> <p><u>STANDARD:</u> Operator places HS-85-5110 to manual, or states Rods have already been placed in manual.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 4.:</u> 2.3 [2] STABILIZE reactor power at current level.</p> <p><u>STANDARD:</u> Operator checks other power range instruments and determines that reactor is stable.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 5.:</u> 2.3 [3] EVALUATE the following Tech Specs for applicability:</p> <p>Cue: <i>SM will evaluate Tech Specs.</i></p> <p><u>STANDARD:</u> Operator requests SM to evaluate Tech Specs</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 6.:</u> 2.3 [4] PLACE the following switches located on the Detector Current Comparator drawer [M-13, N50] in position corresponding to failed power Range Channel:</p> <ul style="list-style-type: none"> • UPPER SECTION <p><u>STANDARD:</u> Detector Current comparator "Upper Section" switch in the PRN-41 position. Channel defeat light on.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |

| STEP/STANDARD | | SAT/UNSAT |
|---|---|-----------|
| <p><u>STEP 7.:</u> 2.3 [4] PLACE....</p> <ul style="list-style-type: none"> • LOWER SECTION <p><u>STANDARD:</u> Detector Current comparator "Lower Section" switch in the PRN-41 position. Channel defeat light on.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT ___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 8.:</u> 2.3 [4] PLACE...</p> <p> Appropriate ROD STOP BYPASS</p> <p><u>STANDARD:</u> Rod Stop Bypass switch in "BYPASS PRN-41" position.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT ___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 9.:</u> Appropriate Power Mismatch Bypass switch (XX-92-5037)</p> <p><u>STANDARD:</u> Power Mismatch Bypass switch in the "Bypass PRN-41" position.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT ___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 10.:</u> 2.3 [5] DEFEAT failed Power Range channel Using Comparator Channel defeat switch:</p> <ul style="list-style-type: none"> • Comparator and Rate Drawer [M-13, N37] <p><u>STANDARD:</u> Comparator Channel Defeat switch in the N-41 position. Comparator defeat light on.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT ___ UNSAT</p> <p>Critical Step</p> | |

| STEP/STANDARD | SAT/UNSAT |
|--|-------------------------------|
| <p><u>STEP 11.:</u> 2.3 [6] RESTORE T-avg to within 1.5°F of T-ref USING one of the following:</p> <p><i>Cue:</i> <i>CRO will is evaluating Tavg and Tref deviation and restoration.</i></p> <p><u>STANDARD:</u> Operator acknowledges CRO will perform this step and continues with procedure.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT ___ UNSAT</p> |
| <p><u>STEP 12.:</u> 2.3 [7] ENSURE OPERABLE Power Range channel selected to the following:</p> <ul style="list-style-type: none"> • Nuclear Power Recorder [M4, NR-35] • Nuclear Power Recorder [M4, NR-35] (ΔI) <p><u>STANDARD:</u> Operator Uses Touch Screen to ensure the recorder is not selected for PR Channel I or ΔI Channel 1. Operator should select the highest operable power range channel.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT ___ UNSAT</p> |
| <p><u>STEP 13.:</u> 2.3 [7] ENSURE RCS Temp ΔT recorder (green pen) [M-5, XS68-2B]</p> <p><u>STANDARD:</u> Operator checks position of XS-68-2B. Ensures it is <u>NOT</u> selected for LOOP ONE.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT ___ UNSAT</p> |
| <p><u>STEP 14.:</u> 2.3 [8] RETURN rod control to AUTO if desired.</p> <p><i>Cue:</i> <i>CRO will perform this step.</i></p> <p><u>STANDARD:</u> Operator acknowledges this step is being addressed by the CRO and continues with procedure.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT ___ UNSAT</p> |

| STEP/STANDARD | SAT/UNSAT |
|---|--|
| <p><u>STEP 15.:</u> 2.3 [9] CHECK reactor power greater than 75%.</p> <p><u>STANDARD:</u> Operator verifies power less than 75% (current power is ~ 46%), goes to RNO and to appropriate step.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 16.:</u> 2.3[11] NOTIFY IM to remove failed power range channel from service USING appropriate Appendix:</p> <p><u>Cue:</u> <i>Role play as MSS or IM, inform operator that a crew will be to the MCR within the hour to perform Appendix "A" of AOP-I.01.</i></p> <p><u>STANDARD:</u> Operator communicates with IMs or MSS to request performance of Appendix "A" of AOP-I.01 for removal of N-41 from service.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 17.:</u> NOTIFY SM that N-41 failed, its control functions have been defeated, IMs have been notified to remove it from service.</p> <p><u>STANDARD:</u> Operator informs SM.</p> <p><u>COMMENTS:</u></p> | <p>___ SAT</p> <p>___ UNSAT</p> <hr/> <p>Stop Time</p> |

End of JPM

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

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

INITIATING CUES:

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

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 189AP

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

PREPARED/
REVISED BY: _____ Date/ _____

VALIDATED BY: * _____ Date/ _____

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

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

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

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

NUCLEAR TRAINING
REVISION/USAGE LOG

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

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified.
2. Any UNSAT requires comments
3. Ensure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. _____

Local 30 minutes

Tools/Equipment/Procedures Needed

0-SO-77-1 Section 8.2

References:

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

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READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

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

INITIATING CUES:

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

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|---|---|
| <p><u>STEP 1.:</u> Obtain a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> The operator obtains a copy of 0-SO-77-1, Section 8.2</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time</p> |
| <p><u>STEP 2.:</u> Section 4.0 Prerequisite Actions</p> <p><u>Cue:</u> If asked, state all prerequisite actions are complete per initial conditions.</p> <p><u>STANDARD</u> Operator may review Prerequisite Actions, but all steps have already been complete.</p> | |
| <p><u>STEP 3.:</u> [1] ENSURE [0-RCV-77-43] Radiation Control Valve is CLOSED.</p> <p><u>Cue:</u> If asked, state 0-RCV-77-43 is closed per the Initial Conditions.</p> <p><u>STANDARD:</u> Operator verifies that valve is closed by reviewing INITIAL CONDITIONS portion of JPM.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 4.:</u> [2] ENSURE [0-77-689A] Radiation Monitor Inlet isolation Valve is OPEN.</p> <p><u>Cue:</u> Inform the operator that the HW for [0-77-689A] is snug.</p> <p><u>STANDARD</u> Operator OPENS [0-77-689A] Radiation Monitor Inlet isolation Valve by turning HW in the CCW direction until HW is snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 5.:</u> [3] OPEN [0-77-689B] Discharge to FDCT Isolation Valve.</p> <p><u>Cue:</u> Inform the operator that the HW for [0-77-689B] moves in the counter clockwise direction until snug.</p> <p><u>STANDARD</u> Operator OPENS [0-77-689B] Discharge to FDCT Isolation Valve by turning HW in the CCW direction until HW is snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 6.:</u> [4] CLOSE [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve.</p> <p><u>Cue:</u> Inform the operator that the HW for [0-77-689C] moves in the clockwise direction until snug.</p> <p><u>STANDARD:</u> Operator CLOSES [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve by turning HW in the CW direction until HW is snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|--|---|-----------|
| <p><u>STEP 7.:</u> [5] VERIFY [0-RE-90-122] radiation monitor pump is running.</p> <p>Cue: <i>0-HS-90-122B RED light ON; GREEN light OFF.</i></p> <p><u>STANDARD:</u> Operator verifies that [0-RE-90-122] radiation monitor pump is running.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 8.:</u> [6] ALLOW [0-RE-90-122] Radiation Monitor to flush to FDCT for 5 minutes.</p> <p>Cue: <i>Inform operator that 5 minutes have elapsed.</i></p> <p><u>STANDARD:</u> Operator allows flush for at least 5 minutes prior to proceeding to next step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 9.:</u> [7] OPEN [0-77-689C]</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689C] moves in the counter clockwise direction until snug.</i></p> <p><u>STANDARD:</u> Operator OPENS [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve by turning HW in the CCW direction until HW is snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP *10.:</u> [8] CLOSE [0-77-689B]</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689B] moves in the clockwise direction until snug.</i></p> <p><u>STANDARD:</u> Operator CLOSES [0-77-689B] Discharge to FDCT Isolation Valve by turning HW in the CW direction until HW is snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 11.:</u> [9] RECORD 0-RE-90-122 reading:</p> <p>0-RE-90-122 Reading _____ cpm</p> <p>NOTE: ALTERNATE PATH BEGINS HERE.</p> <p>Cue: <i>Inform operator that 0-RE-90-122 is reading 9.00 E+04 cpm</i></p> <p><u>STANDARD:</u> Operator enters 0-RE-90-122 data.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|--|--|-----------|
| <p>STEP * 12.: [10] IF the reading in step [9] is below the trip setpoint. THEN RETURN to instruction where exited</p> <p>NOTE: Setpoint was provided in the INITIAL CONDITIONS.</p> <p>STANDARD: Operator determines that the current 0-RE-90-122 reading remained greater than the trip setpoint and continues to step [11]</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Critical Step</p> | |
| <p>STEP 13.: [11] IF the reading obtained in step [9] is still above the trip setpoint, THEN PERFORM the following steps to lower the radiation monitoring reading:</p> <p style="padding-left: 40px;">[a] CLOSE applicable tank isolation valve from release header. (N/A tanks not aligned)</p> <p style="padding-left: 80px;">Cask Decon Collector Tank</p> <p>Cue: <i>Inform the operator that the HW for [0-77-679] moves in the clockwise direction until snug.</i></p> <p>NOTE: Valve is located in CDCT room</p> <p>STANDARD: Operator CLOSES [0-77-679] Cask Decon Collector Tank by turning HW in the CW direction until HW is snug. Operator enters an "N/A" for the Monitor Tank.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Critical Step</p> | |
| <p>STEP14.: [b] OPEN [0-VLV-59-735] Demin Flush To Radwaste Isol.</p> <p>Cue: <i>Inform the operator that the handle for [0-VLV-59-735] moves in the counter clockwise direction until handle is in line with pipe.</i></p> <p>NOTE: Valve is located in CDCT room</p> <p>STANDARD: Operator OPENS [0-VLV-59-735] Demin Flush To Radwaste Isol by turning handle in the CCW direction until handle is in line with pipe.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Critical Step</p> | |
| <p>STEP15.: [c] OPEN [0-77-689B] Discharge to FDCT Isolation Valve.</p> <p>Cue: <i>Inform the operator that the HW for [0-77-689B] moves in the counter clockwise direction until snug.</i></p> <p>STANDARD: Operator OPENS [0-77-689B] Discharge to FDCT Isolation Valve by turning HW in theCCW direction until HW is snug.</p> | <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p> <p style="text-align: right;">Critical Step</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|---|-----------|
| <p>STEP 16.: [d] CLOSE [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve.</p> <p><u>Cue:</u> <i>Inform the operator that the HW for [0-77-689C] moves in the clockwise direction until snug.</i></p> <p>STANDARD: Operator CLOSES [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve by turning HW in the CW direction until HW is snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p>STEP 17.: [e] WHEN count rate on [0-RE-90-122] decreases to its minimum value, THEN</p> <p><u>Cue:</u> <i>0-RE-90-122 is indicating 8.00 E+02 cpm.</i></p> <p>STANDARD: Operator reads count rate on 0-RE-90-122.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p>STEP 18.: [1] OPEN [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve.</p> <p><u>Cue:</u> <i>Inform the operator that the HW for [0-77-689C] moves in the counterclockwise direction until snug.</i></p> <p>STANDARD: Operator OPENS [0-77-689C] Radiation Monitor Return to Release Header Isolation Valve by turning HW in the CCW direction until HW is snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p>STEP 19.: [2] CLOSE [0-77-689B] Discharge to FDCT Isolation Valve.</p> <p><u>Cue:</u> <i>Inform the operator that the HW for [0-77-689B] moves in the clockwise direction until snug.</i></p> <p>STANDARD: Operator CLOSES [0-77-689B] Discharge to FDCT Isolation Valve by turning HW in the CCW direction until HW is snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---------------|--|----------------------|
| STEP 20.: | [f] CLOSE [0-VLV-59-735] Demin Flush To Radwaste Isol. | ___ SAT |
| Cue: | Inform the operator that the handle for [0-VLV-59-735] moves in the clockwise direction until perpendicular with pipe. | ___ UNSAT |
| STANDARD: | Operator CLOSES [0-VLV-59-735] Demin Flush To Radwaste Isol by turning handle in the CCW direction until handle is perpendicular with pipe. | Critical Step |
| STEP 21.: | [g] OPEN Cask Decon Collector tank isolation valve [0-77-679] | ___ SAT |
| Cue: | Inform the operator that the HW for [0-77-679] moves in the counter clockwise direction until snug. | ___ UNSAT |
| STANDARD: | Operator OPENS [0-77-679] Cask Decon Collector Tank by turning HW in the CCW direction until HW is snug. | Critical Step |
| STEP 22.: | [h] IF hi radiation alarm will not clear, THEN NOTIFY the appropriate US/SRO that alarm will not clear. | ___ SAT |
| Cue: | 0-RE-90-122 high radiation alarm is clear (Provide appropriate feedback based on method used). If asked, rad monitor 0-RE-90-122 is still reading 8.00 E+2 cpm. | ___ UNSAT |
| STANDARD: | Operator determines that 0-RE-90-122 alarm has cleared by observing NO red lights LIT OR verifying XA-55-L2C Window C-3 DARK in Radwaste AUO shack OR Calling Main Control Room for alarm information. | |
| STEP 23.: | [12] RETURN to instruction where exited. | ___ SAT |
| STANDARD: | Operator informs Unit 1 US/SRO that 0-SO-77-1 is complete | ___ UNSAT |
| | | End Time ___ |

End of JPM

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

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

INITIATING CUES:

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

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 44

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

Original Signatures on File

**PREPARED/
REVISED BY:**

Date/

VALIDATED BY:

*

Date/

APPROVED BY:

Date/

(Operations Training Manager)

CONCURRED:

**

Date/

(Operations Representative)

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

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

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

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any UNSAT requires comments
2. ***This JPM may be performed on either unit. You MUST clearly specify which unit the task is to be performed on when reading the initial conditions and initiating cues.***
3. ***IF the A train pump room, THEN have operator perform this JPM on train B, numbers in parentheses.***
4. Ensure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.
5. If a ladder is needed to operate any equipment the trainee should locate a ladder and state that they would use the ladder to operate the valve, it is not necessary to bring the ladder to the work location.

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

Tools Needed:

AOP-R.03, Section 2.1 step 14.

References:

| | Reference | Title | Rev No. |
|----|-----------|-------------------------|---------|
| A. | AOP-R.03 | RHR System Malfunctions | 2 |

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READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

- 1) Unit ___ is in Mode 5 following a refueling outage.
- 2) The RCS is at Mid-loop with the A-A (B-B) RHR pump in service.
- 3) The B-B (A-A) RHR pump is tagged for maintenance on the pump seal package. It is expected to be ready for service within the next 4 hours.
- 4) The block on discharge valve FCV-74-16 (74-32) on the A-A (B-B) RHR Hx fell off and the FCV failed full open, causing vortexing in the RCS loop, resulting in air being drawn into the A-A (B-B) RHR pump suction and pump casing.
- 5) Rad Con techs are standing by to support the venting operation.
- 6) The A-A (B-B) RHR pump is in the Pull-to-Lock position.
- 7) Emergency repairs have been completed on FCV-74-16 (74-32) and the valve is now functional.

INITIATING CUES:

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

Job Performance Checklist:

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

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|---|------------------|
| <p>STEP 6.: UNLOCK and OPEN pump discharge vent on affected train: [RHR pump room]</p> <ul style="list-style-type: none"> • 74-516 (Train A) <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • 74-517 (Train B) <p><u>Cue:</u> <i>Lock is removed; HW turned several times in the CCW direction and is now snug.</i></p> <p><u>STANDARD:</u> Operator locates VLV-74-516 (74-517), unlocks and turns the HW in the CCW direction until snug and states that the valve will be open for approximately 10 minutes.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p>STEP 7.: VENT for 10 minutes.</p> <p><u>Cue:</u> <i>10 minutes have elapsed.</i></p> <p><u>STANDARD:</u> Operator states that once the valve is open they will vent for 10 minutes.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p>STEP 8.: CLOSE RHR pump discharge vent valve on affected train:</p> <ul style="list-style-type: none"> • 74-516 (Train A) <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • 74-517 (Train B) <p><u>Cue:</u> <i>The HW turned several times in the CW direction and is now snug.</i></p> <p><u>STANDARD:</u> Operator locates valve 74-516 (74-517) turns the HW in the CW direction until snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p>STEP 9.: OPEN RHR pump discharge valve on affected train.</p> <ul style="list-style-type: none"> • 74-520 (Train A) <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • 74-521 (Train B) <p><u>Cue:</u> <i>The HW turned several times in the CCW direction and is now snug.</i></p> <p><u>STANDARD:</u> Operator locates VLV-74-520 (74-521), turns the HW in the CCW direction until snug.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |

Job Performance Checklist:

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

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

- 1) Unit ___ is in Mode 5 following a refueling outage.
- 2) The RCS is at Mid-loop with the A-A (B-B) RHR pump in service.
- 3) The B-B (A-A) RHR pump is tagged for maintenance on the pump seal package. It is expected to be ready for service within the next 4 hours.
- 4) The block on discharge valve FCV-74-16 (74-32) on the A-A (B-B) RHR Hx fell off and the FCV failed full open, causing vortexing in the RCS loop, resulting in air being drawn into the A-A (B-B) RHR pump suction and pump casing.
- 5) Rad Con techs are standing by to support the venting operation.
- 6) The A-A (B-B) RHR pump is in the Pull-to-Lock position.
- 7) Emergency repairs have been completed on FCV-74-16 (74-32) and the valve is now functional.

INITIATING CUES:

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

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 91AP

Transfer Controls to the Auxiliary Mode Per Checklist 3 (SD Bd De-Energized)

**PREPARED/
REVISED BY:**

Date/

VALIDATED BY:

*

Date/

APPROVED BY:

Date/

(Operations Training Manager)

CONCURRED:

**

Date/

(Operations Representative)

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

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

**NUCLEAR TRAINING
REVISION/USAGE LOG**

| REVISION NUMBER | DESCRIPTION OF REVISION | V | DATE | PAGES AFFECTED | PREPARED/ REVISED BY: |
|-----------------|---|---|----------|----------------|-----------------------|
| 0 | New JPM, SD Bd deenergized requires operator closure of DG breaker | Y | 2/09/09 | All | HJ Birch |
| 1 | Revised to update steps to latest procedure revision, revised steps concerning Time Critical Action Clock starts as addressed AOP-N.01. | Y | 12/05/09 | ALL | M Hankins |

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

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Any UNSAT requires comments
2. *The SHUTDOWN BOARD LOGIC CABINETS are not locked, it will NOT be necessary to open the cabinet, having the operator locate the correct cabinet and describing his/her actions will suffice.*
3. *The AOP-C.04 cabinet is locked. It is not necessary to open the cabinet and retrieve the key. Having the operator locate the cabinet and discuss his/her actions will suffice.*
4. **Get SM permission to enter Trip Hazard Zone while performing JPM.**
5. Ensure PPE requirements are met.
6. Timing for Time Critical Actions will start one minute prior to the operator being notified to perform the checklist. Operator should be allowed a few minutes to review checklist prior to checklist performance.
7. Ensure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. _____ Local 35 minutes

Tools Needed:
AOP-C.04 Checklist 3

References:

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

=====

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

- 1) Both units were operating at 100% power when a fire in the spreader room required abandonment of the Main Control Room.
- 2) Both units were tripped as required by AOP-C.04. The control room has been abandoned.

INITIATING CUES:

- 1) You are the Control Room AUO. You have been assigned checklist 3.
- 2) Parts of this checklist are time critical. Timing for Time Critical Actions begins when the decision to enter AOP-C.04, SD from the ACR, is determined in AOP-N.01 Plant Fires.
- 3) NOTIFY the ACR when control is transferred on Checklist 3.

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|--|--|
| <p><u>NOTE 1</u> This checklist has Time Critical Actions. Time limits are identified at applicable steps. All times start from point at which the MCR determines that ay AOP-C.04 entry condition is met.</p> <p><u>NOTE 2</u> For JPM performance the timing for Time Critical Actions starts one minute before the operator is notified to perform checklist.</p> <p><u>STEP 1.:</u> Obtain a copy of the appropriate checklist(s).</p> <p><u>STANDARD:</u> Operator obtains a copy of AOP-C.04 checklist 3.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time_____</p> |
| <p><u>STEP 2.:</u> [1] OBTAIN the following from AOP-C.04 Cabinet:</p> <ul style="list-style-type: none"> • C415A Key • flashlight | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 3.:</u> The evaluator may utilize a copy of Checklists 3 to monitor and document the performer's actions. Operator is notified AOP-C.04 has been entered b the MCR, Timing for Time Critical Actions started one minute ago.</p> <p><u>CUE:</u> Cue OPERATOR that timing for time Critical Actions started one minute ago. Cue as necessary to give feedback on actions taken by the performer.</p> <p><u>STANDARD:</u> N/A.</p> | <p>Record time AOP-C.04 was entered in MCR</p> <p>_____</p> <p>This time starts the clock for Time Critical Actions</p> |
| <p><u>STEP 4.</u> [2] ATTEMPT to STOP both Unit 1 CCPS by.....(5 minutes)</p> <ul style="list-style-type: none"> • PLACE CCP transfer switch in AUX (Lift Lever below switch to break seal and allow transfer switch operation) • ATTEMPT to STOP CCP using HS on Bkr cmpt <p>1AA CCP Transfer Sw 1-XS-62-108 1AA CCP Control Switch 1-HS-62-108C 1BB CCP Transfer switch 1-XS-62-104 1BB CCP Control Switch 1-HS-62-104C</p> <p><u>CUE:</u> 1st Shutdown Bd –</p> <ul style="list-style-type: none"> • Lever is up and Switch Transferred. • Initially CCP has Red Light ON – Green Light OFF. • After operator places HS to Stop Cue: bkr has green light ON Red Light OFF. <p><u>CUE:</u> 2nd Shutdown Bd –</p> <ul style="list-style-type: none"> • Lever is up and Switch Transferred. • CCP has Green Light ON – Red Light OFF. <p><u>STANDARD:</u> Operator places BOTH Xfr switches in AUX and Ensures BOTH CCP are OFF. Critical time 5 minutes from time given Cklist.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> <p>Time</p> <p>_____</p> <p>Δ minutes from AOP-C.04 entry</p> <p>_____</p> |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|-------------|----------|----------|------------------------|----|------------|-----|-------------------------------|----|------------|-----|---------------|---|-------------|-----|---------------|---|-------------|-----|---------------------------|---|------------|-----|---|
| <p>STEP 5. [3] ENSURE [0-XS-82-122] GEN 1B-B Transfer switch in AUX CONT RM position. [inside SD Bd 1B-B Logic Cabinet panel 4, bottom row]</p> <p>NOTE: DO NOT ALLOW OPERATOR TO OPEN PANEL DOOR – operator can explain process</p> <p>Cue: <i>Switch is in the AUX position</i></p> <p>STANDARD: Operator places DG 1B-B Transfer Switch to AUX</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 6. [4] CHECK if 6.9KV Shutdown Board 1B-B is Energized – Voltmeter cmpt 12</p> <p>CUE: <i>Voltage is as indicated (or cue ~7000 V)</i></p> <p>STANDARD: Operator checks to see if SD Bd 1B is energized</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 7. [5] IF 6.9KV Shutdown Bd 1B-B is NOT energized...</p> <p>STANDARD: Operator will N/A this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 8. [6] PLACE the following transfer switches in AUX position on 6.9KV Shutdown Bd 1B-B:</p> <table border="1" data-bbox="131 1157 1166 1350"> <thead> <tr> <th>Equipment</th> <th>Compt</th> <th>Switch</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>ALT brk 6.9 UB 1D 1728</td> <td>16</td> <td>1-XS-57-71</td> <td>AUX</td> </tr> <tr> <td>Nor Supply Brk 6.0 UB 1C 1726</td> <td>11</td> <td>1-XS-57-68</td> <td>AUX</td> </tr> <tr> <td>ERCW Pump N-B</td> <td>9</td> <td>0-XS-67-452</td> <td>AUX</td> </tr> <tr> <td>ERCW Pump L-B</td> <td>8</td> <td>0-XS-67-440</td> <td>AUX</td> </tr> <tr> <td>Emerg Supply Brk 1BB 1914</td> <td>6</td> <td>1-XS-57-73</td> <td>AUX</td> </tr> </tbody> </table> <p>CUE 1: <i>Latch lifted, XS rotated clockwise, and indicates in the AUX. position.</i></p> <p>STANDARD: All Nor/Aux switches, addressed, are correctly placed in the Auxiliary position.</p> | Equipment | Compt | Switch | Position | ALT brk 6.9 UB 1D 1728 | 16 | 1-XS-57-71 | AUX | Nor Supply Brk 6.0 UB 1C 1726 | 11 | 1-XS-57-68 | AUX | ERCW Pump N-B | 9 | 0-XS-67-452 | AUX | ERCW Pump L-B | 8 | 0-XS-67-440 | AUX | Emerg Supply Brk 1BB 1914 | 6 | 1-XS-57-73 | AUX | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| Equipment | Compt | Switch | Position | | | | | | | | | | | | | | | | | | | | | | |
| ALT brk 6.9 UB 1D 1728 | 16 | 1-XS-57-71 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| Nor Supply Brk 6.0 UB 1C 1726 | 11 | 1-XS-57-68 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| ERCW Pump N-B | 9 | 0-XS-67-452 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| ERCW Pump L-B | 8 | 0-XS-67-440 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| Emerg Supply Brk 1BB 1914 | 6 | 1-XS-57-73 | AUX | | | | | | | | | | | | | | | | | | | | | | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|--|-----------|
| <p>NOTE The following step ensures one ERCW pump will sequence on following a blackout. If ERCW pump L-B or N-B is already running (breaker closed), the running pump should be selected.</p> <p>STEP 9.: [7] PLACE breaker control switch for ERCW pump L-B OR N-B in START momentarily (1B SD BD cmpt 8 or 9) [If a pump is running the running pump should be selected</p> <p>CUE: <i>L-B Pump Red Light ON N-B Pump Green Light ON HS for L-B pump has been placed to START and returned to Normal</i></p> <p>STANDARD: Operator ensures one ERCW pump HS on 1B-B 6.9KV shutdown board has been placed to start momentarily. [If N-B pump is started this should be a comment not an Unsat]</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p>STEP 10. [8] CHECK if 6.9KV Shutdown Board 1B-B is Energized – Voltmeter cmpt 12</p> <p>CUE: <i>Voltage is as indicated (~7000 Volts)</i></p> <p>STANDARD: Operator checks to see if SD Bd 1B is energized</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p>STEP 11. [9] IF 6.9KV Shutdown Bd 1B-B is NOT energized</p> <p>STANDARD: Operator N/A's this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p>NOTE AUO performing checklist 5 notifies operator performing checklist, 3, by face to face communication, that CCP suction is aligned to the RWST.</p> <p>STEP 12. [10] WHEN Unit 1 CCP suction has been aligned to the RWST, THEN PERFORM the following [13 minutes]</p> <ul style="list-style-type: none"> IF CCP 1A-A is NOT running THEN START CCP 1B-B [cmpt 18] <p>Cue 1: <i>AUO with Checklist 5 has opened FCV-62-135</i></p> <p>NOTE: Operator ensured both CCPs were off earlier and may state this, or may verify 1A-A is not running</p> <p>Cue 2: <i>If checked - 1A-A CCP Green Light only When Operator goes to "START" with 1B-B HS state Red Light ON– Green Light OFF [~ 32 Amps indicated]</i></p> <p>STANDARD: Operator STARTS 1B-B CCP. TIME Critical Action 13 minutes</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>CRITICAL STEP</p> <p>Time _____</p> <p>Δ minutes from AOP-C.04 entry</p> <p>_____</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-------------|----------|----------|------------------------------------|---|------------|-----|---------------|---|-------------|-----|---------------|---|-------------|-----|-------------------------------|----|------------|-----|-------------------------------|----|------------|-----|---|
| <p>STEP 13. [11] [a] ENSURE Contmnt Spray pump 1BB STOPPED: PLACE 1-XS-72-10, Cntmt Spray pump 1B-B transfer switch in AUX position. [6.9KV Shutdown Bd 1B-B Compt 13</p> <p>CUE 1: <i>Latch lifted, XS rotated clockwise, and indicates in the AUX. position.</i></p> <p>STANDARD: Operator places 1-XS-72-10 in AUX position</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 14. [11] [b] ENSURE Cntmt Spray pump 1B-B breaker OPEN [compt 13]</p> <p>Cue: <i>Cntmt Spray Green light ON</i></p> <p>STANDARD: Operator ensures Cntmt Spay pump 1B-B breaker open</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 15. [12] PLACE [0-XS-82-121] GEN 1A-A Transfer switch in AUX position. [inside SD Bd 1A-A Logic Cabinet panel 4]</p> <p>NOTE: DO NOT ALLOW OPERATOR TO OPEN PANEL DOOR – operator can explain process</p> <p>Cue: <i>Switch is in the AUX position</i></p> <p>STANDARD: Operator places DG 1A-A Transfer Switch to AUX</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 16. [13] PLACE the following transfer switches in AUX position on 6.9KV Shutdown Bd 1A-A.</p> <table border="1"> <thead> <tr> <th>Equipment</th> <th>Compt</th> <th>Switch</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>Emerg Supply Brk from D/G 1AA 1912</td> <td>6</td> <td>1-XS-57-46</td> <td>AUX</td> </tr> <tr> <td>ERCW Pump J-A</td> <td>8</td> <td>0-XS-67-432</td> <td>AUX</td> </tr> <tr> <td>ERCW Pump Q-A</td> <td>9</td> <td>0-XS-67-460</td> <td>AUX</td> </tr> <tr> <td>Nor Supply Brk 6.0 UB 1B 1718</td> <td>11</td> <td>1-XS-57-44</td> <td>AUX</td> </tr> <tr> <td>ALT Supply Brk 6.0 UB 1A 1716</td> <td>16</td> <td>1-XS-57-41</td> <td>AUX</td> </tr> </tbody> </table> <p>CUE 1: <i>Latch lifted, XS rotated clockwise, and indicates in the AUX. position.</i></p> <p>STANDARD: All Nor/Aux switches, addressed, are correctly placed in the Auxiliary position.</p> | Equipment | Compt | Switch | Position | Emerg Supply Brk from D/G 1AA 1912 | 6 | 1-XS-57-46 | AUX | ERCW Pump J-A | 8 | 0-XS-67-432 | AUX | ERCW Pump Q-A | 9 | 0-XS-67-460 | AUX | Nor Supply Brk 6.0 UB 1B 1718 | 11 | 1-XS-57-44 | AUX | ALT Supply Brk 6.0 UB 1A 1716 | 16 | 1-XS-57-41 | AUX | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| Equipment | Compt | Switch | Position | | | | | | | | | | | | | | | | | | | | | | |
| Emerg Supply Brk from D/G 1AA 1912 | 6 | 1-XS-57-46 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| ERCW Pump J-A | 8 | 0-XS-67-432 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| ERCW Pump Q-A | 9 | 0-XS-67-460 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| Nor Supply Brk 6.0 UB 1B 1718 | 11 | 1-XS-57-44 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| ALT Supply Brk 6.0 UB 1A 1716 | 16 | 1-XS-57-41 | AUX | | | | | | | | | | | | | | | | | | | | | | |

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|--|---|
| <p><u>NOTE:</u> The following step will ensure an ERCW pump starts when the SDBD is re-energized.</p> <p><u>STEP 17.:</u> [14] PLACE breaker control switch for ERCW pump J-A or Q-A in START momentarily (1A SD BD cmpt 8 or 9) [If a pump is running the running pump should be selected]</p> <p><u>NOTE:</u> For this JPM, 1A-A SDBD is de-energized. This will be checked in the next step.</p> <p><u>CUE 1:</u> <i>J-A Pump Green Light ON Q-A Pump Green Light ON</i></p> <p><u>CUE 1:</u> <i>If operator tries to start Either ERCW pump state "HS for J-A (Q-A) pump has been placed to START –No breaker closing noise heard – Green light still ON</i></p> <p><u>STANDARD:</u> Operator ensures one ERCW pump HS on 1A-A 6.9KV shutdown board has been placed to start momentarily.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 18.</u> [15] CHECK if 6.9KV Shutdown Board 1A-A is Energized – Voltmeter cmpt 12</p> <p><u>CUE:</u> <i>Voltage indicated is ZERO</i></p> <p><u>STANDARD:</u> Operator checks "NO" for board energized</p> | <p>___ SAT</p> <p>___ UNSAT</p> |
| <p><u>STEP 19.</u> [16] IF 6.9KV Shutdown Bd 1A-A is NOT energized THEN GO TO step [19]</p> <p><u>STANDARD:</u> Operator will go to Step [19].</p> | <p>___ SAT</p> <p>___ UNSAT</p> |

Job Performance Checklist:

| STEP/STANDARD | SAT/UNSAT |
|--|--|
| <p><u>STEP 20.</u> [19] IF the 6.9 KV SDBD 1AA or 1BB is DE-ENERGIZED. THEN PERFORM the following to energize the affected board from D/G: [a] ENSURE transfer switches on affected 6.9KV Shutdown Board in AUX position:</p> <p><u>CUE 1:</u> 1. <i>Cmpts 6, 8, 9, 11, 16, have previously been transferred. CUE operator Switches already in AUX for these Cmpts</i> 2. <i>For other Cmpts: Latch lifted, XS rotated clockwise, and indicates in the AUX. position.</i></p> <p><u>CUE 2:</u> <i>After the operator has described/demonstrated transfer of at least THREE breakers to Aux control: CUE him/her that the board is complete. This will expedite the JPM.</i></p> <p><u>STANDARD:</u> 1. Operator locates all boards/panels listed. 2. All Nor/Aux switches, addressed, are correctly placed in the Auxiliary position. (A minimum of 3 switches per board have been properly transferred to auxiliary. IF less than 3 switches on the board, then all are required)</p> <p><u>STANDARD:</u> Operator ensures the listed transfer switches are in Aux on 6.9KV Shutdown Bd 1A-A (NOTE: 1B-B is not affected and its switches should not be checked at this time).</p> | <p>___ SAT ___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 21.</u> [b] REMOVE control power fuse blocks for CCP on affected board [cmpt 18]</p> <p><u>CUE:</u> <i>fuses removed</i></p> <p><u>STANDARD:</u> Operator identifies fuse location (above the bkr) and removes fuses</p> | <p>___ SAT ___ UNSAT</p> <p>Critical Step</p> |
| <p><u>STEP 22.</u> [c] ENSURE shutdown board ALTERNATE supply bkr OPEN USING control switch on SDBD [cmpt 16]</p> <p><u>CUE:</u> <i>Green light ON – Red Light OFF</i></p> <p><u>STANDARD:</u> Operator verifies breaker is Open</p> | <p>___ SAT ___ UNSAT</p> |
| <p><u>STEP 23.</u> [d] ENSURE shutdown board NORMAL supply bkr OPEN USING control on shutdown board [cmpt 11]</p> <p><u>CUE:</u> <i>Green light ON – Red Light OFF</i></p> <p><u>STANDARD:</u> Operator verifies breaker is Open</p> | <p>___ SAT ___ UNSAT</p> |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|---|-----------|
| <p><u>STEP 24.</u> [e] IF voltage NOT available from D/G (using voltmeter at Cmpt 6) THEN ...</p> <p><u>CUE:</u> Volt meter indicates 6950 volts</p> <p><u>STANDARD:</u> Operator N/As this step since voltage is available</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 25.</u> [f] VERIFY voltage available from D/G [cmpt 6]</p> <p><u>CUE:</u> Volt meter indicates 6950 volts</p> <p><u>STANDARD:</u> Operator verifies voltage available from D/G.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 26.</u> [g] CLOSE D/G breaker USING control switch on cmpt 6 door</p> <p><u>CUE:</u> HS go to close, breaker slams, indication goes from Green to Red.</p> <p><u>STANDARD:</u> Operator closes D/G breaker</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 27.</u> [h] VERIFY affected 6.9KV Shutdown Bd Energized [cmpt 12]</p> <p><u>CUE:</u> Volt meter indicates 6950 volts</p> <p><u>STANDARD:</u> Operator verifies board is energized</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 28.</u> [i] ENSURE one ERCW pump on affected board Running [cmpt 8 or 9]</p> <p><u>CUE:</u> Breaker closes – Red Light ON</p> <p><u>STANDARD:</u> Operator starts one ERCW pump</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 29.</u> [j] IF any Unit 1 CCP is already running THEN GO TO substep L</p> <p><u>STANDARD:</u> Operator goes to substep L. One CCP was started in an earlier step Operator MUST NOT start this pump – Caution 2 (earlier in procedure) indicates this could result in High suction temperature.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | |
| <p><u>STEP 30.</u> [k] NOTIFY ACR that affected shutdown board is energized</p> <p><u>STANDARD:</u> Operator notifies the ACR</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------------------------------|--------------|----------|----------|------------------|----|--------------|-----|-------------------|----|--------------|-----|---------------------------|----|------------|-----|--------------|----|------------|-----|----------|----|------------|-----|---|
| <p>STEP 31. [20] CONTACT ACR to determine required AFW pump actions</p> <p>CUE: <i>Both MDAFW pumps are running and we wish to keep them running</i></p> <p>STANDARD: Operator checks with UO in ACR to determine what should be done with the MDAFW pumps.</p> <p>NOTE: This will allow the operator to continue on in the procedure, Steps [21] and [22] will be performed when needed and operator is notified by the MCR.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 32. [21] IF ACR directs stopping Unit 1 MD AFW.....</p> <p>STANDARD: Operator N/A's this step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 33. [22] WHEN ACR directs starting U 1 MDAFW.....</p> <p>STANDARD: Operator continues with procedure and stops pumps when directed by ACR.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 34. [23] ENSURE the following transfer switches in AUX position on 6.9KV Shutdown Bd 1B-B:</p> <table border="1"> <thead> <tr> <th>Equipment</th> <th>Compt</th> <th>Switch</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>PZR HTR Group 1C</td> <td>21</td> <td>1-XS-68-341H</td> <td>AUX</td> </tr> <tr> <td>PZR HTR Group 1BB</td> <td>20</td> <td>1-XS-68-341D</td> <td>AUX</td> </tr> <tr> <td>Safety Injection Pump 1BB</td> <td>15</td> <td>1-XS-63-15</td> <td>AUX</td> </tr> <tr> <td>RHR pump 1BB</td> <td>14</td> <td>1-XS-74-20</td> <td>AUX</td> </tr> <tr> <td>AFWP 1BB</td> <td>10</td> <td>1-XS-3-128</td> <td>AUX</td> </tr> </tbody> </table> <p>CUE: <i>Latch lifted, XS rotated clockwise, and indicates in the AUX position.</i></p> <p>STANDARD: 1. Operator locates all boards/panels listed. 2. All Nor/Aux switches, addressed, are correctly placed in the Auxiliary position.</p> | Equipment | Compt | Switch | Position | PZR HTR Group 1C | 21 | 1-XS-68-341H | AUX | PZR HTR Group 1BB | 20 | 1-XS-68-341D | AUX | Safety Injection Pump 1BB | 15 | 1-XS-63-15 | AUX | RHR pump 1BB | 14 | 1-XS-74-20 | AUX | AFWP 1BB | 10 | 1-XS-3-128 | AUX | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| Equipment | Compt | Switch | Position | | | | | | | | | | | | | | | | | | | | | | |
| PZR HTR Group 1C | 21 | 1-XS-68-341H | AUX | | | | | | | | | | | | | | | | | | | | | | |
| PZR HTR Group 1BB | 20 | 1-XS-68-341D | AUX | | | | | | | | | | | | | | | | | | | | | | |
| Safety Injection Pump 1BB | 15 | 1-XS-63-15 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| RHR pump 1BB | 14 | 1-XS-74-20 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| AFWP 1BB | 10 | 1-XS-3-128 | AUX | | | | | | | | | | | | | | | | | | | | | | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--------------|----------|----------|----------|----|------------|-----|--------------|----|------------|-----|---------------------------|----|------------|-----|-------------------|----|--------------|-----|------------------|----|--------------|-----|---|
| <p>STEP 35. [24] ENSURE the following transfer switches in AUX position on 6.9KV Shutdown Bd 1A-A:</p> <table border="1" data-bbox="131 352 1166 541"> <thead> <tr> <th>Equipment</th> <th>Compt</th> <th>Switch</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>AFWP 1AA</td> <td>10</td> <td>1-XS-3-118</td> <td>AUX</td> </tr> <tr> <td>RHR pump 1AA</td> <td>14</td> <td>1-XS-74-10</td> <td>AUX</td> </tr> <tr> <td>Safety Injection Pump 1AA</td> <td>15</td> <td>1-XS-63-10</td> <td>AUX</td> </tr> <tr> <td>PZR HTR Group 1AA</td> <td>20</td> <td>1-XS-68-341A</td> <td>AUX</td> </tr> <tr> <td>PZR HTR Group 1D</td> <td>21</td> <td>1-XS-68-341F</td> <td>AUX</td> </tr> </tbody> </table> <p>NOTE: Operator may state that these switches were previously placed in AUX position in step 19 (procedure) step 20 (JPM)</p> <p>CUE 1: <i>Latch lifted, XS rotated clockwise, and indicates in the AUX. position.</i></p> <p>STANDARD: 1. Operator locates all boards/panels listed. 2. All Nor/Aux switches, addressed, are correctly placed in the Auxiliary position.</p> | Equipment | Compt | Switch | Position | AFWP 1AA | 10 | 1-XS-3-118 | AUX | RHR pump 1AA | 14 | 1-XS-74-10 | AUX | Safety Injection Pump 1AA | 15 | 1-XS-63-10 | AUX | PZR HTR Group 1AA | 20 | 1-XS-68-341A | AUX | PZR HTR Group 1D | 21 | 1-XS-68-341F | AUX | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> |
| Equipment | Compt | Switch | Position | | | | | | | | | | | | | | | | | | | | | | |
| AFWP 1AA | 10 | 1-XS-3-118 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| RHR pump 1AA | 14 | 1-XS-74-10 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| Safety Injection Pump 1AA | 15 | 1-XS-63-10 | AUX | | | | | | | | | | | | | | | | | | | | | | |
| PZR HTR Group 1AA | 20 | 1-XS-68-341A | AUX | | | | | | | | | | | | | | | | | | | | | | |
| PZR HTR Group 1D | 21 | 1-XS-68-341F | AUX | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 36. [25] IF smoke is entering Shutdown Board room area</p> <p>CUE: <i>NO smoke can be seen in the area</i></p> <p>STANDARD: Operator will N/A step.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 37.: [26] ENSURE the following transfer switches in AUX position: CCS pump 1AA Compt 6 1-XS-70-46 AUX on 480 V SDBD 1A1A</p> <p>CUE: <i>XS rotated clockwise, and indicates in the AUX. position.</i></p> <p>STANDARD: Nor/Aux switch is correctly placed in the Auxiliary position.</p> | <p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STEP 38.: [27] IF CCS pump 1AA is Stopped THEN ATTEMPT to start CCS pump 1AA USING 1-HS-70-46C [480V SDBD 1A1A Compt 6]</p> <p>CUE: <i>When HS is placed to start, tell operator pump started, red light illuminated, green light dark.</i></p> <p>STANDARD: Operator starts 1AA CCS pump.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | | | | | | | | | | | | | | | | | | | | | | | | |

Job Performance Checklist:

| STEP/STANDARD | | SAT/UNSAT |
|---|---------------------------------|------------------|
| <p><u>STEP 39.:</u> [28] ENSURE the following transfer switches in AUX position: 480V SDBD 1A2A AA Fire/Flood Mode Pmp Compt 6 0-XS-26-1 480V SDBD 1B2B BB CCS Pmp Compt 6 0-XS-70-38</p> <p><u>CUE:</u> <i>XS rotated clockwise, and indicates in the AUX. position.</i></p> <p><u>STANDARD:</u> Nor/Aux switch is correctly placed in the Auxiliary position.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 40.:</u> [29] IF CCS pump 1BB is STOPPED THEN ATTEMPT to start CCS pump 1BB USING 1-HS-70-38C [480V SDBD 1B1B Compt 6]</p> <p><u>CUE:</u> <i>When HS is placed to start, tell operator pump started, red light illuminated, green light dark.</i></p> <p><u>STANDARD:</u> Operator starts 1BB CCS pump</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 41.:</u> [30] ENSURE the following transfer switches in AUX position: 480V SDBD 1B2B MT TGOP Compt 6 1-XS-47-61 480V SDBD 1B2B SDBD Water Chiller PKG BB compt 6 0-XS-31C-338</p> <p><u>CUE:</u> <i>XS rotated clockwise, and indicates in the AUX. position.</i></p> <p><u>STANDARD:</u> Nor/Aux switch is correctly placed in the Auxiliary position.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |
| <p><u>STEP 42.:</u> [31] NOTIFY ACR that control is transferred on Checklist 3.</p> <p><u>CUE:</u> <i>If operator continues in Checklist 3, state that another AUO will perform the remainder of the checklist</i></p> <p><u>STANDARD:</u> Operator calls ACR and reports status.</p> | <p>___ SAT</p> <p>___ UNSAT</p> | |

End of JPM

READ TO OPERATOR

Directions to Trainee:

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

INITIAL CONDITIONS:

- 1) Both units were operating at 100% power when a fire in the spreader room required abandonment of the Main Control Room.
- 2) Both units were tripped as required by AOP-C.04. The control room has been abandoned.

INITIATING CUES:

- 1) You are the Control Room AUO. You have been assigned checklist 3.
- 2) Parts of this checklist are time critical. Timing for Time Critical Actions begins when the decision to enter AOP-C.04, SD from the ACR, is determined in AOP-N.01 Plant Fires.
- 3) NOTIFY the ACR when control is transferred on Checklist 3.