BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 127tcap

TASK NUMBER: U-047-AL-11

TASK TITLE: Respond to a Reactor Building Fire at elevation 519 through 565 west of column line R11

K/A NUMBER: 600000 AA2.16 K/A RATING: RO 3.0 SRO: 3.5

TASK STANDARD: Simulate performing designated steps of an SSI as directed by the Unit 2 Unit Supervisor and 0-SSI-2-1.

LOCATION OF PERFORMANCE: PLANT

REFERENCES/PROCEDURES NEEDED: 0-SSI-2-1, Attachment 2 OPERATOR 2 Manual Actions

VALIDATION TIME: 20 minutes

MAX. TIME ALLOWED: 40 minutes (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: Time allowed is 20 minutes for section 1.0 and 20 minutes for section 2.0

_____

_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-PLANT: I will explain the initial conditions and state the task to be performed. ALL STEPS WILL BE SIMULATED. Do NOT operate any plant equipment. SELF CHECKING may be carried out to the point of touching a label. If it becomes necessary to physically touch a control switch, use a non-conductive pointing device. Observe ALL plant radiological and safety precautions. 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. When your task is given, you will repeat the task and I will acknowledge "That's correct" (or That's incorrect", if applicable). When you have completed your assigned task, you will say, "My task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are an Operator. Unit 2 was at 60% power and Unit 1 and 3 at 100% power. Due to a fire in the Unit 2 reactor building the SSIs have been entered. You have a hand-held radio.

INITIATING CUES: The Unit Supervisor directs you to perform the actions of 0-SSI-2-1, Attachment 2, Operator 2 Manual Actions.

Time Critical

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT

START TIME_____

****

Performance Step: Critical X Not Critical___

ATTACHMENT 2
OPERATOR 2 MANUAL ACTIONS

1.0 4KV SHUTDOWN BOARD D ALIGNMENT (20 Min)

1 PROCEED to Electric Board Room 2B and Perform the following to align 4KV Shutdown Board D:

1.1 PROCEED to Compartment 5, 0-BKR-211-000D/005 BKR 1618 ALT SUPPLY TO 4KV S/D BD D FROM S/D BUS 1 AND PERFORM the following:

1.1.1 PLACE the BREAKER CONTROL TRANSFER SWITCH 43, 0-43-211-000D/05, in EMERG.

1.1.2 PLACE the BREAKER CONTROL SWITCH, 0-HS-211-000D/05B in TRIP.

Standard:

At Compartment 5, simulated placing transfer switch 43 to EMERG position and simulated placing the breaker control switch in TRIP.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: The 43 Switch is in Emergency. If breaker was originally closed, the breaker is open the indicating lights are Red light OFF and Green light ON. [Otherwise], the breaker is tripped.

****

Performance Step: Critical X Not Critical__

1.2 PROCEED to Compartment 13, 0-BKR-211-000D/013 NORM SUPPLY TO TRANSFORMER TDB TO 480V D/G AUX BD B, AND PERFORM the following:

1.2.1 PLACE BREAKER CONTROL SWITCH 0-HS-211-000D/013 in TRIP.

Standard:

At Compartment 13, simulated placing 0-HS-211-000D/013 in TRIP.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: If breaker was originally closed, the breaker is open the indicating lights are Red light OFF and Green light ON. [Otherwise], the breaker is tripped.

****

Performance Step: Critical X Not Critical___

1.3 PROCEED to Compartment 16, 1-BKR-074-0039 RESIDUAL HEAT REMOVAL PUMP 1D AND PERFORM the following:

1.3.1 PLACE RHR PUMP 1D TRANSFER 1-43-074-0039 in EMERG.

1.3.2 PLACE RHR PUMP 1D, 2-HS-074-0039C in TRIP.

Standard:

At Compartment 16, simulated placing switch, 1-43-074 0039 in EMERG and simulated placing breaker control switch, 0-HS-074-0039C in TRIP.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: The Transfer Switch is in Emergency. If breaker was originally closed, the breaker is open the indicating lights are Red light OFF and Green light ON. [Otherwise], the breaker is tripped.

****

Performance Step: Critical X Not Critical___

NOTE

RESIDUAL HEAT REMOVAL PUMP 2D will be started from Main Control Room for LPCI injection to reactor at 120 minutes. For "confirmation" purposes the switches in Steps 1.0[1.4.1] and 1.0[1.4.2] are realigned by Section 2.0 of this Attachment.

1.4 PROCEED to Compartment 17, 2-BKR-074-0039 RESIDUAL HEAT REMOVAL PUMP 2D AND PERFORM the following:

1.4.1 PLACE RHR PUMP D BREAKER CONTROL TRANSFER SWITCH 43, 2-43-074-0039 in EMERG.

1.4.2 PLACE RHR PUMP 2D, 1-HS-74-39C in TRIP.

Standard:

At Compartment 17, simulated placing switch 2-43-074-0039 in EMERG and simulated placing 2-HS-74-39C in TRIP.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: The Transfer Switch is in Emergency. If breaker was originally closed, the breaker is open the indicating lights are Red light OFF and Green light ON. [Otherwise], the breaker is tripped.

****

Performance Step: Critical_X_ Not Critical__

1.5 PROCEED to Compartment 20, 0-BKR-211-000D/020 BKR 1816 TO 4KV S/D BD D FROM DG 1D AND PERFORM the following:

1.5.1 PLACE BKR 1816 EMER APP R ISOL SEL SWITCH (43AR), 0-43BU-211-000D/20, in EMER.

1.5.2 PLACE BREAKER CONTROL TRANSFER SWITCH 43, 0-43-211-000D/20 in EMERG.

1.5.3 PLACE BREAKER CONTROL SWITCH, 0-HS-211-000D/20B in TRIP.

Standard:

At Compartment 20, simulated placing switch 43AR in EMER, simulated placing switch 43 in EMERG and simulated placing breaker control switch in TRIP.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: The 43AR Switch is in Emergency. The 43 Switch is in Emergency.
If breaker was originally closed, the breaker is open the indicating lights are Red light OFF and Green light ON.
[Otherwise], the breaker is tripped.

****

Performance Step: Critical_X_ Not Critical___

1.6 PROCEED to Compartment 22, 0-BKR-211-000D/022 BKR 1724 NORM SUPPLY TO 4KV S/D BD D FROM S/D BUS 2 AND PERFORM the following:

1.6.1 PLACE BKR 1724 EMER APP R ISOL SEL SWITCH (43AR) 0-43BU-211-000D/22, in EMER.

1.6.2 PLACE BREAKER CONTROL TRANSFER SWITCH 43, 0-43-211-000D2/22, in EMERG.

1.6.3 PLACE BREAKER CONTROL SWITCH, 0-HS-211-000D/22B, in TRIP.

Standard:

At Compartment 22, simulated placing Switch 43AR in EMER, simulated placing Switch 43 in EMERG and simulated placing breaker control switch in TRIP.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: The 43AR Switch is in Emergency. The 43 Switch is in Emergency. If breaker was originally closed, the breaker is open the indicating lights are Red light OFF, Green light ON. [Otherwise], the breaker is tripped.

****

Performance Step: Critical X Not Critical_

NOTE

Synchronizing switch handle is located in box by door.

1.7 PROCEED to Compartment 6, 0-BKR -211-000D/006 BKR 1826 TO 4KV S/D BD D FROM 4KV S/D BOARD 3ED AND PERFORM the following:

1.7.1 PLACE BKR 1826 EMER APP R ISOL SEL SWITCH (43AR), 0-43BU-211-000D/006, in EMER.

1.7.2 PLACE BREAKER CONTROL TRANSFER SWITCH 43, 0-43-211-000D/06, in EMERG.

Standard:

At Compartment 6, simulated placing Switch 43AR in EMER and Switch 43 in EMERG.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: The 43AR Switch is in Emergency. The 43 Switch is in Emergency.

****

Performance Step: Critical X Not Critical__

1.7.3 **PLACE** SYNCHRONIZING SWITCH 25-826, 0-25-211-000D/06B, in ON.

1.7.4 **WHEN** Synchronizing Panel INCOMING VOLTMETER indicates greater than 3950 volts, **THEN**

PLACE BREAKER CONTROL SWITCH, 0-HS-211-000D/06B, in CLOSE.

1.7.5 **PLACE** SYNCHRONIZING SWITCH 25-826, 0-25-211-000D/06B, in OFF.

Standard:

Simulated placing Switch 25-826 in ON, verified incoming volts greater than 3950 volts. Simulated placing the Breaker Control Switch in CLOSE. Simulated placing Switch 25-826 in OFF.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: Switch 25-826 in ON

Shutdown Board Voltage is 4210 volts

The breaker CLOSED and the indicating lamp changed from green to red.

Switch 25-826 in OFF

****

Performance Step: Critical__ Not Critical X_

2 NOTIFY Unit 2 Unit Supervisor upon completion of this section.

3 REMAIN AT 4KV Shutdown Board D to perform Section 2.0 of this instruction.

Standard:

Simulated notifying Unit 2 Unit Supervisor of completion of 0-SSI-2-1, ATTACHMENT 2, SECTION 1.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: The Unit 2 Unit Supervisor directs you to complete attachment 2, section 2 RHR Pump 2D start.

INSTRUCTOR'S NOTE:

ENTER THE TIME SECTION 1.0 WAS COMPLETED HERE _____.

****

Performance Step: Critical__ Not Critical X_

2.0 RHR PUMP 2D START

(20 Min)

1 Notification has been received from the Unit 2 Unit Supervisor to perform this section.

NOTE

If RHR pump fails to start, pushbutton on breaker must be used.

2 **PROCEED TO** 4KV Shutdown Board D Compt 17, 2-BKR-074-0039 RESIDUAL HEAT REMOVAL PUMP 2D, AND **PERFORM** the following:

2.1 **PLACE** RHR PUMP 2D BREAKER CONTROL TRANSFER SWITCH, 2-43-074-0039, in EMERG.

Standard:

Verifies that RHR Pump 2D Transfer Switch is in EMERG.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: Switch is still in Emergency from previous step 1.4. 2-43-074-0039 is in EMERGENCY.

****

Performance Step: Critical X Not Critical__

2.2 PLACE RHR PUMP 2D, 2-HS-74-39C, in CLOSE.

Standard:

Simulated placing 2-HS-74-39C in CLOSE.

SAT__ UNSAT___ N/A ___COMMENTS:_____
_____

CUE: There was NO noise of breaker closing and the green light is ON.

****

Performance Step: Critical X Not Critical__

DEPRESS MANUAL BREAKER CLOSE pushbutton.

Standard:

Simulated depressing MANUAL BREAKER CLOSE pushbutton.

SAT__ UNSAT___ N/A ___COMMENTS:_____
_____

CUE: The "THUD" of the breaker closing was heard and the red light is ON and when amps are checked amps pegged high and now are indicating.

****

Performance Step: Critical__ Not Critical X_

2.3 **VERIFY** RHR Pump 2D has started by Observing Breaker ammeter indication.

3 **NOTIFY** Unit 2 Unit Supervisor of the completion of this section.

4 **PROCEED TO** Intake Pumping Station in preparation of performing Section 3.0.

Standard:

Verifies ammeter reading and informs Unit supervisor that RHR Pump 2D is running.

SAT__ UNSAT___ N/A ___COMMENTS:_____
_____

CUE: When operator reads the ammeter the reading is 80 amps.
Acknowledge operation of RHR Pump 2D when US contacted.
Another operator is completing section 3.0.

INSTRUCTOR'S NOTE:

ENTER THE TIME STEP 3.3 WAS COMPLETED HERE_____.

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 202

TASK NUMBER: U-003-NO-04

TASK TITLE: Place a Second/Third RFPT in Service

K/A NUMBER: 259001 A4.02 K/A RATING: RO 3.9 SRO: 3.7

TASK STANDARD: Places the Third RFPT in Service.

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 2-OI-3

VALIDATION TIME: 20 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are the Unit Operator at the controls. RFPT 2A is warmed and ready to be placed in service. Precautions and limitations have been reviewed. Radiation Protection has been notified that an RPHP is in effect for the impending action to place RFPT 2A in service. Time of notification has been recorded in the NOMS Narrative Log. Appropriate data and signatures have been recorded on Appendix A.

INITIATING CUES: The Unit Supervisor directs you to place RFPT 2A in service and in automatic level control per 2-OI-3 Reactor Feedwater System section 5.7.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

5.7 Placing the Second and Third RFP/RFPT In Service

CAUTIONS

1) FAILURE to monitor SJAE/OG CNDR CNDS FLOW, 2-FI-2-42, on Panel 2-9-6 for proper flow (between 2 x 106 and 3 x 106 lbm/hr) may result in SJAE isolation.
2) Changes in Condensate System flow may require adjustment to SPE CNDS BYPASS, 2-FCV-002-0190.

NOTE

Placing RFP 2A(2B)(2C) MIN FLOW VALVE, 2-HS-3-20(13)(6), in OPEN position will lock it open, preventing minimum flow valve oscillations at low flow.

[1] **BEFORE** placing a RFPT in service:

[1.1] **NOTIFY** Radiation Protection that an RPHP is in effect for the impending action to place RFPT 2A in service. **RECORD** time Radiation Protection notified in NOMS Narrative Log

[1.2] **VERIFY** appropriate data and signatures recorded on Appendix A per Appendix A instructions

[2] **IF** RFP/RFPT is **NOT** warmed, reset and rolling, **THEN PERFORM** the following: (Otherwise N/A)

Standard:

Given in initial conditions that step 1 and 2 are complete.

SAT___ UNSAT___ N/A ___COMMENTS:_____
_____

****

Performance Step: Critical_X_ Not Critical___

[3] **VERIFY** RFP 2A MIN FLOW VALVE, 2-HS-3-20, in OPEN position.

• **CHECK OPEN** MIN FLOW VALVE, 2-FCV-3-20.

Standard:

Places RFP 2A MIN FLOW VALVE, 2-HS-3-20, in OPEN

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[4] **SLOWLY RAISE** speed of RFPT using RFPT 2A SPEED CONT RAISE/LOWER, 2-HS-46-8A, to establish flow and maintain level in vessel.

[5] **WHEN** RFPT discharge pressure is within 250 psig of reactor pressure, **THEN VERIFY OPEN** RFP 2A DISCHARGE VALVE, 2-FCV-3-19.

Standard:

Raises RFPT speed and verifies discharge valve open

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[6] **SLOWLY RAISE** RFPT speed using RFPT 2A SPEED CONT RAISE/LOWER switch, 2-HS-46-8A, to slowly raise RFP discharge pressure and flow on the following indications (Panel 2-9-6):

• RFP Discharge Pressure - RFP 2A, 2-PI-3-16A
• RFP Discharge Flow - RFP 2A, 2-FI-3-20

Standard:

Raises RFPT speed and commences injection to the Reactor

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[7] **WHEN** sufficient flow is established to maintain RFP 2A MIN FLOW VALVE, 2-FCV-3-20, in CLOSED position (approximately 2 x 106 lbm/hr),

THEN PLACE RFP 2A MIN FLOW VALVE, 2-HS-3-20, in AUTO.

Standard:

Places RFP 2A MIN FLOW VALVE in AUTO

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[8] **OBSERVE** lowering in speed and discharge flows of other operating RFPs.

Standard:

Raises injection flow of RFPT 2A and monitors feedwater flow of other operating feed pumps.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

[9] **PULL** RFPT 2A(2B)(2C) SPEED CONT RAISE/LOWER switch, 2-HS-46-8A(9A)(10A), to FEEDWATER CONTROL position.

• **CHECK** amber light at switch extinguished.

Standard:

Pulls up on 2-HS-46-8A, verifies amber light extinguishes

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

[10] **PERFORM** the following on RFPT 2A(2B)(2C) SPEED CONTROL (PDS), 2-SIC-46-8(9)(10) (Panel 2-9-5):

[10.1] **SELECT** Column 3.

[10.2] **VERIFY** PDS in MANUAL.

Standard:

Verifies column 3 selected.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[11] **VERIFY** REACTOR WATER LEVEL CONTROL (PDS), 2-LIC-46-5 functioning properly and ready to control second or third RFP.

[12] **SLOWLY RAISE** RFP speed.

• **CHECK** discharge flow and discharge pressure rise.

Standard:

Raises speed of RFPT

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

[13] **WHEN** RFP speed is approximately equal to operating RFP(s) speed, **THEN** on RFPT 2A(2B)(2C) SPEED CONTROL (PDS), 2-SIC-46-8(90(10):

[13.1] **PLACE** PDS in AUTO.

[13.2] **VERIFY** Column 3 selected.

Standard:

Places PDS in Auto

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[14] **WHEN** RFP is in automatic mode on REACTOR WATER LEVEL CONTROL, (PDS) 2-LIC-46-5, **THEN CLOSE** the following valves:

- RFPT 2A LP STOP VLV ABOVE SEAT DR, 2-FCV-6-120
- RFPT 2A LP STOP VLV BELOW SEAT DR, 2-FCV-6-121
- RFPT 2A HP STOP VLV ABOVE SEAT DR, 2-FCV-6-122
- RFPT 2A HP STOP VLV BELOW SEAT DR, 2-FCV-6-123
- RFPT 2A FIRST STAGE DRAIN VLV, 2-FCV-6-124
- RFPT A(B)(C) HP STEAM SHUTOFF ABOVE SEAT DRAIN, 2-FCV-6- 153 (local control)
- RFPT A(B)(C) LP STEAM SHUTOFF ABOVE SEAT DRAIN, 2-FCV-6-154 (local control)

Standard:

Closes the above listed valves and contacts AUO to verify the last two valves.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: RFPT A HP STEAM SHUTOFF ABOVE SEAT DRAIN is closed
RFPT A LP STEAM SHUTOFF ABOVE SEAT DRAIN is closed

****

Performance Step: Critical__ Not Critical X_

[15] **VERIFY CLOSED** the following valves on first RFP started in Section 5.5:

- RFPT (2B)(2C) LP STOP VLV ABOVE SEAT DR, 2-FCV-6-(125)(130)
- RFPT 2A(2B)(2C) LP STOP VLV BELOW SEAT DR, 2-FCV-6-(126)(131)
- RFPT A(B)(C) LP STEAM SHUTOFF ABOVE SEAT DR, 2-FCV-006-(0156)(0158) (local control)

Standard:

Verifies closed the above listed valves and contacts AUO to verify the last valves.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: RFPT B, C LP STEAM SHUTOFF ABOVE SEAT DRAIN are closed

****

Performance Step : Critical__ Not Critical X_

[16] **VERIFY** both RFPT Main Oil Pumps running.

[17] **IF** desired to stop Turning Gear for in service RFPT,
THEN PLACE appropriate handswitch in STOP and RETURN to AUTO:

• RFPT 2A TURNING GEAR MOTOR, 2-HS-3-101A

[18] **REFER TO** Section 6.0.

• **CONTROL** and **MONITOR** RFW system operation.

Standard:

Verifies both RFPT Main Lube Oil Pumps running, step 14 is NA and verifies proper operation of RFW system.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 202

TASK NUMBER: U-003-NO-04

TASK TITLE: Place a Second/Third RFPT in Service

K/A NUMBER: 259001 A4.02 K/A RATING: RO 3.9 SRO: 3.7

TASK STANDARD: Places the Third RFPT in Service.

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 3-OI-3

VALIDATION TIME: 20 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are the Unit Operator at the controls. RFPT 3A is warmed and ready to be placed in service. Precautions and limitations have been reviewed. Radiation Protection has been notified that an RPHP is in effect for the impending action to place RFPT 3A in service. Time of notification has been recorded in the NOMS Narrative Log. Appropriate data and signatures have been recorded on Appendix A.

INITIATING CUES: The Unit Supervisor directs you to place RFPT 3A in service and in automatic level control per 3-OI-3 Reactor Feedwater System section 5.7.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

5.7 Placing the Second and Third RFP/RFPT In Service

CAUTIONS

1) FAILURE to monitor SJAE/OG CNDR CNDS FLOW, 3-FI-2-42, on Panel 3-9-6 for proper flow (between 2 x 106 and 3 x 106 lbm/hr) may result in SJAE isolation.
2) Changes in Condensate System flow may require adjustment to SPE CNDS BYPASS, 3-FCV-002-0190.

NOTE

Placing RFP 3A(3B)(3C) MIN FLOW VALVE, 3-HS-3-20(13)(6), in OPEN position will lock it open, preventing minimum flow valve oscillations at low flow.

[1] **BEFORE** placing a RFPT in service:

[1.1] **NOTIFY** Radiation Protection that an RPHP is in effect for the impending action to place RFPT 3A in service. **RECORD** time Radiation Protection notified in NOMS Narrative Log

[1.2] **VERIFY** appropriate data and signatures recorded on Appendix A per Appendix A instructions

[2] **IF** RFP/RFPT is **NOT** warmed, reset and rolling, **THEN PERFORM** the following: (Otherwise N/A)

Standard:

Given in initial conditions that step 1 and 2 are complete.

SAT___ UNSAT___ N/A ___COMMENTS:_____
_____

****

Performance Step: Critical_X_ Not Critical___

[3] **VERIFY** RFP 3A MIN FLOW VALVE, 3-HS-3-20, in OPEN position.

• **CHECK OPEN** MIN FLOW VALVE, 3-FCV-3-20.

Standard:

Places RFP 3A MIN FLOW VALVE, 3-HS-3-20, in OPEN

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[4] **SLOWLY RAISE** speed of RFPT using RFPT 3A SPEED CONT RAISE/LOWER, 3-HS-46-8A, to establish flow and maintain level in vessel.

[5] **WHEN** RFPT discharge pressure is within 250 psig of reactor pressure, **THEN VERIFY OPEN** RFP 3A DISCHARGE VALVE, 3-FCV-3-19.

Standard:

Raises RFPT speed and verifies discharge valve open

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[6] **SLOWLY RAISE** RFPT speed using RFPT 3A SPEED CONT RAISE/LOWER switch, 3-HS-46-8A, to slowly raise RFP discharge pressure and flow on the following indications (Panel 3-9-6):

• RFP Discharge Pressure - RFP 3A, 3-PI-3-16A
• RFP Discharge Flow - RFP 3A, 3-FI-3-20

Standard:

Raises RFPT speed and commences injection to the Reactor

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[7] **WHEN** sufficient flow is established to maintain RFP 3A MIN FLOW VALVE, 3-FCV-3-20, in CLOSED position (approximately 2 x 106 lbm/hr),

THEN PLACE RFP 3A MIN FLOW VALVE, 3-HS-3-20, in AUTO.

Standard:

Places RFP 3A MIN FLOW VALVE in AUTO

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[8] **OBSERVE** lowering in speed and discharge flows of other operating RFPs.

Standard:

Raises injection flow of RFPT 3A and monitors feedwater flow of other operating feed pumps.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

[9] **IF** transferring RFPT from MANUAL GOVERNOR to individual RFPT Speed Control PDS,
THEN PERFORM the following: (Otherwise N/A)

[9.1] **PULL** RFPT 3A SPEED CONT RAISE/LOWER switch, 3-HS-46-8A, to FEEDWATER CONTROL position.

[9.2] **VERIFY** amber light at switch extinguished above RFPT 3A SPEED CONT RAISE/LOWER switch, 3-HS-46-8A.

[9.3] **PERFORM** the following on RFPT 3A SPEED CONTROL(PDS), 3-SIC-46-8 (Panel 3-9-5):

[9.3.1] **SELECT** Column 3.
[9.3.2] **VERIFY** PDS in MANUAL.

Standard:

Pulls up on 3-HS-46-8A, verifies amber light extinguishes, selects column 3 and verifies in manual.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

[10] **IF** transferring control of RFPT from individual RFPT Speed Control PDS to AUTO control using REACTOR WATER LEVEL CONTROL PDS, 3-LIC-46-5,
THEN PERFORM the following: (Otherwise N/A)

[10.1] **VERIFY** REACTOR WATER LEVEL CONTROL (PDS), 3-LIC- 46-5 is functioning properly and ready to control second or third RFP.

[10.2] **SLOWLY RAISE** RFP discharge flow and pressure by raising RFP speed.

[10.3] **WHEN** RFP speed is approximately equal to operating RFP(s) speed, **THEN PERFORM** the following on RFPT 3A SPEED CONTROL (PDS), 3-SIC-46-8:

[10.3.1] **PLACE** PDS in AUTO.
[10.3.2] **VERIFY** Column 3 selected.

Standard:

Raises RFP discharge flow and pressure, places PDS in auto and verifies column 3 selected.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[11] **WHEN** RFP in automatic mode on REACTOR WATER LEVEL CONTROL, (PDS) 3-LIC-46-5,
THEN CLOSE the following valves:

- RFPT 3A LP STOP VLV ABOVE SEAT DR, 3-FCV-6-120
- RFPT 3A LP STOP VLV BELOW SEAT DR, 3-FCV-6-121
- RFPT 3A HP STOP VLV ABOVE SEAT DR, 3-FCV-6-122
- RFPT 3A HP STOP VLV BELOW SEAT DR, 3-FCV-6-123
- RFPT 3A FIRST STAGE DRAIN VLV, 3-FCV-6-124
- RFPT A HP STEAM SHUTOFF ABOVE SEAT DRAIN, 3-FCV-006-0153 (local control)
- RFPT A LP STEAM SHUTOFF ABOVE SEAT DRAIN, 3-FCV-006-0154 (local control)

Standard:

Closes the above listed valves and contacts AUO to verify the last two valves.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: RFPT A HP STEAM SHUTOFF ABOVE SEAT DRAIN is closed
RFPT A LP STEAM SHUTOFF ABOVE SEAT DRAIN is closed

****

Performance Step: Critical__ Not Critical X_

[12] **VERIFY CLOSED** the following valves on first RFP started in Section 5.5:

- RFPT (3B)(3C) LP STOP VLV ABOVE SEAT DR, 3-FCV-6-(125)(130)
- RFPT (3B)(3C) LP STOP VLV BELOW SEAT DR, 3-FCV-6-(126)(131)
- RFPT (B)(C) LP STEAM SHUTOFF ABOVE SEAT DR, 3-FCV-006-(0156)(0158) (local control)

Standard:

Verifies closed the above listed valves and contacts AUO to verify the last valves.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: RFPT B, C LP STEAM SHUTOFF ABOVE SEAT DRAIN are closed

****

Performance Step : Critical__ Not Critical X_

[13] **VERIFY** both RFPT Main Oil Pumps running.

[14] **IF** desired to stop Turning Gear for in service RFPT,
THEN PLACE appropriate handswitch in STOP and RETURN to AUTO:

• RFPT 3A TURNING GEAR MOTOR, 3-HS-3-101A

[15] **REFER TO** Section 6.0.

• **CONTROL** and **MONITOR** RFW system operation.

Standard:

Verifies both RFPT Main Lube Oil Pumps running, step 14 is NA and verifies proper operation of RFW system.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 203

TASK NUMBER: U-001-NO-08

TASK TITLE: Close MSIVs During Power Operations

K/A NUMBER: 239001 A4.01 K/A RATING: RO 4.2 SRO: 4.0

TASK STANDARD: Closes Inboard and Outboard MSIVs on Main Steam Line C

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 2-OI-1

VALIDATION TIME: 20 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. Plant conditions are as found. No MSIVs LS-3 or LS-4 is failed. Precautions and limitations have been reviewed.

INITIATING CUES: The Unit Supervisor directs you to close both MSIVs on Main Steam Line C per 2-OI-1 Main Steam System section 8.2.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

8.2.3 Closing Main Steam Line C Valve(s) During Power Operations

NOTES

1) Test stroking an MSIV to the closed position takes about 45-60 seconds.

2) LS-5 limit switches cause the MSIV green position indicator light to illuminate at 85% open. The LS-3 and LS-4 limit switches for the Unit 3 MISVs actuate at 90% open to initiate a reactor scram via the RPS. During MSIV testing, a half-scram initiation signal will be received before the green position indicator light illuminates.

3) Closing a MSIV with another main steam line MSIV closed or a failed LS-3 or LS-4 switch, may cause a half or a full reactor scram. **REFER TO** Illustrations 1 and 2.

4) Main Steam Line Flow Indication goes to the Reactor Feed Control System. Closing and Opening a MSIV will cause a fluctuation in the Reactor Feed Water System.

[1] **REVIEW** all Precautions and Limitations in Section 3.0.

[2] **VERIFY** that ALL MSIVs are open.

[3] **CHECK** by administration means that no MSIVs LS-3 or LS-4 has failed (i.e., Narrative Logs, Caution Orders, Work Orders).

[4] **IF** a failed LS-3 or LS-4 for a MSIV has been determined, **THEN CHECK** that a Half Scram will NOT occur when the valve to be operated is closed. (**REFER TO** Illustrations 1 and 2, and RPS Logic prints 730E915)

[5] **IF** a Half Scram is expected to occur, **THEN STOP** and **OBTAIN** Unit Supervisors permission to continue in the procedure.

[6] **VERIFY** or **LOWER** Reactor Power to ≤ 66% per 2-GOI-100-12 or 2-GOI-100-12A.

Standard:

Given in initial conditions for step 3, power is less than 66%

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

NOTES

1) To prevent a RPS Half Scram, only one set of Main Steam Line Isolation Valves (Inboard and Outboard) should be closed at a time.
2) Closing a MSIV may cause MSL drain valves to operate. P&L 3.0O, 3.0P and 3.0Q should be reviewed for applicability.
3) When a MSIV is closed at power, the potential exists for an isolation of the Hydrogen Water Chemistry System to occur. **REFER TO** Precaution 3.0X.
4) During power operations when using the test pushbutton to slow stroke the MISV closed, the MSIV is to be considered closed when either one of the following conditions are met:
   - The red position indicating light on Panel 9-3 extinguishes, or
   - The test pushbutton has been held for approximately 3 minutes and the steam flow in the isolated MSL is essentially zero (less than 0.4 Mlb/hr).

[7] **PERFORM** the following to close MSIV LINE C INBOARD MSIV:

[7.1] **DEPRESS** and **HOLD** MSIV LINE C INBOARD TEST, 2-HS-1-37B push-button until Step 8.2.3[7.3].

[7.2] **WHEN** MSIV LINE C INBOARD indicates closed OR **AFTER** approximately three minutes have past since Step 8.2.3[7.1] and steam flow in the isolated MSL has been verified as essentially zero, **THEN**

- **PLACE** MSIV LINE C INBOARD, 2-HS-1-37A in the CLOSE position.

[7.3] **RELEASE** MSIV LINE C INBOARD TEST, 2-HS-1-1-37B push-button.

Standard:

Operator depresses and holds the MSIV Line C Inboard test push button until the MSIV is closed, then places the switch to close, and then releases the test push button.
Note: if the valve goes back open after it is closed it would be a failure.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

NOTES

1) To prevent a RPS Half Scram, only one set of Main Steam Line Isolation Valves (Inboard and Outboard) should be closed at a time.
2) Closing a MSIV may cause MSL drain valves to operate. P&L 3.0O, 3.0P and 3.0Q should be reviewed for applicability.
3) When a MSIV is closed at power, the potential exists for an isolation of the Hydrogen Water Chemistry System to occur. **REFER TO** Precaution 3.0X.
4) During power operations when using the test pushbutton to slow stroke the MISV closed, the MSIV is to be considered closed when either one of the following conditions are met:
   - The red position indicating light on Panel 9-3 extinguishes, or
   - The test pushbutton has been held for approximately 3 minutes and the steam flow in the isolated MSL is essentially zero (less than 0.4 Mlb/hr).

[8] **PERFORM** the following to close MSIV LINE C OUTBOARD MSIV:

[8.1] **DEPRESS** and **HOLD** MSIV LINE C OUTBOARD TEST, 2-HS-1-38B push-button until Step 8.2.3[8.3].

[8.2] **WHEN** MSIV LINE C OUTBOARD indicates closed OR **AFTER** approximately three minutes have past since Step 8.2.3[8.1] and steam flow in the isolated MSL has been verified as essentially zero, **THEN**

- **PLACE** MSIV LINE C OUTBOARD, 2-HS-1-38A in the CLOSE position.

[8.3] **RELEASE** MSIV LINE C OUTBOARD TEST, 2-HS-1-1-38B push-button.

Standard:

Operator depresses and holds the MSIV Line C Inboard test push button until the MSIV is closed, then places the switch to close, and then releases the test push button.
Note: if the valve goes back open after it is closed it would be a failure.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

NOTES

1) When turbine generator RPM is above 1700 and one or more MSIVs fully close, Valves 2-FCV-1-168, -169, -170, and -171 will close and Valves 2-FCV-1-57, MSIV DOWNSTREAM DRAINS SHUTOFF, and 2-FCV-1-58, UPSTREAM MSL DRAIN TO CONDENSER opens, if closed, and their handswitches are in AUTO.
2) When opening the 2-FCV-1-55 and 2-FCV-56, Main Steam Line Drain Valves the HWC system may isolate on LOW OFFGAS Oxygen.

[9] **OPEN** 2-FCV-1-55 using MN STM LINE DRAIN INBD ISOLATION VLV, 2-HS-1-55A.

Standard:

Opens drain valve 2-FCV-1-55

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

[10] **OPEN** 2-FCV-1-56 using MN STM LINE DRAIN OUTBD ISOLATION VLV, 2-HS-1-56A.

Standard:

Opens drain valve 2-FCV-1-56

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[11] **VERIFY OPEN** 2-FCV-1-57 using MSIV DOWNSTREAM DRAINS SHUTOFF, 2-HS-1-57A.

[12] **VERIFY OPEN** 2-FCV-1-58 using UPSTREAM MSL DRAIN TO CONDENSER, 2-HS-1-58A.

[13] **CHECK CLOSED** valves 2-FCV-1-168, -169, -170, and -171, ON 2-PNL-9-3 as follows: **VERIFY** the green indicating light ILLUMINATED and the red indicating light EXTINGUISHED for MAIN STM LINE DRAIN VALVES POSITION, 2-ZI-1-174.

Standard:

Verifies 2-FCV-1-57 and 58 are open and that 2-FCV-1-168, 169, 170, and 171 are closed.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[14] **IF** desired **AND** directed by the Unit Supervisor, **THEN**

RAISE Reactor Power per 2-GOI-100-12, while maintaining the remaining steam lines below an average of 3.54 x 106 lbm/hr steam flow (approximately 80% Reactor Power), on the remaining three main steam lines.

Standard:

None, another Operator will raise power.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: Another Operator will raise Reactor Power

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 203

TASK NUMBER: U-001-NO-08

TASK TITLE: Close MSIVs During Power Operations

K/A NUMBER: 239001 A4.01 K/A RATING: RO 4.2 SRO: 4.0

TASK STANDARD: Closes Inboard and Outboard MSIVs on Main Steam Line C

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 3-OI-1

VALIDATION TIME: 20 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. Plant conditions are as found. No MSIVs LS-3 or LS-4 is failed. Precautions and limitations have been reviewed.

INITIATING CUES: The Unit Supervisor directs you to close both MSIVs on Main Steam Line C per 3-OI-1 Main Steam System section 8.2.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

8.2.3 Closing Main Steam Line C Valve(s) During Power Operations

NOTES

1) Test stroking an MSIV to the closed position takes about 45-60 seconds.

2) LS-5 limit switches cause the MSIV green position indicator light to illuminate at 85% open. The LS-3 and LS-4 limit switches for the Unit 3 MSIVs actuate at 90% open to initiate a reactor scram via the RPS. During MSIV testing, a half-scram initiation signal will be received before the green position indicator light illuminates.

3) Closing a MSIV with another main steam line MSIV closed or a failed LS-3 or LS-4 switch, may cause a half or a full reactor scram. **REFER TO** Illustrations 1 and 2.

4) Main Steam Line Flow Indication goes to the Reactor Feed Control System. Closing and Opening a MSIV will cause a fluctuation in the Reactor Feed Water System.

[1] **REVIEW** all Precautions and Limitations in Section 3.0.

[2] **VERIFY** that ALL MSIVs are open.

[3] **CHECK** by administration means that no MSIVs LS-3 or LS-4 has failed (i.e., Narrative Logs, Caution Orders, Work Orders).

[4] **IF** a failed LS-3 or LS-4 for a MSIV has been determined, **THEN CHECK** that a Half Scram will NOT occur when the valve to be operated is closed. (**REFER TO** Illustrations 1 and 2, and RPS Logic prints 730E915)

[5] **IF** a Half Scram is expected to occur, **THEN STOP** and **OBTAIN** Unit Supervisors permission to continue in the procedure.

[6] **VERIFY** or **LOWER** Reactor Power to ≤ 66% per 3-GOI-100-12 or 3-GOI-100-12A.

Standard:

Given in initial conditions for step 3, power is less than 66%

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

NOTES

1) To prevent a RPS Half Scram, only one set of Main Steam Line Isolation Valves (Inboard and Outboard) should be closed at a time.
2) Closing a MSIV may cause MSL drain valves to operate. P&L 3.0O, 3.0P and 3.0Q should be reviewed for applicability.
3) When a MSIV is closed at power, the potential exists for an isolation of the Hydrogen Water Chemistry System to occur. **REFER TO** Precaution 3.0X.
4) During power operations when using the test pushbutton to slow stroke the MISV closed, the MSIV is to be considered closed when either one of the following conditions are met:
   - The red position indicating light on Panel 9-3 extinguishes, or
   - The test pushbutton has been held for approximately 3 minutes and the steam flow in the isolated MSL is essentially zero (less than 0.4 Mlb/hr).

[7] **PERFORM** the following to close MSIV LINE C INBOARD MSIV:

[7.1] **DEPRESS** and **HOLD** MSIV LINE C INBOARD TEST, 3-HS-1-37B push-button until Step 8.2.3[7.3].

[7.2] **WHEN** MSIV LINE C INBOARD indicates closed OR **AFTER** approximately three minutes have past since Step 8.2.3[7.1] and steam flow in the isolated MSL has been verified as essentially zero, **THEN**

- **PLACE** MSIV LINE C INBOARD, 3-HS-1-37A in the CLOSE position.

[7.3] **RELEASE** MSIV LINE C INBOARD TEST, 3-HS-1-1-37B push-button.

Standard:

Operator depresses and holds the MSIV Line C Inboard test push button until the MSIV is closed, then places the switch to close, and then releases the test push button.
Note: if the valve goes back open after it is closed it would be a failure.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

NOTES

1) To prevent a RPS Half Scram, only one set of Main Steam Line Isolation Valves (Inboard and Outboard) should be closed at a time.
2) Closing a MSIV may cause MSL drain valves to operate. P&L 3.0O, 3.0P and 3.0Q should be reviewed for applicability.
3) When a MSIV is closed at power, the potential exists for an isolation of the Hydrogen Water Chemistry System to occur. **REFER TO** Precaution 3.0X.
4) During power operations when using the test pushbutton to slow stroke the MISV closed, the MSIV is to be considered closed when either one of the following conditions are met:
   - The red position indicating light on Panel 9-3 extinguishes, or
   - The test pushbutton has been held for approximately 3 minutes and the steam flow in the isolated MSL is essentially zero (less than 0.4 Mlb/hr).

[8] **PERFORM** the following to close MSIV LINE C OUTBOARD MSIV:

[8.1] **DEPRESS** and **HOLD** MSIV LINE C OUTBOARD TEST, 3-HS-1-38B push-button until Step 8.2.3[8.3].

[8.2] **WHEN** MSIV LINE C OUTBOARD indicates closed OR **AFTER** approximately three minutes have past since Step 8.2.3[8.1] and steam flow in the isolated MSL has been verified as essentially zero, **THEN**

- **PLACE** MSIV LINE C OUTBOARD, 3-HS-1-38A in the CLOSE position.

[8.3] **RELEASE** MSIV LINE C OUTBOARD TEST, 3-HS-1-1-38B push-button.

Standard:

Operator depresses and holds the MSIV Line C Inboard test push button until the MSIV is closed, then places the switch to close, and then releases the test push button.
Note: if the valve goes back open after it is closed it would be a failure.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

NOTES

1) When turbine generator RPM is above 1700 and one or more MSIVs fully close, Valves 3-FCV-1-168, -169, -170, and -171 will close and Valves 3-FCV-1-57, MSIV DOWNSTREAM DRAINS SHUTOFF, and 3-FCV-1-58, UPSTREAM MSL DRAIN TO CONDENSER opens, if closed, and their handswitches are in AUTO.
2) When opening the 3-FCV-1-55 and 3-FCV-56, Main Steam Line Drain Valves the HWC system may isolate on LOW OFFGAS Oxygen.

[9] **OPEN** 3-FCV-1-55 using MN STM LINE DRAIN INBD ISOLATION VLV, 3-HS-1-55A.

Standard:

Opens drain valve 3-FCV-1-55

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

[10] **OPEN** 3-FCV-1-56 using MN STM LINE DRAIN OUTBD ISOLATION VLV, 3-HS-1-56A.

Standard:

Opens drain valve 3-FCV-1-56

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[11] **VERIFY OPEN** 3-FCV-1-57 using MSIV DOWNSTREAM DRAINS SHUTOFF, 3-HS-1-57A.

[12] **VERIFY OPEN** 3-FCV-1-58 using UPSTREAM MSL DRAIN TO CONDENSER, 3-HS-1-58A.

[13] **CHECK CLOSED** valves 3-FCV-1-168, -169, -170, and -171, ON 3-PNL-9-3 as follows: **CHECK** the green indicating light ILLUMINATED and the red indicating light EXTINGUISHED for MAIN STM LINE DRAIN VALVES POSITION, 3-ZI-1-174.

Standard:

Verifies 3-FCV-1-57 and 58 are open and that 3-FCV-1-168, 169, 170, and 171 are closed.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[14] **IF** desired **AND** directed by the Unit Supervisor, **THEN**

RAISE Reactor Power per 3-GOI-100-12, while maintaining the remaining steam lines below an average of 3.54 x 106 lbm/hr steam flow (approximately 80% Reactor Power), on the remaining three main steam lines.

Standard:

None, another Operator will raise power.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: Another Operator will raise Reactor Power

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 207

TASK NUMBER: U-92A-NO-03

TASK TITLE: Returning an IRM to Service from the Bypassed Condition

K/A NUMBER: 215003 A2.02 K/A RATING: RO 3.5 SRO: 3.7

TASK STANDARD: Return IRM F to Service.

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 2-OI-92A

VALIDATION TIME: 15 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. Plant conditions are as found. Plant startup is in progress with IRM F bypassed and withdrawn. IRM F is ready to be returned to service.

INITIATING CUES: The Unit Supervisor directs you to return IRM F to service per 2-OI-92A Intermediate Range Monitors section 6.2.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

6.2 Returning an IRM to Service from the Bypassed Condition

NOTE

All operations are performed on Panel 2-9-5 unless specifically stated otherwise.

[1] **REVIEW** all precautions and limitations in Section 3.0. □□

CAUTION

A bypassed IRM that is not fully inserted will receive a rod block signal when it is unbypassed, unless the reactor is in the RUN mode (Mode 1).

Standard:

Reviews precautions and Limitations

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[2] **IF** necessary and required**, THEN:**
INSERT the bypassed IRM detector.

Standard:

Inserts IRM F by depressing IRM F Select pushbutton and then depressing Drive In pushbutton until IRM F indicates IN.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[3] **IF** required to avoid a scram signal**, THEN:**
PLACE the Range Switch for the IRM to be unbypassed to a position where its indication is between 25 and 75 on the 0-125 scale.

Standard:

Ranges IRM F to the correct position so a half scram is not received.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[4] **PLACE** the applicable IRM Bypass selector switch to neutral (off):

• IRM BYPASS, 2-HS-92-7A/S4B

Standard:

Places IRM Bypass switch to neutral for IRM F.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[5] **CHECK** Bypassed light is extinguished.

Standard:

Verifies bypass light out

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[6] For the IRM channel returned to service, **PERFORM** one of the following:

- **CHECK** the IRM Select pushbutton extinguished, OR
- **DEPRESS** the IRM Select pushbutton to extinguish the light.

Standard:

Verifies light off or turns light off by depressing IRM select pushbutton.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 207

TASK NUMBER: U-92A-NO-03

TASK TITLE: Returning an IRM to Service from the Bypassed Condition

K/A NUMBER: 215003 A2.02 K/A RATING: RO 3.5 SRO: 3.7

TASK STANDARD: Return IRM F to Service.

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 3-OI-92A

VALIDATION TIME: 15 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. Plant conditions are as found. Plant startup is in progress with IRM F bypassed and withdrawn. IRM F is ready to be returned to service.

INITIATING CUES: The Unit Supervisor directs you to return IRM F to service per 3-OI-92A Intermediate Range Monitors section 6.2.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

6.2 Returning an IRM to Service from the Bypassed Condition

NOTE

All operations are performed on Panel 3-9-5 unless specifically stated otherwise.

[1] **REVIEW** all precautions and limitations in Section 3.0. □□

CAUTION

A bypassed IRM that is not fully inserted will receive a rod block signal when it is unbypassed, unless the reactor is in the RUN mode (Mode 1).

Standard:

Reviews precautions and Limitations

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[2] **IF** necessary and required**, THEN:**
INSERT the bypassed IRM detector.

Standard:

Inserts IRM F by depressing IRM F Select pushbutton and then depressing Drive In pushbutton until IRM F indicates IN.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[3] **IF** required to avoid a scram signal**, THEN:**
PLACE the Range Switch for the IRM to be unbypassed to a position where its indication is between 25 and 75 on the 0-125 scale.

Standard:

Ranges IRM F to the correct position so a half scram is not received.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[4] **PLACE** the applicable IRM Bypass selector switch to neutral (off):

• IRM BYPASS, 3-HS-92-7A/S4B

Standard:

Places IRM Bypass switch to neutral for IRM F.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X__

[5] **CHECK** Bypassed light is extinguished.

Standard:

Verifies bypass light out

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[6] For the IRM channel returned to service, **PERFORM** one of the following:

- **CHECK** the IRM Select pushbutton extinguished, OR
- **DEPRESS** the IRM Select pushbutton to extinguish the light.

Standard:

Verifies light off or turns light off by depressing IRM select pushbutton.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 208

TASK NUMBER: U-090-NO-01

TASK TITLE: Returning DW Radiation Monitor CAM, 2-RM-90-256 to service

K/A NUMBER: 272000 A2.10 K/A RATING: RO 3.9 SRO: 4.1

TASK STANDARD: DW Radiation Monitor CAM, 2-RM-90-256 is in service

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 2-AOI-100-1

VALIDATION TIME: 15 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. Plant conditions are as found. The Unit Supervisor is operating in 2-AOI-100-1 Reactor Scram. The lowest Reactor Level was minus 20 inches following the scram. The Drywell Atmosphere Monitors ($H_2 0_2$) were not in service.

INITIATING CUES: The Unit Supervisor directs you to perform step 36 of 2-AOI-100-1 Reactor Scram.

START TIME_____

****

Performance Step: Critical X Not Critical___

[36] **CHECK** the following systems/equipment in service or **RETURN** them to service at standby readiness, as necessary, in accordance with the following or the appropriate OI:

[36.1] **PLACE** Drywell DP Air Compressor in service at Panel 2-9-3 as follows:

- **PLACE** DRYWELL INBD ISOLATION VLV switch, 2-HS-64-31, in AUTO after OPEN.
- **PLACE** SUPPR CHBR INBD ISOLATION VLV switch, 2-HS-64-34, in AUTO after OPEN.

Standard:

Places 2-HS-64-31 and 34 in Auto after Open

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical___

- **DEPRESS** DRYWELL DP COMP SUCTION VLV RESET switch, 2-HS-64-139A.
- **DEPRESS** DRYWELL DP COMP DISCH VLV RESET switch, 2-HS-64-140A.

Standard:

Depresses 2-HS-64-139A and 140A to reset.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[36.2] **PLACE** Drywell Floor and Equipment Drains in service at Panel 2-9-4 as follows:

- **PLACE** DW EQPT DRAIN INBD ISOL VALVE switch, 2-HS-77-15A, in AUTO after OPEN.
- **PLACE** DW EQPT DRAIN OUTBD ISOL VALVE switch, 2-HS-77-15B, in AUTO after OPEN.

Standard:

Places 2-HS-77-15A and 15B in Auto after Open

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

- **PLACE** DW FLOOR DRAIN INBD ISOL VALVE switch, 2-HS-77-2A, in AUTO after OPEN.
- **PLACE** DW FLOOR DRAIN OUTBD ISOL VALVE switch, 2-HS-77-2B, in AUTO after OPEN.

Standard:

Places 2-HS-77-2A and 2B in Auto after Open

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

[36.3] **PLACE** DRYWELL RAD MONITOR in service at Panel 2-9-2 by DEPRESSING the following RESET pushbuttons:

- UPPER INBD SUPPLY ISOL VALVE RESET, 2-HS-90-254A-A
- LOWER INBD SUPPLY ISOL VALVE RESET, 2-HS-90-254B-A
- INBD RETURN ISOL VALVE RESET, 2-HS-90-257B-A
- OUTBD SUPPLY ISOL VALVE RESET, 2-HS-90-255A
- OUTBD RETURN ISOL VALVE RESET, 2-HS-90-257A-A

Standard:

Depresses the five listed reset pushbuttons to return the Drywell Rad Monitor to service

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[36.4] **PERFORM** the following to PLACE Drywell Atmosphere Monitors (H202) in service:

[36.4.1] **DEPRESS** ANALYZER 2A ISOLATION RESET pushbutton, 2-HS-76-91 on Panel 2-9-54.

[36.4.2] **IF** H2/O2 Analyzer 2A was in service, **THEN PULL** and **RELEASE** the ANALYZER 2A SUPPR CHBR/DW SELECT hand-switch, 2-HS-76-49 on Panel 2-9-54.

Standard:

Depresses Analyzer 2A reset pushbutton, does not place analyzer in service

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[36.4.3] **DEPRESS** ANALYZER 2B ISOLATION RESET pushbutton, 2-HS-76-92 on Panel 2-9-54.

[36.4.4] **IF** H2/O2 Analyzer 2B was in service, **THEN PULL** and **RELEASE** the ANALYZER 2B SUPPR CHBR/DW SELECT hand-switch, 2-HS-76-59 on Panel 2-9-54.

Standard:

Depresses Analyzer 2B reset pushbutton, does not place analyzer in service

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 208

TASK NUMBER: U-090-NO-01

TASK TITLE: Returning DW Radiation Monitor CAM, 3-RM-90-256 to service

K/A NUMBER: 272000 A2.10 K/A RATING: RO 3.9 SRO: 4.1

TASK STANDARD: DW Radiation Monitor CAM, 3-RM-90-256 is in service

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 3-AOI-100-1

VALIDATION TIME: 15 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. Plant conditions are as found. The Unit Supervisor is operating in 3-AOI-100-1 Reactor Scram. The lowest Reactor Level was minus 20 inches following the scram. The Drywell Atmosphere Monitors ($H_2 0_2$) were not in service.

INITIATING CUES: The Unit Supervisor directs you to perform step 37 of 3-AOI-100-1 Reactor Scram.

START TIME_____

****

Performance Step: Critical_X_ Not Critical___

[37] **CHECK** the following systems/equipment in service or **RETURN** them to service at standby readiness, as necessary, in accordance with the following or the appropriate OI:

[37.1] **PLACE** Drywell DP Air Compressor in service at Panel 3-9-3 as follows:

[37.1.1] **PLACE** DRYWELL INBD ISOLATION VLV switch, 3-HS-64-31, in AUTO after OPEN.

[37.1.2] **PLACE** SUPPR CHBR INBD ISOLATION VLV switch, 3-HS-64-34, in AUTO after OPEN.

Standard:

Places 3-HS-64-31 and 34 in Auto after Open

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[37.1.3] **DEPRESS** DRYWELL DP COMP SUCTION VLV RESET switch, 3-HS-64-139A.

[37.1.4] **DEPRESS** DRYWELL DP COMP DISCH VLV RESET switch, 3-HS-64-140A.

Standard:

Depresses 3-HS-64-139A and 140A to reset.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[37.2] **PLACE** Drywell Floor and Equipment Drains in service at Panel 3-9-4 as follows:

[37.2.1] **PLACE** DW EQPT DRAIN INBD ISOL VALVE switch, 3-HS-77-15A, in AUTO after OPEN.

[37.2.2] **PLACE** DW EQPT DRAIN OUTBD ISOL VALVE switch, 3-HS-77-15B, in AUTO after OPEN.

Standard:

Places 3-HS-77-15A and 15B in Auto after Open

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

[37.2.3] **PLACE** DW FLOOR DRAIN INBD ISOL VALVE switch, 3-HS-77-2A, in AUTO after OPEN.

[37.2.4] **PLACE** DW FLOOR DRAIN OUTBD ISOL VALVE switch 3-HS-77-2B, in AUTO after OPEN.

Standard:

Places 3-HS-77-2A and 2B in Auto after Open

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

[37.3] **PLACE** DRYWELL RAD MONITOR in service at Panel 3-9-2 by DEPRESSING the following RESET pushbuttons:

A. UPPER INBD SUPPLY ISOL VALVE RESET, 3-HS-90-254A-A
B. LOWER INBD SUPPLY ISOL VALVE RESET, 3-HS-90-254B-A
C. INBD RETURN ISOL VALVE RESET, 3-HS-90-257B-A
D. OUTBD SUPPLY ISOL VALVE RESET, 3-HS-90-255A
E. OUTBD RETURN ISOL VALVE RESET, 3-HS-90-257A-A

Standard:

Depresses the five listed reset pushbuttons to return the Drywell Rad Monitor to service

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[37.4] **PERFORM** the following to PLACE Drywell Atmosphere Monitors (H202) in service:

[37.4.1] **DEPRESS** ANALYZER 3A ISOLATION RESET pushbutton, 3-HS-76-91 on Panel 3-9-54.

[37.4.2] **IF** H2/O2 Analyzer 3A was in service, **THEN PULL** and **RELEASE** the ANALYZER 3A SUPPR CHBR/DW SELECT hand-switch, 3-HS-76-49 on Panel 3-9-54.

Standard:

Depresses Analyzer 3A reset pushbutton, does not place analyzer in service

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[37.4.3] **DEPRESS** ANALYZER 3B ISOLATION RESET pushbutton, 3-HS-76-92 on Panel 3-9-54.

[37.4.4] **IF** H2/O2 Analyzer 3B was in service, **THEN PULL** and **RELEASE** the ANALYZER 3B SUPPR CHBR/DW SELECT hand-switch, 3-HS-76-59 on Panel 3-9-54.

Standard:

Depresses Analyzer 3B reset pushbutton, does not place analyzer in service

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

NOTE

RPV Water Level at or below -122 in. will pick up 3-1-58A2 and 58B2. This will start the drywell high pressure bypass timers, seal them in, and illuminate amber lights IL-1-202/203/204/205 located on Panel 9-30 in the Auxiliary Instrument Room.

[37.5] **IF** RPV Water Level lowered to -122 in. or below, **THEN PERFORM** the following in Unit 3 Aux. Inst Room : (Otherwise N/A)

Standard:

Step is NA

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 209

TASK NUMBER: U-000-EM-79

TASK TITLE: Secure System II from Suppression Pool Cooling

K/A NUMBER: 219000 A4.01 K/A RATING: RO 3.8 SRO: 3.7

TASK STANDARD: Secure System II from Suppression Pool Cooling per Appendix 17A.

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 2-EOI Appendix 17A

VALIDATION TIME: 10 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. EOI-2 was entered due to Suppression Pool Temperature exceeding 95°F. Suppression Pool Temperature is as indicated. RHR System II remains operating in Suppression Pool Cooling per 2-EOI Appendix 17A.

INITIATING CUES: The Unit Supervisor directs you to secure System II from Suppression Pool Cooling per 2-EOI Appendix 17A.

START TIME_____

****

Performance Step: Critical_X_ Not Critical___

3. WHEN Suppression Pool Cooling is NO longer required,
THEN **SECURE** System I(II) Suppression Pool Cooling as follows:

NOTE: Handswitches for 2-FCV-74-59 and 2-FCV-74-73 are held in CLOSE during closing cycle approximately 6 seconds AFTER red light extinguishes to ensure valve closure.

a. **CLOSE** 2-FCV-74-73, RHR SYS II SUPPR POOL CLG/TEST VLV, as follows:

1) **PLACE** and **HOLD** 2-HS-74-73A, RHR SYS II SUPPR POOL CLG/TEST VLV, handswitch in CLOSE.

2) WHEN Approximately 6 seconds elapse AFTER the red light extinguishes,

THEN **RETURN** 2-HS-74-73A, RHR SYS II SUPPR POOL CLG/TEST VLV, handswitch to NORMAL.

Standard:

Closes 2-FCV-74-73 and holds in close position for 6 seconds after red light off

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X__

b. **VERIFY OPEN** 2-FCV-74-30, RHR SYSTEM II MIN FLOW VALVE.

Standard:

Verifies 2-FCV-74-30 opens

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

c. IF RHR operation is desired in ANY other mode,
THEN **EXIT** this EOI Appendix.

d. **STOP** RHR PUMPS 2B and 2D

Standard:

Stops RHR Pumps 2B and 2D

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE:	RHR Operation in another Mode is not desired

****

Performance Step: Critical_X_ Not Critical___

e. **CLOSE** 2-FCV-74-71, RHR SYS II SUPPR CHBR/POOL ISOL VLV

Standard:

Closes 2-FCV-74-71

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

f. IF ALL of the following conditions exist:

• LPCI Initiation Signal,
AND
• Drywell pressure below 2.4 psig,
AND
• RPV water level above -120 in.,

THEN **RESTORE** RHR System I and II logic to normal as follows:

Standard:

Step is NA, conditions do not or did not exist

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical_ __

g. **VERIFY CLOSED** the following valves:

• 2-FCV-23-46, RHR HX 2B RHRSW OUTLET VLV
• 2-FCV-23-52, RHR HX 2D RHRSW OUTLET VLV

Standard:

Closes 2-FCV-23-46 and 2-FCV-23-52

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical_

h. **STOP** RHRSW pumps supplying ANY Unit 2 RHR Heat Exchanger

Standard:

Stops RHRSW Pumps B2 and D2

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical X_

i. **VERIFY** RHR system discharge header pressure above 45 psig on 2-PI-74-65, RHR SYS II DISCH PRESS

Standard:

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 209

TASK NUMBER: U-000-EM-79

TASK TITLE: Secure System II from Suppression Pool Cooling

K/A NUMBER: 219000 A4.01 K/A RATING: RO 3.8 SRO: 3.7

TASK STANDARD: Secure System II from Suppression Pool Cooling per Appendix 17A.

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 3-EOI Appendix 17A

VALIDATION TIME: 10 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. EOI-2 was entered due to Suppression Pool Temperature exceeding 95°F. Suppression Pool Temperature is as indicated. RHR System II remains operating in Suppression Pool Cooling per 3-EOI Appendix 17A.

INITIATING CUES: The Unit Supervisor directs you to secure System II from Suppression Pool Cooling per 3-EOI Appendix 17A.

START TIME_____

****

Performance Step: Critical_X_ Not Critical___

3. WHEN Suppression Pool Cooling is NO longer required,
THEN **SECURE** System I(II) Suppression Pool Cooling as follows:

NOTE: Handswitches for 3-FCV-74-59 and 3-FCV-74-73 are held in CLOSE during closing cycle approximately 6 seconds AFTER red light extinguishes to ensure valve closure.

a. **CLOSE** 3-FCV-74-73, RHR SYS II SUPPR POOL CLG/TEST VLV, as follows:

1) **PLACE** and **HOLD** 3-HS-74-73A, RHR SYS II SUPPR POOL CLG/TEST VLV, handswitch in CLOSE.

2) WHEN Approximately 6 seconds elapse AFTER the red light extinguishes,

THEN **RETURN** 3-HS-74-73A, RHR SYS II SUPPR POOL CLG/TEST VLV, handswitch to NORMAL.

Standard:

Closes 3-FCV-74-73 and holds in close position for 6 seconds after red light off

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

b. **VERIFY OPEN** 3-FCV-74-30, RHR SYSTEM II MIN FLOW VALVE.

Standard:

Verifies 3-FCV-74-30 opens

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

c. IF RHR operation is desired in ANY other mode,
THEN **EXIT** this EOI Appendix.

d. **STOP** RHR PUMPS 3B and 3D

Standard:

Stops RHR Pumps 3B and 3D

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE:	RHR Operation in another Mode is not desired

****

Performance Step: Critical_X_ Not Critical___

e. **CLOSE** 3-FCV-74-71, RHR SYS II SUPPR CHBR/POOL ISOL VLV

Standard:

Closes 3-FCV-74-71

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

f. IF ALL of the following conditions exist:

• LPCI Initiation Signal,
AND
• Drywell pressure below 2.4 psig,
AND
• RPV water level above -120 in.,

THEN **RESTORE** RHR System I and II logic to normal as follows:

Standard:

Step is NA, conditions do not or did not exist

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

g. **VERIFY CLOSED** the following valves:

• 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV
• 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV

Standard:

Closes 3-FCV-23-46 and 3-FCV-23-52

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical_

h. **STOP** RHRSW pumps supplying ANY Unit 3 RHR Heat Exchanger

Standard:

Stops RHRSW Pumps B2 and D2

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical X_

i. **VERIFY** RHR system discharge header pressure above 45 psig on 3-PI-74-65, RHR SYS II DISCH PRESS

Standard:

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 210ap

TASK NUMBER: U-047-AL-11

TASK TITLE: Generator Synchronization and Loading

K/A NUMBER: 262001 A4.04 K/A RATING: RO 3.6 SRO: 3.7

TASK STANDARD: Synchronization and Loading of the Generator, followed by manually tripping on high vibration.

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 2-OI-47 and 2-ARP-9-7B

VALIDATION TIME: 25 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. The turbine is at rated speed. Generator Bus Duct Cooling System is in service. Generator Hydrogen Cooling System is in service. Generator Stator Water Cooling System is in service. Hydrogen Seal Oil System is in service. Generator Circuit Breaker System is in service. Electrical System is in service. Precautions and limitations have been reviewed. Generator Condition Monitor in service. The Generator Breaker PCB 234 is ready to be closed 2-OI-35C, Section 5.1 is complete. Operations Manager has not authorized any local operation of the GENERATOR EXCITER FIELD BREAKER local manual control lever. Permission from the Operations Superintendent has been obtained.

INITIATING CUES: The Unit Supervisor directs you to synchronize and load the Main Turbine Generator per 2-OI-47 Turbine-Generator System section 5.5. You are directed to synchronize the generator using the Synchronous Check Relays and raise load to 60 to 80 MWe.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

5.5 Generator Synchronization and Loading

[1] **REVIEW** all Precautions and Limitations, Section 3.0.

[2] **VERIFY** the following initial conditions are satisfied:

- The turbine is at rated speed. **REFER TO** Section 5.4.
- Generator Bus Duct Cooling System is in service. **REFER TO** Section 5.7.
- Generator Hydrogen Cooling System is in service. Refer to 2-OI-35.
- Generator Stator Water Cooling System is in service. Refer to 2-OI-35A.
- Hydrogen Seal Oil System is in service. Refer to 2-OI-35B.
- Electrical System is in service. Refer to 0-OI-57B, 0-OI-57C, 0-OI-57D.

NOTE

This instruction is performed from Panel 2-9-8 unless otherwise specified.

[3] **VERIFY** Generator Condition Monitor in service, or in the process of being placed in service. Refer to 2-OI-35.

[4] **VERIFY** Generator Breaker PCB 224 is ready to be closed by completion of 2-OI-35C Section 5.1. (Turb. Bldg El 604').

Standard:

Given in initial conditions

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[5] **VERIFY** VOLTAGE REGULATOR MAN/AUTO SEL, 2-HS-57-27, is in MAN.

NOTES

1) On closure of the generator exciter field breaker, Communications Room Common Alarm, 2-XA-55-8A Window 35, may be received for EOR0086, GEN 2 EXC/GEN FIELD GROUND. Alarm is verified on ICS Alarm Mimic or alarm printer for generator exciter ground. This occurs due to charging current on the field.
2) If GENERATOR FIELD VOLTAGE MANUAL ADJUST (70P) is not set properly, a loss of field voltage could occur after approximately 10 seconds from closure of the GENERATOR EXCITER FIELD BREAKER.
3) When closing the generator exciter field breaker in Step 5.5[6.1], Step 5.5[7] offers contingency steps to be taken should a generator ground alarm occur and Step 5.5[7.1]offers contingency steps to be taken should a loss of field voltage occur.

Standard:

Verifies voltage regulator is in manual.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[6] **CLOSE** GENERATOR EXCITER FIELD BREAKER by either.

[6.1] **PLACE** GENERATOR EXCITER FIELD BREAKER, 2-HS-57-24, in CLOSE.

OR

NOTES

1) Performance of step 5.5[6.3] requires permission of the Operations Manager to perform.
2) If necessary the local manual control lever can be obtained from electrical maintenance.

Standard:

Closes Generator Exciter Field Breaker with handswitch.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical X__

[7] **IF** GEN 2 EXC/GEN FIELD GROUND is received, **THEN**

PERFORM EOR0086 - GEN 2 EXC/GEN FIELD GROUND Operator Actions provided in 2-ARP-9-8A Attachment 2. (Otherwise N/A)

Standard:

NA

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[8] **IF** a Loss of Field Voltage occurs, **THEN PERFORM** the following; (Otherwise N/A):

[9] **CHECK** GEN SYNC AVAILABLE light, 2-IL-242-4, is illuminated.

NOTES

1) SYNC AVAILABLE light will not illuminate if another unit is in SYNC CHECK INTLK.
2) In Step 5.5[9], the Synchroscope should rotate slow in the fast direction (clockwise) at one revolution every 10-15 seconds if in SYNC CHK INTLK and at one revolution every 15-20 seconds if in MANUAL.

Standard:

Step 8 is NA**,** Checks GEN SYNC AVAILABLE light is illuminated

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[10] **PLACE** GENERATOR PCB 224 SYNC SELECT, 2-HS-242-6 in SYNC CHK INTLK OR MANUAL, as necessary.

[10.1] **OPERATE** TURBINE GENERATOR SYNC SPEED ADJUST, 2-XS-57-20, to obtain SYNCHROSCOPE, 2-XI-57-55 rotation slow in FAST direction (clockwise).

Standard:

Places PCB 234 in synch chk intlk or manual and operates Sync Speed Adjust to obtain rotation in Fast direction.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical_

[11] **MATCH** GEN SYNC REF VOLTAGE, 2-EI-57-54, to SYSTEM SYNC REF VOLTAGE, 2-EI-57-56, using GENERATOR FIELD VOLTAGE MANUAL ADJUST (70P), 2-HS-57-25.

[12] **CHECK** GENERATOR VOLTS, 2-EI-57-39, indicates between 21 and 23 KV.

Standard:

Matches reference voltage to system voltage by adjusting 2-HS-57-25 and verifies generator volts between 21 and 23 KV.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

CAUTION

Frequent monitoring of GENERATOR MVARS, 2-EI-57-51, is required as long as the VOLTAGE REGULATOR MAN/AUTO SEL switch is in MAN.

NOTES

1) Operation of the Main Generator without automatic voltage control could impact grid voltage requirements as referenced in Sections 6.1[10], 8.10.1[8].
2) When the Main generator is online, the Voltage Regulator is required to be operated in Automatic, unless coordinated with the Transmission Operator (TOp).

[13] **ADJUST** GENERATOR FIELD VOLTAGE AUTO ADJUST (90P), 2-HS-57-26, until GEN TRANSFER VOLTS, 2-EI-57-41, indicates zero.(N/A if Auto Regulator is not available)

[14] **PLACE** VOLTAGE REGULATOR MAN/AUTO SEL, 2-HS-57-27, in AUTO.(N/A if Auto Regulator is not available)

[15] **VERIFY** GEN VOLT REGULATOR TRIP TO MAN, 2-EA-57-132 (2-XA-55-8A, window 3) ANNUNCIATES.(N/A if Auto Regulator is not available)

Standard:

Adjust 2-HS-57-26 until generator transfer volts indicates zero, places voltage regulator in auto and verifies annunciator.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical X_

[16] **CHECK RESET** the following annunciators on Panel 2-9-8:

- GEN VOLT REGULATOR TRIP TO MAN (2-XA-55-8A, window 3) (N/A if Auto Regulator is not available)
- GENERATOR EXCITER OVERVOLTAGE (2-XA-55-8A, window 4)
- GENERATOR EXCTR FIELD OVERCURRENT (2-XA-55-8A, window 6)
- GEN VOLTS PER CYCLE HIGH (2-XA-55-8A, window 9)
- MAIN TURBINE SHUTDOWN (2-XA-55-8A, window 11)
- MAIN XFMR USST 2A/2B OIL LEVEL ABNORMAL, 2-LA-57-142, (2-XA-55-8A, window 13)
- MAIN XFMR USST 2A/2B COOL SYS FAILURE, 2-XA-57-144, (2-XA-55-8A, window 15)
- PCB 224 PMP MTR ABNORMAL 2-EA-242-3 (2-XA-55-8D, window 27)
- PCB 224 SF6 LO/SF6 LO-LO DENSITY 2-PA-242-6 (2-XA-55-8D, window 29).
- PCB 224 250 VDC/43L ABNORMAL 2-EA-242-2 (2-XA-55-8D, window 30).
- PCB 224 LO/LO-LO SPRING ENERGY 2-EA-242-4 (2-XA-55-8D, window 57).
- PCB 224 DS 89 GS, 57-1, GS 57-2 MTR OVERLOAD 2-EA-242-1 (2-XA-55-8D, window 59).

[17] **NOTIFY** Operations Duty Specialist (ODS) that Unit 2 Generator is ready to tie to the electrical grid.

[17.1] **ENTER** notification made, name, date and time in the Narrative Log.

Standard:

Verifies annunciators reset, notifies Operations Duty Specialist and requests log entry

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: ODS Notified, Narrative Log entry made.

****

Performance Step: Critical__ Not Critical X_

NOTE

If tying online with the Voltage Regulator in Manual, the reason and expected duration is required to be entered in the Narrative Log.

[18] **NOTIFY** the Transmission Operator (TOp) that Unit 3 Generator is ready to tie to the electrical grid and report Voltage Regulator status.

[18.1] **ENTER** notification made, date, time, and voltage regulator status in the Narrative Log.

Standard:

Notifies Transmission Operator and requests log entry

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: Transmission Operator Notified, Narrative Log entry made.

****

Performance Step: Critical__ Not Critical X_

CAUTIONS

1) **DO NOT** exceed 150°F/hr heat up rate on Turbine first stage shell. .
2) **DO NOT** exceed 75°F Turbine first stage shell inner to outer surface temperature differential..
3) The temperature rise of oil across a bearing should be less than 35°F. Temperature rise should be gradual as turbine load is raised, and any sudden rise of greater than 5°F should be investigated immediately.

[19] Manually **SYNCHRONIZE** the Generator as follows:

[19.1] **OBTAIN** permission from the Operations Superintendent.

[19.2] **VERIFY** GENERATOR PCB 234 SYNC SELECT, 2-HS-242-6, in MANUAL.

Standard:

Verify in manual

SAT___ UNSAT___ N/A ___COMMENTS:_____
_____

****

Performance Step: Critical X Not Critical__

NOTE

In Step 5.5[19.3], the Synchroscope is adjusted for a rotation slow in the fast direction (clockwise) at one revolution every 15-20 seconds.

[19.3] **PERFORM** the following concurrently to obtain both conditions at the same time:

- **OPERATE** GENERATOR FIELD VOLTAGE AUTO ADJUST (90P), 2-HS-57-26 to match SYSTEM SYNC REF VOLTAGE, 2-EI-57-56 to GEN SYNC REF VOLTAGE, 2-EI-57-54. (N/A if Voltage Regulator is in Manual)

- **OPERATE** GENERATOR FIELD VOLTAGE MANUAL ADJUST (70P), 2-HS-57-25 to match GEN SYNC REF VOLTAGE, 2-EI-57-54, to SYSTEM SYNC REF VOLTAGE, 2-EI-57-56. (N/A if Voltage Regulator is in Auto)

- **OPERATE** TURBINE GENERATOR SYNC SPEED ADJUST, 2-XS-57-20, to obtain SYNCHROSCOPE, 2-XI-57-55, rotation slow in the FAST direction (clockwise) at one revolution every 15 seconds to 20 seconds.

NOTE

When the generator breaker is closed in Step 5.5[19.4], generator output will automatically rise to between 60-80 MWe.

Standard:

Operates 2-HS-57-26 to match voltage and operates 2-XS-57-20 to obtain synch scope rotation in fast direction one revolution every 15 to 20 seconds.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

NOTE

When the generator breaker is closed in Step 5.5[18.4], generator output will automatically rise to between 60-80 MWe.

[19.4] **WHEN** SYNCHROSCOPE, 2-XI-57-55, indicator is at the green (MANUAL) mark, **THEN CLOSE** GENERATOR PCB 224 by placing Handswitch, 2-HS-242-0224A, in CLOSE.

Standard:

Closes generator breaker 234 when synch scope is at green mark on scope.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical X

[19.5] **PLACE** GENERATOR PCB 224 SYNC SELECT switch, 2-HS-242-6, in OFF.

Standard:

Places 2-HS-242-6 to off.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

Simulator Driver: Once Generator is synched **INSERT** turbine vibration greater than 12 mils on two bearings. Batch file nrcjpm2010synch

****

Performance Step: Critical__ Not Critical X_

NOTES

1) Unless otherwise directed, the normal band for Generator MVARS should be 0 + or - 50 mvars while regulation is in manual.
2) When operated in Automatic, the Generator Voltage Regulator has an electronic limit which limits incoming reactive, at full load, to approximately 150 MVAR. When operated in Manual, there is an administrative limit of 150 MVAR. These limits are intended to prevent the possibility of the Generator slipping a pole.
3) See Section 8.13 for operation with the voltage regulator in Manual.

[19.6] **OPERATE** GENERATOR FIELD VOLTAGE MANUAL ADJUST (70P), 2-HS-57-25 as required to maintain generator parameters.

NOTES

1) Steps 5.5[20] through 5.5[25.2] are performed from Panel 2-9-7 unless indicated otherwise.
2) When the exhaust hood temperature is above 125°F, turbine load should be raised slowly until the temperature falls below 125°F. Plant operating history indicates that maintaining load at about 80 MWe will aid in lowering the Exhaust temperatures due to more steam flow.

Standard:

Operates 2-HS-57-25 as required

SAT__ UNSAT___ N/A ___COMMENTS:_____
_____

****

Performance Step: Critical X Not Critical__

[20] **IF** necessary, **THEN DEPRESS** Load Set RAISE pushbutton, 2-HS-47-75C, or LOWER pushbutton, 2-HS-47-75B, to maintain desired generator output between 60 MWe to 80 MWe.

[21] **HOLD** generator output between 60 MWe to 80 MWe **UNTIL** turbine first stage and valve chest temperatures stabilize and exhaust hood temperature lowers to less than 125°F, as indicated on 2-XR-47-20.

Standard:

Maintains load 60 to 80 MWe by depressing load set pushbuttons.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

MAIN TURBINE VIBRATION HIGH 2-VA-47-15

A. **VERIFY** alarm by checking the following:
- On EHC WORKSTATION, Turbine Vibration screen.
- On ICS, MAIN TURBINE BEARINGS (TURBBRG) screen.
- TURBINE GENERATOR VIBRATION recorder, 2-XR-47-15 (Panel 2-9-7).

Standard:

Acknowledges receipt of Main Turbine Vibration Alarm and checks turbine vibration levels.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

B. **IF** alarm is valid, **THEN**

1. **DETERMINE** cause by checking PROBABLE CAUSE section above.

2. **REDUCE** load and **OBSERVE** vibration.

3. **IF** any of the vibration limits requiring a trip are met in Table 1, **THEN DEPRESS** Turbine TRIP pushbutton, 2-HS-47-67D:

TABLE 2 NORMAL VIBRATION LIMITS				
SPEED (RPM)	TRIP AFTER ANY JOURNAL VIBRATION EXCEEDS ____MILS FOR	_____MINUTES	TRIP IMMEDIATELY IF JOURNAL BEARING VIBRATION EXCEEDS	NORMAL VIBRATION LEVEL FOR CONTINUED OPERATION
LESS THAN 800			8 MILS	
800 - 1400	10	2	14 MILS	7 MILS
1400 - RUNNING SPEED	10	15	12 MILS	≤ 5 MILS

Standard:

Verifies vibration levels greater than 12 mils and trips the main turbine by depressing turbine trip pushbutton.

SAT__ UNSAT___ N/A ___COMMENTS:_____
_____

CUE: Another operator will take care of the AOI actions, JPM complete.

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 210ap

TASK NUMBER: U-047-AL-11

TASK TITLE: Generator Synchronization and Loading

K/A NUMBER: 262001 A4.04 K/A RATING: RO 3.6 SRO: 3.7

TASK STANDARD: Synchronization and Loading of the Generator, followed by manually tripping on high vibration.

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: 3-OI-47 and 3-ARP-9-7B

VALIDATION TIME: 25 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit Operator. The turbine is at rated speed. Generator Bus Duct Cooling System is in service. Generator Hydrogen Cooling System is in service. Generator Stator Water Cooling System is in service. Hydrogen Seal Oil System is in service. Generator Circuit Breaker System is in service. Electrical System is in service. Precautions and limitations have been reviewed. Generator Condition Monitor in service. The Generator Breaker PCB 234 is ready to be closed 3-OI-35C, Section 5.1 is complete. Operations Manager has not authorized any local operation of the GENERATOR EXCITER FIELD BREAKER local manual control lever. Permission from the Operations Superintendent has been obtained.

INITIATING CUES: The Unit Supervisor directs you to synchronize and load the Main Turbine Generator per 3-OI-47 Turbine-Generator System section 5.5. You are directed to synchronize the generator using the Synchronous Check Relays and raise load to 60 to 80 MWe.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

5.5 Generator Synchronization and Loading

[1] **VERIFY** the following initial conditions are satisfied:
- The turbine is at rated speed. **REFER TO** Section 5.4.
- Generator Bus Duct Cooling System is in service. **REFER TO** Section 6.11
- Generator Hydrogen Cooling System is in service. REFER TO 3-OI-35.
- Generator Stator Water Cooling System is in service. REFER TO 3-OI-35A.
- Hydrogen Seal Oil System is in service. REFER TO 3-OI-35B.
- Generator Circuit Breaker System is in servicee. REFER TO 3-OI-35C.
- Electrical System is in service. REFER TO 0-OI-57B, 0-OI-57C, 0-OI-57D.

[2] **REVIEW** all Precautions and Limitations. **REFER TO** Section 3.0.

NOTE

This instruction is performed from Panel 3-9-8 unless otherwise specified.

[3] **VERIFY** Generator Condition Monitor in service, or in the process of being placed in service. REFER TO 3-OI-35.

[4] **VERIFY CLOSED** knife blade switches CS-1, CS-2, and CS-3, located in the ACB 234 control cabinet (Turb. Bldg El 604').

Standard:

Given in initial conditions

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[5] **VERIFY** VOLTAGE REGULATOR MAN/AUTO SEL, 3-HS-57-27, is in MAN.

NOTES

1) On closure of the generator exciter field breaker, Communications Room Common Alarm, 3-XA-55-8A Window 35, may be received for EOR0086, GEN 3 EXC/GEN FIELD GROUND. Alarm is verified on ICS Alarm Mimic or alarm printer for generator exciter ground. This occurs due to charging current on the field.
2) If GENERATOR FIELD VOLTAGE MANUAL ADJUST (70P) is not set properly, a loss of field voltage could occur after approximately 10 seconds from closure of the GENERATOR EXCITER FIELD BREAKER.
3) When closing the generator exciter field breaker in Step 5.5[6.1], Step 5.5[7] offers contingency steps to be taken should a generator ground alarm occur and Step 5.5[7.1]offers contingency steps to be taken should a loss of field voltage occur.

Standard:

Verifies voltage regulator is in manual.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[6] **CLOSE** GENERATOR EXCITER FIELD BREAKER by either.

[6.1] **PLACE** GENERATOR EXCITER FIELD BREAKER, 3-HS-57-24, in CLOSE.

OR

NOTES

1) Performance of step 5.5[6.3] requires permission of the Operations Manager to perform.
2) If necessary the local manual control lever can be obtained from electrical maintenance.

Standard:

Closes Generator Exciter Field Breaker with handswitch.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical X__

[7] **IF** GEN 3 EXC/GEN FIELD GROUND is received, **THEN**

PERFORM EOR0086 - GEN 3 EXC/GEN FIELD GROUND Operator Actions provided in 3-ARP-9-8A Attachment 2. (Otherwise N/A)

Standard:

NA

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[8] **CHECK** GEN SYNC AVAILABLE light, 3-IL-242-4, is illuminated.

NOTES

1) SYNC AVAILABLE light will not illuminate if another unit is in SYNC CHECK INTLK.
2) In Step 5.5[9], the Synchroscope should rotate slow in the fast direction (clockwise) at one revolution every 10-15 seconds if in SYNC CHK INTLK and at one revolution every 15-20 seconds if in MANUAL.

Standard:

Checks GEN SYNC AVAILABLE light is illuminated

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[9] **PLACE** GENERATOR PCB 234 SYNC SELECT, 3-HS-242-6 in SYNC CHK INTLK OR MANUAL, as necessary.

[9.1] **OPERATE** TURBINE GENERATOR SYNC SPEED ADJUST, 3-XS-57-20, to obtain SYNCHROSCOPE, 3-XI-57-55 rotation slow in the FAST direction (clockwise).

Standard:

Places PCB 234 in synch chk intlk and operates Sync Speed Adjust to obtain rotation in Fast direction.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical_

[10] **MATCH** GEN SYNC REF VOLTAGE, 3-EI-57-54, to SYSTEM SYNC REF VOLTAGE, 3-EI-57-56, using GENERATOR FIELD VOLTAGE MANUAL ADJUST (70P), 3-HS-57-25.

[11] **CHECK** GENERATOR VOLTS, 3-EI-57-39, indicates between 21 and 23 KV.

Standard:

Matches reference voltage to system voltage by adjusting 3-HS-57-25 and verifies generator volts between 21 and 23 KV.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

CAUTION

Frequent monitoring of GENERATOR MVARS, 3-EI-57-51, is required as long as the VOLTAGE REGULATOR MAN/AUTO SEL switch is in MAN.

NOTES

1) Operation of the Main Generator without automatic voltage control could impact grid voltage requirements as referenced in Sections 6.1[10], 8.10.1[8].
2) When the Main generator is online, the Voltage Regulator is required to be operated in Automatic, unless coordinated with the Transmission Operator (TOp).

[12] **ADJUST** GENERATOR FIELD VOLTAGE AUTO ADJUST (90P), 3-HS-57-26, **UNTIL** GEN TRANSFER VOLTS, 3-EI-57-41, indicates zero.

[13] **PLACE** VOLTAGE REGULATOR MAN/AUTO SEL, 3-HS-57-27, in AUTO.

[14] **VERIFY** GEN VOLT REGULATOR TRIP TO MAN, 3-EA-57-132 (3-XA-55-8A, window 3) ANNUNCIATES.

Standard:

Adjust 3-HS-57-26 until generator transfer volts indicates zero, places voltage regulator in auto and verifies annunciator.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical X_

[15] **VERIFY RESET** the following annunciators on Panel 3-9-8:
- GEN VOLT REGULATOR TRIP TO MAN (3-XA-55-8A, window 3)
- GENERATOR EXCITER OVERVOLTAGE (3-XA-55-8A, window 4)
- GENERATOR EXCTR FIELD OVERCURRENT (3-XA-55-8A, window 6)
- GEN VOLTS PER CYCLE HIGH (3-XA-55-8A, window 9)
- MAIN TURBINE SHUTDOWN (3-XA-55-8A, window 11)
- MAIN XFMR USST 3A/3B OIL LEVEL ABNORMAL, (3-XA-55-8A, window 13)
- MAIN XFMR USST 3A/3B COOL SYS FAILURE, (3-XA-55-8A, window 15)
- PCB 234 AIR ABN 3-PA-242-4 (3-XA-55-8D, window 57).

[16] **NOTIFY** Operations Duty Specialist (ODS) that Unit 3 Generator is ready to tie to the electrical grid.

[16.1] **ENTER** notification made, name, date and time in the Narrative Log.

Standard:

Verifies annunciators reset, notifies Operations Duty Specialist and requests log entry

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: ODS Notified, Narrative Log entry made.

****

Performance Step: Critical X Not Critical_

CAUTIONS

1) **DO NOT** exceed 150°F/hr heat up rate on Turbine first stage shell. .
2) **DO NOT** exceed 75°F Turbine first stage shell inner to outer surface temperature differential..
3) The temperature rise of oil across a bearing should be less than 35°F. Temperature rise should be gradual as turbine load is raised, and any sudden rise of greater than 5°F should be investigated immediately.

[17] **IF** Synchronizing using the Synchronous Check Relays, **THEN PERFORM** the following:

[17.1] **VERIFY** GENERATOR PCB 234 SYNC SELECT, 3-HS-242-6, in SYNC CHK INTLK.

[17.2] **PERFORM** the following concurrently to obtain both conditions at the same time:

- **OPERATE** GENERATOR FIELD VOLTAGE AUTO ADJUST (90P), 3-HS-57-26 to match SYSTEM SYNC REF VOLTAGE, 3-EI-57-56 to GEN SYNC REF VOLTAGE, 3-EI-57-54. (N/A if Voltage Regulator is in Manual)

- **OPERATE** TURBINE GENERATOR SYNC SPEED ADJUST, 3-XS-57-20, to obtain SYNCHROSCOPE, 3-XI-57-55, rotation slow in the FAST direction (clockwise) at one revolution every 15 seconds to 20 seconds.

Standard:

Operates 3-HS-57-26 to match voltage and operates 3-XS-57-20 to obtain synch scope rotation in fast direction one revolution every 15 to 20 seconds.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

[17.3] **WHEN** SYNCHROSCOPE, 3-XI-57-55, indicator is at the red SYNC CHECK INTERLOCK mark, **THEN**

CLOSE GENERATOR PCB 234 by placing handswitch, 3-HS-242-0234A, in CLOSE.

Standard:

Closes generator breaker 234 when synch scope is at red mark on scope.

SAT___ UNSAT___ N/A ___COMMENTS:_____
_____

****

Performance Step: Critical__ Not Critical X

[17.4] **PLACE** GENERATOR PCB 234 SYNC SELECT switch, 3-HS-242-6 in OFF.

Standard:

Synch select to Off

SAT___ UNSAT___ N/A ___COMMENTS:_____
_____

Simulator Driver: Once Generator is synched **INSERT** turbine vibration greater than 12 mils on two bearings. Batch file nrcjpm2010synch

****

Performance Step: Critical__ Not Critical X_

[18] **IF** performing Synchronization manually, **THEN** (Otherwise N/A)

Standard:

Step 18 is NA

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X_ Not Critical__

NOTES

1) Steps 5.5[19] through 5.5[24.2] are performed from Panel 3-9-7 unless indicated otherwise.

2) When the exhaust hood temperature is above 125°F, turbine load should be raised slowly until the temperature falls below 125°F. Plant operating history indicates that maintaining load at about 80 MWe will aid in lowering the Exhaust temperatures due to more steam flow.

[19] **IF** necessary, **THEN DEPRESS** Load Set RAISE pushbutton, 3-HS-47-75C, or LOWER pushbutton, 3-HS-47-75B, to maintain desired generator output between 60 MWe to 80 MWe.

Standard:

Maintains load 60 to 80 MWe by depressing load set pushbuttons.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

MAIN TURBINE VIBRATION HIGH 3-VA-47-15

A. **VERIFY** alarm by checking the following:

- On EHC WORKSTATION, Turbine Vibration screen.
- On ICS, MAIN TURBINE BEARINGS (TURBBRG) screen.
- TURBINE GENERATOR VIBRATION recorder, 3-XR-47-15 (Panel 3-9-7).

Standard:

Acknowledges receipt of Main Turbine Vibration Alarm and checks turbine vibration levels.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

B. **IF** alarm is valid, **THEN**

1. **DETERMINE** cause by checking PROBABLE CAUSE section above.

2. **REDUCE** load and **OBSERVE** vibration.

3. **IF** any of the vibration limits requiring a trip are met in Table 1, **THEN DEPRESS** Turbine TRIP pushbutton, 3-HS-47-67D:

TABLE 2 NORMAL VIBRATION LIMITS				
SPEED (RPM)	TRIP AFTER ANY JOURNAL VIBRATION EXCEEDS ____MILS FOR	_____MINUTES	TRIP IMMEDIATELY IF JOURNAL BEARING VIBRATION EXCEEDS	NORMAL VIBRATION LEVEL FOR CONTINUED OPERATION
LESS THAN 800			8 MILS	
800 - 1400	10	2	14 MILS	7 MILS
1400 - RUNNING SPEED	10	15	12 MILS	≤ 5 MILS

Standard:

Verifies vibration levels greater than 12 mils and trips the main turbine by depressing turbine trip pushbutton.

SAT__ UNSAT___ N/A ___COMMENTS:_____
_____

CUE: Another operator will take care of the AOI actions, JPM complete.

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 211ap

TASK NUMBER: A-082-NO-09

TASK TITLE: Emergency Shutdown at Diesel Engine

K/A NUMBER: 264000 K4.07 K/A RATING: RO 3.3 SRO: 3.4

TASK STANDARD: Shutdown at Diesel Engine Control Cabinet and emergency shutdown at Diesel Engine.

LOCATION OF PERFORMANCE: Plant

REFERENCES/PROCEDURES NEEDED: 3-OI-82

VALIDATION TIME: 15 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-PLANT: I will explain the initial conditions and state the task to be performed. ALL STEPS WILL BE SIMULATED. Do NOT operate any plant equipment. SELF CHECKING may be carried out to the point of touching a label. If it becomes necessary to physically touch a control switch, use a non-conductive pointing device. Observe ALL plant radiological and safety precautions. 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. When your task is given, you will repeat the task and I will acknowledge "That's correct" (or That's incorrect", if applicable). When you have completed your assigned task, you will say, "My task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are an Auxiliary Unit Operator. Diesel Generator 3A Output breaker 1838 is open. Precautions and Limitations have been reviewed. The Unit Operator has been notified that the Diesel Generator will be made inoperable as a result of shutting down the 3A Diesel Engine at the Diesel Engine Control Cabinet. Shutdown of Diesel Generator 3A at the Diesel Engine Control Cabinet is being performed for testing purposes.

INITIATING CUES: The Unit Supervisor directs you to shutdown the 3A Diesel Engine from the Diesel Engine Control Cabinet per 3-OI-82 Standby Diesel Generator System, section 7.3.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

7.3 Shutdown at Diesel Engine Control Cabinet

NOTE

Diesel Generator shutdown from the Diesel Engine Control Cabinet is usually performed for test purposes.

[1] **VERIFY** the following initial conditions:

A. All Precautions and Limitations in Section 3.0 have been reviewed.

B. DG 3A(3B,3C,3D) Output Bkr 1838 (1842, 1832, 1836) is OPEN.

NOTES

1) The Diesel Generator will be made inoperable as a result of taking 3-BKR-254-000A(B,C,D)/06, DSL GEN 3A(3B,3C,3D) LOGIC RELAY PANEL (LOGIC BREAKER), in OFF and will be made operable when 3-BKR-254-000A(B,C,D)/06, DSL GEN 3A(3B,3C,3D) LOGIC RELAY PANEL (LOGIC BREAKER), is returned to ON. REFER TO Tech Spec 3.8.1 and 3.8.2, Operation with Inoperable Equipment.
2) All manipulations of the Diesel Generator Logic Breaker are required to be logged in the Narrative Log.

[2] **NOTIFY** the Unit Operator that the Diesel Generator will be made inoperable as a result of performing this section.

Standard:

Given in initial conditions

SAT___ UNSAT___ N/A ___COMMENTS:_____
_____

****

Performance Step: Critical _X_ Not Critical___

[3] **PLACE** 3-BKR-254-000A/06, DSL GEN 3A LOGIC RELAY PANEL (LOGIC BREAKER), in OFF On 3-BDGG-254-0003A , 125 VDC DSL SYS BAT BOARD A.

Standard:

Simulates placing 3-BKR-254-000A/06 in off.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: 3-BKR-254-000A/06 is OFF.

****

Performance Step: Critical_X_ Not Critical___

[4] **DEPRESS both** ENGINE STOP push-buttons simultaneously to initiate the shutdown sequence.

Standard:

Simulates depressing both engine stop push buttons.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: Both engine stop push buttons are depressed.

Engine speed remains unchanged.

DG 3A Oil Pressure light has illuminated and alarmed.

If Lube oil pressure is CHECKED, CUE pressure is 5 psig.

Control Room reports they have Lube oil alarm and low oil pressure light.

Directs Emergency Shutdown of 3A Diesel Generator at Diesel Engine per section 7.5

****

Performance Step: Critical_X_ Not Critical___

7.5 Emergency Shutdown at Diesel Engine

CAUTION

If diesel engine speed rises to greater than 1035 RPM, the Diesel Generator room should be evacuated immediately due to the potential for personnel injury.

NOTES

1) This section should only be performed during an emergency condition which requires the Diesel Generator to be stopped immediately. The Diesel Generator will be made inoperable as a result of performing this section. REFER TO Technical Specification 3.8.1 and 3.8.2, Operation With Inoperable Equipment.

2) When time permits, all manipulations of the Diesel Generator Logic Breaker are required to be logged in the Narrative Log.

[1] **PULL OUT and HOLD** the Injector Control Lever in the No Fuel position until the diesel engine comes to a complete stop.

[2] **IF** the diesel engine does **NOT** stop, **THEN PERFORM** the following:

Standard:

Simulates pulling out and holding the Injector Control Lever in the No Fuel position.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: The Diesel Engine is slowing, the diesel engine is stopped.

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 212

TASK NUMBER: U-000-EM-83

TASK TITLE: Suppression Pool Water Inventory Removal

K/A NUMBER: 295029 EK2.01 K/A RATING: RO 3.0 SRO: 3.3

TASK STANDARD: Pump started to remove water from suppression pool.

LOCATION OF PERFORMANCE: Plant

REFERENCES/PROCEDURES NEEDED: 1-EOI Appendix-18

VALIDATION TIME: 10 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-PLANT: I will explain the initial conditions and state the task to be performed. ALL STEPS WILL BE SIMULATED. Do NOT operate any plant equipment. SELF CHECKING may be carried out to the point of touching a label. If it becomes necessary to physically touch a control switch, use a non-conductive pointing device. Observe ALL plant radiological and safety precautions. 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. When your task is given, you will repeat the task and I will acknowledge "That's correct" (or That's incorrect", if applicable). When you have completed your assigned task, you will say, "My task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are an Auxiliary Unit Operator. Suppression Pool water level is high and Unit 1 is currently operating in EOI-2 Primary Containment Control. Radiation Protection and Radwaste have been notified. Radwaste has been notified that approximately 15000 gallons will be pumped to Radwaste.

INITIATING CUES: The Unit Supervisor directs you to remove water from the suppression pool using RHR Drain Pump 1A, per 1-EOI Appendix-18 Suppression Pool Water Inventory Removal and Makeup.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

SUPPRESSION POOL WATER INVENTORY REMOVAL AND MAKEUP

1. IF..... Suppression Pool Water makeup is required,
THEN.....**CONTINUE** in this procedure at Step 5.

2. IF ..... Gross fuel failure is suspected,
THEN.....**OBTAIN** SED/SRO permission to pump down Suppression Pool BEFORE continuing in this procedure.

3. IF ..... Directed by SRO,
THEN.....**REMOVE** water from Suppression Pool as follows:

   a. **DISPATCH** personnel to perform the following (Unit 1 RB, El 519 ft, Torus Area):

Standard:

Directed to remove water from pool

SAT__ UNSAT___ N/A ___COMMENTS:_____
_____

CUE:	No Gross Fuel Failure is suspected

****

Performance Step: Critical __ Not Critical X__

1) **VERIFY OPEN** 1-SHV-074-0786A, RHR DR PMP 1A DISCH.

Standard:

Simulates verifying 1-SHV-074-0786A open

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: 1-SHV-0786A is OPEN or AS Found

****

Performance Step: Critical_X_ Not Critical_ __

2) **OPEN** the following valves:

- 1-SHV-074-0564A, RHR DR PMP 1A SEAL WTR SPLY
- 1-SHV-074-0529A, RHR DR PMP 1A SHUTOFF VLV.

Standard:

Simulates opening 1-SHV-074-0564A and 1-SHV-074-0529A.

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: 1-SHV-074-0564A and 1-SHV-074-0529A are OPEN.

****

Performance Step: Critical_X_ Not Critical___

3) **UNLOCK** and **OPEN** 1-SHV-074-0765A, RHR DR PMP 1A DISCH.

Standard:

Simulates unlocking and opening 1-SHV-074-0765A.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE:	1-SHV-074-0765A is unlocked and open

****

Performance Step: Critical __ Not Critical X__

4) **NOTIFY** Unit Operator that RHR Drain Pump 1A is lined up to remove water from Suppression Pool.

5) **REMAIN** at torus area UNTIL Unit 1 Operator directs starting of RHR Drain Pump 1A.

Standard:

Notifies Unit Operator and remains in area.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE:	Acknowledge notification and direct AUO to start RHR Drain Pump 1A.

NOTE: B and C are the Control Room Steps

b. IF Main Condenser is desired drain path, THEN **OPEN** 1-FCV-74-62, RHR MAIN CNDR FLUSH VALVE.

c. IF Radwaste is desired drain path, THEN **PERFORM** the following:
1) **ESTABLISH** communications with Radwaste.
2) **OPEN** 1-FCV-74-63, RHR RADWASTE SYS FLUSH VALVE.

****

Performance Step: Critical_X_ Not Critical___

d. **NOTIFY** personnel in Unit 1 RB, El 519 ft, Torus Area to **START** RHR Drain Pump A using 1-HS-074-0105, RHR DRAIN PUMP 1A (mounted on wall to left of pump).

Standard:

Simulates starting RHR Drain Pump 1A.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: RHR Drain Pump 1A is running.

This completes this JPM

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 225ap

TASK NUMBER: 0-74-AB-01

TASK TITLE: Loss of Shutdown Cooling

K/A NUMBER: 295021 AA1.02 K/A RATING: RO 3.5 SRO: 3.5

TASK STANDARD: Restore Shutdown Cooling following loss due to inadvertent RPS actuation.

LOCATION OF PERFORMANCE: Simulator

REFERENCES/PROCEDURES NEEDED: 2-AOI-74-1

VALIDATION TIME: 15 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit 2 operator. Unit 2 is in Mode 3 (Recirc Loop B temp > 212ºF) heading towards cold conditions for a refueling outage. RHR Loop I using 2A RHR Pump was in shutdown cooling. Unit 1 is carrying 2000 gpm for RHRSW Pumps ‘A2’ and ‘C2’. An inadvertent loss of 2B RPS bus resulted in a partial isolation of RHR shutdown cooling. RPS 2B has been restored on the alternate supply. Another operator is assisting with recovery from the loss of 2B RPS.

INITIATING CUES: The Unit Supervisor directs you to restore shutdown cooling using 2A RHR pump in accordance with 2-AOI-74-1 starting at step 10.

START TIME _____

****

CAUTIONS

1) Reactor vessel stratification may occur until Shutdown Cooling is restored or a Reactor Recirculation Pump is placed in service.
2) Loss of Shutdown Cooling during the first 24 hours is most critical due to massive decay heat and limitations on the RHRSW Piping. If Shutdown Cooling is lost during the first 24 hours post reactor shutdown, priorities shall be placed on the recovery of shutdown cooling in an expeditious manner.

NOTE

The following systems, if available, may be used as alternate methods of decay heat removal .Refer to the applicable Tec Spec Bases B 3.4.7, B 3.4.8, B 3.9.7, B 3.9.8
ADHR System- (0-OI-72)
Fuel Pool Cooling System- (2-OI-78)
RWCU System- (2-OI-69)
Ambient losses with natural or forced circulation

****

Performance Step: Critical Not Critical X

[10] **IF** the loss of Shutdown Cooling is due to Group 2 PCIS isolation, **THEN** (Otherwise **N/A**)

WHEN conditions permit resetting Group 2 PCIS isolation are met, **PERFORM** the following:

[10.1] **RESET** Group 2 isolation by momentarily PLACING PCIS DIV I RESET, 2-HS-64-16A-S32, and PCIS DIV II RESET, 2-HS-64-16A-S33, in reset.

STANDARD:

On Panel 2-9-4, RESETS Group 2 isolation by momentarily PLACING PCIS DIV I RESET, 2-HS-64-16A-S32, in reset and PCIS Div II RESET, 2-HS-64-16A-S33 to reset.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[10.2] **MOMENTARILY DEPRESS** RHR SYS I(II) SD CLG INBD INJECT ISOL RESET, 2-XS-74-126 and 2-XS-74-132. **VERIFY 2**-IL-74-126 and 2-IL-74-132 extinguished.

STANDARD:

Momentarily Depresses RHR SYS I SD CLG INBD INJECT ISOL RESET, 2-XS-74-132 and verifies 2-IL-74-132 extinguished.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[11] **IF** the loss of Shutdown Cooling is due to Group 2 PCIS **AND** the isolation signal fails to reset, or remain reset due to invalid and/or sporadic signals, **THEN** (Otherwise **N/A**)

STANDARD:

N/As all Step 4.2[11], the PCIS signal is reset in step 10.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12] **IF** the Group 2 PCIS Isolation has been reset, **THEN** (otherwise **N/A**)

RETURN the affected loop of RHR to Shutdown Cooling as follows:

[12.1] **CLOSE** RHR SYS I LPCI OUTBD INJECT VALVE, 2-FCV-74-52.

STANDARD:

Closes 2-FCV-74-52

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12.2] **OPEN** RHR SYS I LPCI INBD INJECT VALVE, 2-FCV-74-53.

STANDARD:

Opens 2-FCV-74-53

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.3] **VERIFY** RHR SYSTEM I MIN FLOW INHIBIT switch, 2-HS-74-148 in INHIBIT

STANDARD:

Verifies 2-HS-74-148 in INHIBIT.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.4] **VERIFY CLOSED** RHR SYSTEM I MIN FLOW VALVE, 2-FCV-74-7.

STANDARD:

Verifies 2-FCV-74-7 is closed.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.5] **VERIFY CLOSED** RHR PUMP 2A and 2C SUPPR POOL SUCT VLVs, 2-FCV-74-1 and 2-FCV-74-12.

STANDARD:

Verifies 2-FCV-74-1 & 12 are closed.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.6] **VERIFY OPEN** RHR PUMP 2A and 2C SD COOLING SUCT VLVs, 2-FCV-74-2 and 2-FCV-74-13.

STANDARD:

Verifies 2-FCV-74-2 & 13 are open.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12.7] **OPEN** RHR SHUTDOWN COOLING SUCT OUTBD and INBD ISOL VLVs, 2-FCV-74-47 and 2-FCV-74-48.

STANDARD:

Opens 2-HS-74-47 and verifies 2-FCV-74-48 open.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12.8] **RESTART** RHR PUMP 2A using 2-HS-74-5A.

STANDARD:

Places 2-HS-74-5A (2A RHR Pump) in Start and Recognizes Pump Trip.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

Notify US of pump failure to start.

CUE: [As US] Acknowledge report. If necessary, ask; What do you recommend?

STANDARD:

Notifies US.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

Start 2C RHR pump.

STANDARD:

Starts 2C RHR Pump.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12.9] **THROTTLE** RHR SYS I LPCI OUTBD INJECT VALVE, 2-FCV-74-52, to establish and maintain RHR flow as indicated by 2-FI-74-50, RHR SYS I FLOW, as follows:

RHR Pumps in Operation	**1**	**2**
Loop Flow	7,000 to 10,000 gpm	14,000 to 20,000 gpm
Loop Flow (1 or more fuel bundles removed from core)	6,000 to 6,500 gpm	N/A

STANDARD:

Manipulates 2-HS-74-52 to obtain RHR System I Loop flow between 7,000 and 10,000 gpm on 2-FI-74-50.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.10] **WHEN** time permits after RHR pump is started, **THEN**

VERIFY RHR Pump Breaker charging spring recharged by observing amber breaker spring charged light is on and closing spring target indicates charged.

STANDARD:

Dispatched personnel to verify RHR Pump 2C breaker closing spring recharged and investigate 2A RHR pump failure.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

CUE: If requested, Acknowledge and state Operator in route

****

Performance Step: Critical X Not Critical

[12.11] **SLOWLY THROTTLE** RHR HX 2C RHRSW OUTLET VALVE, 2-FCV-23-40, to obtain desired cooldown rate.

STANDARD:

Throttles 2-FCV-23-40 open to commence cooldown

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

CUE: That completes this task.

END OF TASK

STOP TIME: _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 225ap

TASK NUMBER: 0-74-AB-01

TASK TITLE: Loss of Shutdown Cooling

K/A NUMBER: 295021 AA1.02 K/A RATING: RO 3.5 SRO: 3.5

TASK STANDARD: Restore Shutdown Cooling following loss due to inadvertent RPS actuation.

LOCATION OF PERFORMANCE: Simulator

REFERENCES/PROCEDURES NEEDED: 3-AOI-74-1

VALIDATION TIME: 15 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit 3 operator. Unit 3 is in Mode 3 (Recirc Loop B temp > 212ºF) heading towards cold conditions for a refueling outage. RHR Loop I using 3A RHR Pump was in shutdown cooling. Unit 1 is carrying 2000 gpm for RHRSW Pumps ‘A2’ and ‘C2’. An inadvertent loss of 3B RPS bus resulted in a partial isolation of RHR shutdown cooling. RPS 3B has been restored on the alternate supply. Another operator is assisting with recovery from the loss of 3B RPS.

INITIATING CUES: The Unit Supervisor directs you to restore shutdown cooling using 3A RHR pump in accordance with 3-AOI-74-1 starting at step 10.

START TIME _____

****

CAUTIONS

1) Reactor vessel stratification may occur until Shutdown Cooling is restored or a Reactor Recirculation Pump is placed in service.
2) Loss of Shutdown Cooling during the first 24 hours is most critical due to massive decay heat and limitations on the RHRSW Piping. If Shutdown Cooling is lost during the first 24 hours post reactor shutdown, priorities shall be placed on the recovery of shutdown cooling in an expeditious manner.

NOTE

The following systems, if available, may be used as alternate methods of decay heat removal .Refer to the applicable Tec Spec Bases B 3.4.7, B 3.4.8, B 3.9.7, B 3.9.8
ADHR System- (0-OI-72)
Fuel Pool Cooling System- (3-OI-78)
RWCU System- (3-OI-69)
Ambient losses with natural or forced circulation

****

Performance Step: Critical Not Critical X

[10] **IF** the loss of Shutdown Cooling is due to Group 2 PCIS isolation, **THEN** (Otherwise **N/A**)

WHEN conditions permit resetting Group 2 PCIS isolation are met, **PERFORM** the following:

[10.1] **RESET** Group 2 isolation by momentarily PLACING PCIS DIV I RESET, 3-HS-64-16A-S32, and PCIS DIV II RESET, 3-HS-64-16A-S33, in reset.

STANDARD:

On Panel 3-9-4, RESETS Group 2 isolation by momentarily PLACING PCIS DIV I RESET, 3-HS-64-16A-S32, in reset and PCIS Div II RESET, 3-HS-64-16A-S33 to reset.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[10.2] **MOMENTARILY DEPRESS** RHR SYS I(II) SD CLG INBD INJECT ISOL RESET, 3-XS-74-126 and 3-XS-74-132. **VERIFY** 3-IL-74-126 and 3-IL-74-132 extinguished.

STANDARD:

Momentarily Depresses RHR SYS I SD CLG INBD INJECT ISOL RESET, 3-XS-74-132 and verifies 3-IL-74-132 extinguished.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[11] **IF** the loss of Shutdown Cooling is due to Group 2 PCIS **AND** the isolation signal fails to reset, or remain reset due to invalid and/or sporadic signals, **THEN** (Otherwise **N/A**)

STANDARD:

N/As all Step 4.2[11], the PCIS signal is reset in step 10.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12] **IF** the Group 2 PCIS Isolation has been reset, **THEN** (otherwise **N/A**)

RETURN the affected loop of RHR to Shutdown Cooling as follows:

[12.1] **CLOSE** RHR SYS I LPCI OUTBD INJECT VALVE, 3-FCV-74-52.

STANDARD:

Closes 3-FCV-74-52

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12.2] **OPEN** RHR SYS I LPCI INBD INJECT VALVE, 3-FCV-74-53.

STANDARD:

Opens 3-FCV-74-53

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.3] **VERIFY** RHR SYSTEM I MIN FLOW INHIBIT switch, 3-HS-74-148 in INHIBIT

STANDARD:

Verifies 3-HS-74-148 in INHIBIT.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.4] **VERIFY CLOSED** RHR SYSTEM I MIN FLOW VALVE, 3-FCV-74-7.

STANDARD:

Verifies 3-FCV-74-7 is closed.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.5] **VERIFY CLOSED** RHR PUMP 3A and 3C SUPPR POOL SUCT VLVs, 3-FCV-74-1 and 3-FCV-74-12.

STANDARD:

Verifies 3-FCV-74-1 & 12 are closed.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.6] **VERIFY OPEN** RHR PUMP 3A and 3C SD COOLING SUCT VLVs, 3-FCV-74-2 and 3-FCV-74-13.

STANDARD:

Verifies 3-FCV-74-2 & 13 are open.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12.7] **OPEN** RHR SHUTDOWN COOLING SUCT OUTBD and INBD ISOL VLVs, 3-FCV-74-47 and 3-FCV-74-48.

STANDARD:

Opens 3-HS-74-47 and verifies 3-FCV-74-48 open.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12.8] **RESTART** RHR PUMP 3A using 3-HS-74-5A.

STANDARD:

Places 3-HS-74-5A (3A RHR Pump) in Start and Recognizes Pump Trip.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

Notify US of pump failure to start.

CUE: [As US] Acknowledge report. If necessary, ask; What do you recommend?

STANDARD:

Notifies US.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

Start 3C RHR pump.

STANDARD:

Starts 3C RHR Pump.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical

[12.9] **THROTTLE** RHR SYS I LPCI OUTBD INJECT VALVE, 3-FCV-74-52, to establish and maintain RHR flow as indicated by 3-FI-74-50, RHR SYS I FLOW, as follows:

RHR Pumps in Operation	**1**	**2**
Loop Flow	7,000 to 10,000 gpm	14,000 to 20,000 gpm
Loop Flow (1 or more fuel bundles removed from core)	6,000 to 6,500 gpm	N/A

STANDARD:

Manipulates 3-HS-74-52 to obtain RHR System I Loop flow between 7,000 and 10,000 gpm on 3-FI-74-50.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

****

Performance Step: Critical Not Critical X

[12.10] **WHEN** time permits after RHR pump is started, **THEN**

VERIFY RHR Pump Breaker charging spring recharged by observing amber breaker spring charged light is on and closing spring target indicates charged.

STANDARD:

Dispatched personnel to verify RHR Pump 3C breaker closing spring recharged and investigate 3A RHR pump failure.

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

CUE: If requested, Acknowledge and state Operator in route

****

Performance Step: Critical X Not Critical

[12.11] **SLOWLY THROTTLE** RHR HX 3C RHRSW OUTLET VALVE, 3-FCV-23-40, to obtain desired cooldown rate.

STANDARD:

Throttles 3-FCV-23-40 open to commence cooldown

SAT _____ UNSAT _____ N/A _____ COMMENTS:_____

_____

CUE: That completes this task.

END OF TASK

STOP TIME: _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 80ap

TASK NUMBER: U-085-AB-05

TASK TITLE: RESPOND TO CONTROL ROD DRIFT IN

K/A NUMBER: 201002A2.02 K/A RATING: RO 3.2 SRO: 3.3

TASK STANDARD: Respond to a Control Rod Drift In as directed by AOI-85-5

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: AOI-85-5, SR-3.1.3.3

VALIDATION TIME: 15 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are the Unit Operator at the controls. Plant conditions are as found. SR 3.1.3.3 is complete through step 7.2 (4).

INITIATING CUES: The Unit Supervisor directs you to perform Surveillance 3.1.3.3 Control Rod Exercise Test for Withdrawn Control Rods, for partially withdrawn control rods only.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

[4] **VERIFY** that CRD POWER 2-HS-85-46 is ON prior to control rod movement.

[5] **VERIFY** CRD system flow is ≥ 55 gpm prior to performing rod exercise.

[6] **VERIFY** Drive Water dP is 250-270 psid prior to performing rod exercise.

Standard:

Verifies CRD Power is ON, CRD system flow is > 55 gpm and that drive water dP is between 250-270 psid.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[1] **SELECT** desired control rod by
DEPRESSING appropriate CRD ROD SELECT pushbutton 2-XS-85-40.

[2] **OBSERVE** the following for selected control rod:
• **CHECK** CRD ROD SELECT pushbutton is brightly ILLUMINATED.
• **CHECK** white light on the Full Core Display ILLUMINATED.
• **CHECK** Rod Out Permit light is ILLUMINATED.

Standard:

Selects a withdrawn control rod

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[3] **INSERT** control rod one notch by performing the following:

[3.1] **PLACE** CRD CONTROL SWITCH 2-HS-85-48 in ROD IN and **RELEASE**.

[3.2] **OBSERVE** control rod settles into the desired position and ROD SETTLE light extinguishes.

Standard:

Inserts withdrawn control rod one notch

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[5] **WITHDRAW** selected control rod one notch by performing the following:

[5.1] **PLACE** CRD CONTROL SWITCH 2-HS-85-48 in ROD OUT NOTCH and **RELEASE**.

[5.2] **OBSERVE** control rod settles into the desired position and ROD SETTLE light extinguishes.

Standard:

Withdraws withdrawn control rod one notch

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[7] **DOCUMENT** completion of control rod test as follows:

[7.1] PERFORMER

INITIAL Attachment 2 (Control Rod Exercise Data Sheet) in the box corresponding to the control rod coordinates for the control rod just exercised to document proper movement and CRD latching.

[9] **REPEAT** Steps 7.3[1] through 7.3[8] for all remaining, operable, partially withdrawn control rods.

Standard:

Initials attachment 2 for exercised control rod and continues to exercise rods.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

Examiner Note: Performs above actions for a minimum of two control rods.

Simulator Driver: **INSERT** the rod drift malfunction RD07 for a minimum of two control rods.

****

Performance Step: Critical_X_ Not Critical___

Performer recognizes CR Drift in and responds per 2-AOI-85-5.

Standard:

Responds per 2-AOI-85-5.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

4.1.[1] **IF** multiple rods are drifting into the core, **THEN**

Manually **SCRAM** Reactor. REFER TO 2-AOI-100-1.

Standard:

Recognizes multiple rod drifts and manually **SCRAMS** the Reactor.

- Depresses both scram pushbuttons. _____
- Places mode switch in shutdown. _____
- Verifies All Rods in. _____
- Performs a Scram announcement

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: REPEAT BACK SCRAM REPORT THEN STATE, "THIS COMPLETES THE JPM". THAT WILL BE ALL FOR NOW, ANOTHER OPERATOR WILL CONTINUE IN 2-AOI-100-1

END OF TASK

STOP TIME ___

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO ____ SRO ____ DATE:_____

JPM NUMBER: 80ap

TASK NUMBER: U-085-AB-05

TASK TITLE: RESPOND TO CONTROL ROD DRIFT IN

K/A NUMBER: 201002A2.02 K/A RATING: RO 3.2 SRO: 3.3

TASK STANDARD: Respond to a Control Rod Drift In as directed by AOI-85-5

LOCATION OF PERFORMANCE: SIMULATOR

REFERENCES/PROCEDURES NEEDED: AOI-85-5, SR-3.1.3.3

VALIDATION TIME: 15 minutes

MAX. TIME ALLOWED: ___ (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____

COMMENTS: _____
_____
_____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY _____ UNSATISFACTORY_____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: 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. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are the Unit Operator at the controls. Plant conditions are as found. SR 3.1.3.3 is complete through step 7.2 (4).

INITIATING CUES: The Unit Supervisor directs you to perform Surveillance 3.1.3.3 Control Rod Exercise Test for Withdrawn Control Rods, for partially withdrawn control rods only.

START TIME_____

****

Performance Step: Critical__ Not Critical_X_

[4] **VERIFY** that CRD POWER 3-HS-85-46 is ON prior to control rod movement.

[5] **VERIFY** CRD system flow is ≥ 55 gpm prior to performing rod exercise.

[6] **VERIFY** Drive Water dP is 250-270 psid prior to performing rod exercise.

Standard:

Verifies CRD Power is ON, CRD system flow is > 55 gpm and that drive water dP is between 250-270 psid.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[1] **SELECT** desired control rod by
DEPRESSING appropriate CRD ROD SELECT pushbutton 3-XS-85-40.

[2] **OBSERVE** the following for selected control rod:
• **CHECK** CRD ROD SELECT pushbutton is brightly ILLUMINATED.
• **CHECK** white light on the Full Core Display ILLUMINATED.
• **CHECK** Rod Out Permit light is ILLUMINATED.

Standard:

Selects a withdrawn control rod

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[3] **INSERT** control rod one notch by performing the following:

[3.1] **PLACE** CRD CONTROL SWITCH 3-HS-85-48 in ROD IN and **RELEASE**.

[3.2] **OBSERVE** control rod settles into the desired position and ROD SETTLE light extinguishes.

Standard:

Inserts withdrawn control rod one notch

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical___

[5] **WITHDRAW** selected control rod one notch by performing the following:

[5.1] **PLACE** CRD CONTROL SWITCH 3-HS-85-48 in ROD OUT NOTCH and **RELEASE**.

[5.2] **OBSERVE** control rod settles into the desired position and ROD SETTLE light extinguishes.

Standard:

Withdraws withdrawn control rod one notch

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical__ Not Critical_X_

[7] **DOCUMENT** completion of control rod test as follows:

[7.1] PERFORMER

INITIAL Attachment 2 (Control Rod Exercise Data Sheet) in the box corresponding to the control rod coordinates for the control rod just exercised to document proper movement and CRD latching.

[9] **REPEAT** Steps 7.3[1] through 7.3[8] for all remaining, operable, partially withdrawn control rods.

Standard:

Initials attachment 2 for exercised control rod and continues to exercise rods.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

Examiner Note: Performs above actions for a minimum of two control rods.

Simulator Driver: **INSERT** the rod drift malfunction RD07 for a minimum of two control rods.

****

Performance Step: Critical_X_ Not Critical___

Performer recognizes CR Drift in and responds per 3-AOI-85-5.

Standard:

Responds per 3-AOI-85-5.

SAT___ UNSAT___ N/A ___COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

4.1.[1] **IF** multiple rods are drifting into the core, **THEN**

Manually **SCRAM** Reactor. REFER TO 3-AOI-100-1.

Standard:

Recognizes multiple rod drifts and manually **SCRAMS** the Reactor.

- Depresses both scram pushbuttons. _____
- Places mode switch in shutdown. _____
- Verifies All Rods in. _____
- Performs a Scram announcement

SAT__ UNSAT___ N/A ___COMMENTS:_____

_____

CUE: REPEAT BACK SCRAM REPORT THEN STATE, "THIS COMPLETES THE JPM". THAT WILL BE ALL FOR NOW, ANOTHER OPERATOR WILL CONTINUE IN 3-AOI-100-1

END OF TASK

STOP TIME ___