

DRAFT JPMs
FOLDER 2 OF 2

BROWNS FERRY
2008-201

Browns Ferry Nuclear Plant Operations Training Group



HLT Class 0610 NRC Exam Simulator & In-Plant JPMs

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

U2 Sim "A" RO
U2 Sim "A" SRO

JPM NUMBER: 610F
TITLE: RESPOND TO A DUAL REACTOR RECIRC PUMP TRIP
(OPRM's Operable)
TASK NUMBER: U-068-AB-01

SUBMITTED BY:  DATE: 2/7/08
VALIDATED BY:  DATE: 2/7/08
APPROVED:  DATE: 2/7/08
TRAINING
PLANT CONCURRENCE:  DATE: 2.7.08
OPERATIONS

* Examination JPMs Require Operations Training Manager or Designee Approval and Plant Concurrence

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	2/9/06	ALL	NEW PROCEDURE
1	1/22/08	All	Procedure Revision

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 610F

TASK NUMBER: U-068-AB-01

TASK TITLE: RESPOND TO A DUAL RECIRC PUMP TRIP

K/A NUMBER: 202001A2.03 K/A RATING: RO 3.6 SRO: 3.7

TASK STANDARD: PERFORM REQUIRED OPERATOR ACTION FOR A TRIP OF BOTH REACTOR RECIRCULATION PUMPS AT RATED POWER

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-AOI-68-1A, REV 7; 2-AOI-100-1 REV 88

VALIDATION TIME: CONTROL ROOM: 10:00 LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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. Ensure you indicate to me when you understand your assigned task and when you have completed the assigned task.

INITIAL CONDITIONS: You are a Unit 2 Operator. Unit 2 is at full power. I will act as your Unit Supervisor.

INITIATING CUES: Respond to the next event.

START TIME _____

INSTRUCTOR NOTE: WHEN EXAMINEE IS READY, HAVE CONSOLE OPERATOR TRIP ONE RECIRC PUMP.

4.1 Immediate Actions

None

Performance Step : Critical__ Not Critical X

4.2 Subsequent Actions

NOTE

Step 4.2[2] through 4.2[17.3] apply to any core flow lowering event.

[1] **IF** both Recirc Pumps are tripped in modes 1 or 2, **THEN**
(Otherwise N/A)

A. **SCRAM** the Reactor.

CAUTION

[NER/C] Failure to restart Reactor Recirculation pumps in a timely manner may result in exceeding the differential temperature limit for pump start and subsequently require plant depressurization to avoid exceeding pressure-temperature limits for the reactor vessel. [SER 93-005]

B. **Restart** affected Reactor Recirculation pumps. Refer to 2-OI-68 Section 8.0

Standard:

Student enters 2-AOI-68-1A and **DETERMINES** no condition requiring reactor SCRAM exists at this time.

SAT _____ UNSAT _____ N/A _____ COMMENTS : _____

Performance Step: Critical Not Critical

[2] **IF** the ΔT between the Rx vessel bottom head temperature and the moderator temperature precludes restart of a Recirc pump, **OR** forced Recirculation flow **CANNOT** be established for any reason, **THEN** (Otherwise NA)

A. **INITIATE** a plant cooldown to prevent exceeding the pressure limit for the Rx vessel bottom head temperature indicated on 2-PNL-9-47, 2-TR-56-4 pt. 10 and based on Tech Specs Figure 3.4.9-1.

B. **INFORM** the Unit Supervisor, Tech Spec 3.4.1 requires the Reactor be placed in Mode 3 in 12 hours. Refer to 2-GOI-100-12A and Tech Specs 3.4.1.B.

Standard: Forced circulation is still present with one Recirc pump still running, so N/A.

SAT UNSAT N/A COMMENTS: _____

Performance Step: Critical Not Critical

[3] **IF** Region I or II of the Power to Flow Map is entered, **THEN** (Otherwise N/A)

IMMEDIATELY take actions to INSERT control rods to less than 95.2% loadline. Refer to 0-TI-464, Reactivity Control Plan Development and implementation.

Standard:

VERIFIES the Reactor is in Region II of the Power to Flow Map and informs the Unit Supervisor he/she is driving control rods IAW the Reactivity Control Plan to below the 95.2% rod line.

SAT UNSAT N/A COMMENTS: _____

NOTE: REGION 2 OF THE POWER FLOW MAP WILL BE ENTERED. AS UNIT SUPERVISOR, REPEAT DRIVING RODS TO BELOW THE 95.2% ROD LINE IAW THE REACTIVITY CONTROL PLAN. IF A SECOND OPERATOR IS REQUESTED TO PERFORM PEER CHECKING, EXAMINER WILL PERFORM PEER CHECKS (AND WILL HAVE TO AGREE WITH WHATEVER THE EXAMINEE STATES).

INSTRUCTOR NOTE: WHEN EXAMINEE HAS DRIVEN IN A COUPLE OF CONTROL RODS, THE SECOND RECIRC PUMP WILL TRIP CAUSING EXAMINEE TO RETURN TO STEP 4.2[1] TO SCRAM THE REACTOR.

Performance Step: Critical X Not Critical

4.2 Subsequent Actions

NOTE

Step 4.2[2] through 4.2[17.3] apply to any core flow lowering event.

- [1] **IF** both Recirc Pumps are tripped in modes 1 or 2, **THEN**
(Otherwise N/A)
 - A. **SCRAM** the Reactor.
 - B. **RESTART** affected Reactor Recirculation pumps. Refer to 2-OI-68 Section 8.0.

Standard:

EXAMINEE recognizes that both Recirc Pumps are now tripped and returns to step 4.2[1] A, and B to SCRAM the Reactor (and give SCRAM report), (Critical) and attempts to restart a Recirc pump (Not Critical)

SAT UNSAT N/A COMMENTS: _____

Performance Step: Critical X Not Critical

4.2 Subsequent Actions

[2] **IF** the ΔT between the Rx vessel bottom head temperature and the moderator temperature precludes restart of a Recirc pump, **OR** forced Recirculation flow **CANNOT** be established for any reason, **THEN** (Otherwise NA)

A. **INITIATE** a plant cooldown to prevent exceeding the pressure limit for the Rx vessel bottom head temperature indicated on 2-PNL-9-47, 2-TR-56-4 pt. 10 and based on Tech Specs Figure 3.4.9-1.

B. **INFORM** the Unit Supervisor, Tech Spec 3.4.1 requires the Reactor be placed in Mode 3 in 12 hours. Refer to 2-GOI-100-12A and Tech Specs 3.4.1.B.

Standard: Candidate initiates a cooldown since a recirc pump cannot be restarted (Critical), and **INFORMS** the Unit Supervisor the Tech Spec requirement to be in Mode 3 in 12 hours. (Not Critical) **EXAMINEE** enters 2-AOI-100-1 for the Reactor SCRAM (Entering 2-AOI-100-1 is not critical).

AFTER THE REACTOR IS SCRAMMED, SCRAM REPORT GIVEN, STATEMENT TO INITIATE COOLDOWN, AND US NOTIFIED OF TECH SPEC REQUIREMENTS, CUE: ANOTHER OPERATOR WILL PERFORM THE ACTIONS OF 2-AOI-100-1, THAT WILL BE ALL FOR NOW.

END OF TASK

STOP TIME _____

GENERIC WORK PRACTICES

Performance Step: Critical_ Not Critical X

PERFORMER demonstrated the use of SELF CHECKING during this JPM.

Standard:

PERFORMER verified applicable components by utilizing SELF CHECKING in accordance with plant standards.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical_ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION in accordance with plant standards.

SAT__ UNSAT__ N/A__ COMMENTS: _____

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. Ensure you indicate to me when you understand your assigned task and when you have completed the assigned task.

INITIAL CONDITIONS: You are a Unit 2 Operator. Unit 2 is at full power. I will act as your Unit Supervisor.

INITIATING CUES: Respond to the next event.



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. Ensure you indicate to me when you understand your assigned task and when you have completed the assigned task.

INITIAL CONDITIONS: You are a Unit 2 Operator. Unit 2 is at full power. I will act as your Unit Supervisor.

INITIATING CUES: Respond to the next event.



Browns Ferry Nuclear Plant

Unit 2

Abnormal Operating Instruction

2-AOI-68-1A

Recirc Pump Trip/Core Flow Decrease OPRMs Operable

Revision 0006

Quality Related

Level of Use: Continuous Use

Effective Date: 04-16-2007

Responsible Organization: OPS, Operations

Prepared By: R L Eakin

Approved By: James A. McCrary

BFN Unit 2	Recirc Pump Trip/Core Flow Decrease OPRMs Operable	2-AOI-68-1A Rev. 0006 Page 2 of 12
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Current Revision Description

Type of Change: ENHANCEMENT

Tracking Number: 7

Deleted Illustration 1, "Power To Flow Map". The latest Revisions of the Power To Flow Map is maintained in 0-TI-248"Station Reactor Engineer" and on ICS. This information is added where needed throughout this procedure.

BFN Unit 2	Recirc Pump Trip/Core Flow Decrease OPRMs Operable	2-AOI-68-1A Rev. 0006 Page 3 of 12
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1.0 PURPOSE

This instruction provides the symptoms, automatic actions, and operator actions for a core flow lowering or Reactor Recirc Pump trip in one or two loops with OPRMs Operable.

BFN Unit 2	Recirc Pump Trip/Core Flow Decrease OPRMs Operable	2-AOI-68-1A Rev. 0006 Page 4 of 12
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1.0 PURPOSE (continued)

CAUTIONS

- 1) Operation with one recirc pump out of service and the inservice jet pump loop flow $\leq 41 \times 10^6$ lbm/hr (2-FI-68-46 or 2-FI-68-48) can result in inaccurate core flow indication. This results from positive jet pump flow in the out of service loop being subtracted instead of added. If operation in this condition is required, contact Reactor Engineers to perform Attachment 2 of 2-SR-3.4.1(SLO) to determine actual core flow and to substitute that value into the ICS as necessary.
- 2) Immediately upon the opening of the "DRIVE RUNNING" contacts, the associated jet pump loop flow is subtracted even though the loop flow is still positive. This results in a severe indicated lowering in core flow, then as the tripped loop flow decays toward zero, the core flow indication will rise toward the actual value. The severity of the indicated core flow perturbation will depend upon the cause of the Recirc pump trip and the speed of the Recirc Drive prior to the trip.
- 3) [NER/C]. The Natural circulation line on the Power/Flow map (0-TI-248 or ICS) only shows the approximate, nominal characteristic for operating with both Recirc loops out of service. Therefore, indicated core flow in natural circulation operation may not fall directly on the natural circulation line as depicted on the Power/Flow map. [NRC IN 96-016, GE SIL 516]
- 4) Per Technical Specifications, the Reactor CAN BE operated indefinitely with one Recirc loop out of service, provided the requirements of T.S. 3.4.1 are implemented within 24 hours of entering single loop operations.
- 5) [NER] The natural circulation line on the Power/Flow map (0-TI-248 or ICS) is only an approximation. Inaccuracies are evident at Low/No-Flow conditions.
- 6) Failure to monitor SJAE/OG CNDR CNDS FLOW, 2-FI-2-42, on Panel 2-9-6 for proper flow may result in SJAE isolation.
- 7) Changes in Condensate System flow may require adjustment to SPE CNDS BYPASS, 2-FCV-002-0190, either in the Control Room or locally. Personnel adjusting this valve locally should be in direct communication with the Control Room.

NOTE

Because a Reactor Recirc Pump seizure provides the same symptoms, the actions described herein cover that condition also. A seizure would most likely not be immediately discernible from other pump trips.

BFN Unit 2	Recirc Pump Trip/Core Flow Decrease OPRMs Operable	2-AOI-68-1A Rev. 0006 Page 5 of 12
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2.0 SYMPTOMS

A. The following annunciators may alarm:

1. ATWS AUTO INITIATE, (2-XA-55-4A, Window 10)
2. RECIRC DRIVE 2A TRIP TIMER INITIATED (2-XA-55-4A, Window 5)
3. RECIRC DRIVE VFD A LOCKOUT (2-XA-55-4A, Window 6)
4. RECIRC DRIVE 2A TRIPPED (2-XA-55-4A, Window 7)
5. RECIRC DRIVE 2B TRIP TIMER INITIATED (2-XA-55-4B, Window 5)
6. RECIRC DRIVE VFD B LOCKOUT (2-XA-55-4B, Window 6)
7. RECIRC DRIVE 2B TRIPPED (2-XA-55-4B, Window 7)
8. LPRM DOWNSCALE (2-XA-55-5A, Window 5)
9. LPRM HIGH (2-XA-55-5A, Window 12)
10. RECIRC FLOW SYSTEM TROUBLE ALARM (2-XA-55-4A, WINDOW 23)
11. OPRM TRIP ENABLED (2-XA-55-5A, WINDOW 30)

B. Recirc Drive/Pump A and/or B speed lowering.

C. Reactor Power lowering.

D. Steam pressure lowering.

E. Recirc Pump Disch Flow (2-FR-68-5) lowering (very sharp and rapid lowering in the event of a Recirc Pump seizure).

3.0 AUTOMATIC ACTIONS

Turbine Control valves throttle to maintain reactor pressure.

BFN Unit 2	Recirc Pump Trip/Core Flow Decrease OPRMs Operable	2-AOI-68-1A Rev. 0006 Page 6 of 12
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4.0 OPERATOR ACTIONS

4.1 Immediate Actions

None

4.2 Subsequent Actions

NOTE

Step 4.2[3] through Step 4.2[18.3] apply to any core flow lowering event.

[1] **IF** both Recirc Pumps are tripped in modes 1 or 2, **THEN**
(Otherwise N/A),

A. **SCRAM** the Reactor.

CAUTION

[NER/C] Failure to restart Reactor Recirculation pumps in a timely manner may result in exceeding the differential temperature limit for pump start and subsequently require plant depressurization to avoid exceeding pressure-temperature limits for the reactor vessel. [SER 93-005]

B. **RESTART** affected Reactor Recirculation pumps. Refer to 2-OI-68 Section 8.0.

[2] **IF** the ΔT between the Rx vessel bottom head temperature and the moderator temperature precludes restart of a Recirc pump, **OR** forced Recirculation flow **CANNOT** be established for any reason, **THEN** (Otherwise NA)

A. **INITIATE** a plant cooldown to prevent exceeding the pressure limit for the Rx vessel bottom head temperature indicated on 2-PNL-9-47, 2-TR-56-4 pt. 10 and based on Tech Specs Figure 3.4.9-1.

B. **INFORM** the Unit Supervisor, Tech Spec 3.4.1 requires the Reactor be placed in Mode 3 in 12 hours. Refer to 2-GOI-100-12A and Tech Specs 3.4.1.B.

BFN Unit 2	Recirc Pump Trip/Core Flow Decrease OPRMs Operable	2-AOI-68-1A Rev. 0006 Page 7 of 12
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4.2 Subsequent Actions (continued)

NOTE

Power To Flow Map is maintained in 0-TI-248"Station Reactor Engineer" and on ICS.

- [3] **IF** Region I or II of the Power to Flow Map is entered, **THEN**
(Otherwise N/A)

IMMEDIATELY take actions to **INSERT** control rods to less than 95.2% loadline. Refer to 0-TI-464, Reactivity Control Plan Development and Implementation.
- [4] **RAISE** core flow to greater than 45%. Refer to 2-OI-68.
- [5] **INSERT** control rods to exit regions if not already exited. Refer to 0-TI-464, Reactivity Control Plan Development and Implementation.

NOTE

The remaining subsequent action steps apply to a single Reactor Recirc Pump trip.

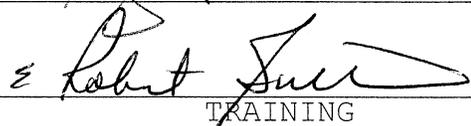
- [6] **CLOSE** tripped Recirc Pump discharge valve.
- [7] **MAINTAIN** operating Recirc pump flow less than 46,600 gpm. Refer to 2-OI-68.
- [8] [NER/C] **WHEN** plant conditions allow, **THEN**, (Otherwise N/A)

MAINTAIN operating jet pump loop flow greater than 41×10^6 lbm/hr (2-FI-68-46 or 2-FI-68-48). [GE SIL 517]

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

U2 Sim "B" RO
U2 Sim "B" SRO

JPM NUMBER: 222
TITLE: PERFORM CONTROL ROOM TRANSFER OF 4KV Unit Board
2B POWER SUPPLIES
TASK NUMBER: S-57A-NO-01

SUBMITTED BY:  DATE: 2/7/08
VALIDATED BY:  DATE: 2/7/08
APPROVED:  DATE: 2/7/08
TRAINING
PLANT CONCURRENCE:  DATE: 2.7.08
OPERATIONS

* Examination JPMs Require Operations Training Manager or Designee Approval and Plant Concurrence

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	1/25/2008	All	Initial Development

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 222

TASK NUMBER: S-57A-NO-01

TASK TITLE: PERFORM CONTROL ROOM TRANSFER OF 4KV Unit Board 2B
POWER SUPPLIES

K/A NUMBER: 262001A4.03 K/A RATING: RO 3.2 SRO: 3.4

TASK STANDARD: PERFORM CONTROL ROOM OPERATION REQUIRED TO
SUCCESSFULLY TRANSFER 4KV Unit Board 2B POWER SUPPLY
FROM NORMAL TO ALTERNATE POWER SUPPLY

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 0-OI-57A, REV ~~125~~ 126

VALIDATION TIME: CONTROL ROOM: 8:00 LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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: Preventative Maintenance is required on normal 4KV Unit Board 2B Feeder Breaker 1214.

INITIATING CUES: The Shift Manager has directed you to transfer 4KV Unit Board 2B from the USST to the Start Bus per 0-OI-57A, section 8.13.1.

START TIME _____

Performance Step: Critical___ Not Critical X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required procedure.

Standard:

IDENTIFIED OR OBTAINED copy of 0-OI-57A.

SAT___ UNSAT___ N/A___ COMMENTS: _____

8.0 INFREQUENT OPERATIONS

8.13 Control Room Transfer of 4kV Unit Board 2B Power Supplies

8.13.1 Transfer 4Kv Unit Board 2B from USST to Start Bus

Performance Step: Critical___ Not Critical X

[1] Review all precautions and limitations

Standard:

Examinee reviews all precautions and limitations.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X

- [2] **NOTIFY** NSS of possible loss of power to Security Systems prior to transferring 4kV UNIT BD 2B.

Standard:

Examinee notifies NSS of possible loss of power to security systems.

SAT___ UNSAT___ N/A___ COMMENTS: _____

CAUTIONS

- 1) Capacitor bank fuses are subject to clearing when Unit Boards are supplied from the 161 source and large pumps are started. Unit Supervisors should evaluate placing the Capacitor Banks in Manual prior to starting Condensate, CBP, RHR, CS, or CCW pumps.
- 2) If 4kV Unit Board 2B is fed from the Alternate Power Supply, then Auto Transfer must be blocked for 4kV Unit Boards: 1A, 1B, 2A, 3A and 3B. (Ref. 2-45E721 OPL3 & 1-45E721 OPL5)
- 3) If 4kV Unit Board 2B is fed from the Alternate Power Supply (Start Bus), then Shutdown Bus 1 Auto transfer must be blocked. (Ref. 2-45E721 OPL3)
- 4) If either 4kV UNIT BD 1A, 1B, 2A, 3A or 3B is aligned to a Start Bus, prior to aligning UNIT BD 2B to Start Bus, check Technical Specifications 3.8.1.a and 3.8.2.a to determine operability of qualified AC circuits between the offsite transmission network and the onsite Class 1E Electrical Power Distribution System.

NOTES

- 1) All procedural steps are performed from Control Room Panel 2-9-8
- 2) This procedure section contains actions ensure electrical load restrictions are not exceeded when 4kV UNIT BD 2B is placed on Alternate Supply (Start Bus)

Performance Step: Critical___ Not Critical_X

[3] **ENSURE** 4kV Start Busses aligned Normal

[3.1] On Panel 9-23-2, **VERIFY** 4Kv Start Bus 1A ALT
FDR BKR 1518 OPEN

[3.2] On Panel 9-23-2, **VERIFY** 4Kv Start Bus 1B ALT
FDR BKR 1414 OPEN

Standard:

Examinee verifies start busses are aligned normal by verifying the alt bkrs 1518 and 1414 are open

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X

[4] On panel 0-9-23-7, **VERIFY** Shutdown Bus 1 is fed from
Normal Supply (4kV Unit Board 1A).

Standard:

Examinee verifies shutdown bus 1 is fed from it's normal supply

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X

[7.2] **CHECK** START BUS 1B Voltage on 2-EI-57-28 is between 3950 and 4400 Volts.

Standard:

CHECKED 4KV START BUS 1B Voltage between 3950 and 4400 Volts.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical_X Not Critical___

[7.3] **PLACE** and **HOLD** 2-HS-57-8, 4kV UNIT BD 2B ALT FDR BKR 1526 switch to CLOSE.

Standard:

PLACED 2-HS-57-8, 4kV UNIT BD 2B ALT FDR BKR 1526 switch to CLOSE.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical_X Not Critical___

[7.4] **PLACE** 2-HS-57-6, 4kV UNIT BD 2B NORM FDR BKR 1214 switch to TRIP.

Standard:

PLACED 2-HS-57-6, 4kV UNIT BD 2B NORM FDR BKR 1214 switch to TRIP.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[7.5] **CHECK CLOSED** the 4kV UNIT BD 2B, ALT FDR
BREAKER 1526.

Standard:

CHECKED CLOSED the 4kV UNIT BD 2B, ALT FDR BKR 1526

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[7.6] **CHECK OPEN** the 4kV UNIT BD 2B, NORM FDR
BREAKER 1214.

Standard:

CHECKED OPEN the 4kV UNIT BD 2B, NORM FDR BREAKER 1214.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[7.7] **RELEASE** BKRs 1526 and 1214 control switches.

Standard:

RELEASED BKRs 1526 and 1214 control switches

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[7.8] **PLACE** 2-XS-202-1, 4kV BD/BUS/XFMR VOLTAGE
SELECT SWITCH TO UNIT BD 2B.

Standard:

PLACED 2-XS-202-1, 4kV BD/BUS/XFMR VOLTAGE SELECT SWITCH to
UNIT BD 2B

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[7.9] **CHECK** 4kV UNIT BD 2B voltage is between 3950 and
4400 Volts.

Standard:

CHECKED 4kV UNIT BD 2B voltage is between 3950 and 4400 Volts.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[7.10] Verify locally 4kV BKR 1526 closing spring
target indicates charged and the amber
breaker spring charged light is on.

Standard:

DISPATCHED AUO to verify breaker 1526 closing spring recharged.

SAT___ UNSAT___ N/A___ COMMENTS: _____

CUE: [AFTER DISPATCHED] THE AVO REPORTS THAT BREAKER 1526 CLOSING SPRING TARGET INDICATES CHARGED AND THE AMBER BREAKER SPRING CHARGED LAMP IS ILLUMINATED.

CUE: After the AVO reports closing spring information, inform the operator that Work Control is preparing a clearance and that will be all for now.

Performance Step: Critical Not Critical

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

PERFORMER verified applicable components by utilizing TOUCH STAAR (Standard is subjective and instructor must evaluate the need for additional training on TOUCH STAAR to maintain plant standards).

SAT UNSAT N/A COMMENTS: _____

Performance Step: Critical _____ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION (Standard is subjective and instructor must evaluate the need for additional training on 3-WAY COMMUNICATION to maintain plant standards).

SAT _____ UNSAT _____ N/A _____ COMMENTS _____

STOP TIME: _____

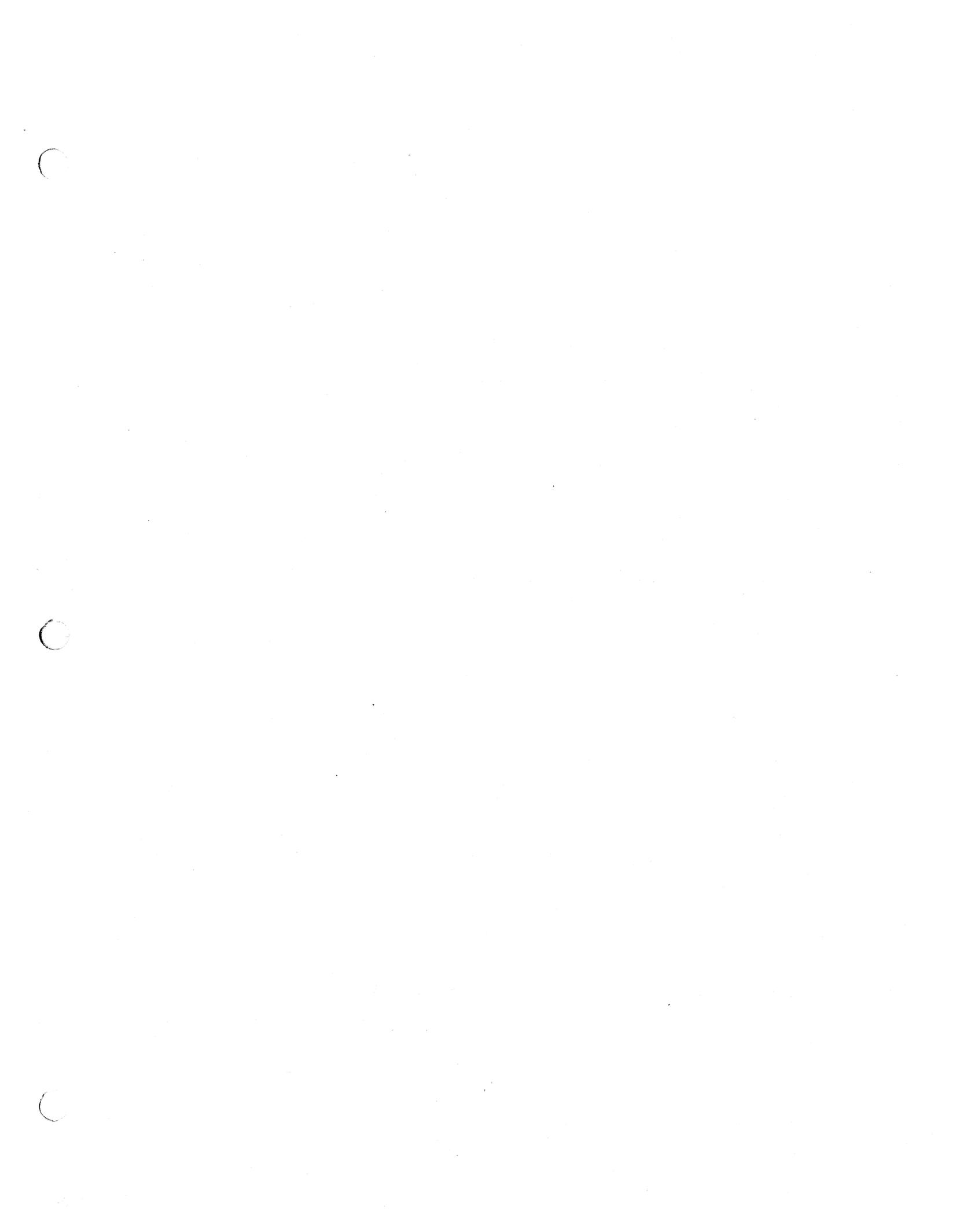
END OF TASK

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: Preventative Maintenance is required on normal 4KV Unit Board 2B Feeder Breaker 1214.

INITIATING CUES: The Shift Manager has directed you to transfer 4KV Unit Board 2B from the USST to the Start Bus per 0-OI-57A, section 8.13.1.



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: Preventative Maintenance is required on normal 4KV Unit Board 2B Feeder Breaker 1214.

INITIATING CUES: The Shift Manager has directed you to transfer 4KV Unit Board 2B from the USST to the Start Bus per 0-OI-57A, section 8.13.1.

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8.13 Control Room Transfer of 4kV Unit Board 2B Power Supplies

8.13.1 Transfer 4kv Unit Board 2B from USST to Start Bus

- [1] **REVIEW** all Precautions and Limitations.
- [2] **NOTIFY** NSS of possible loss of power to Security Systems prior to transferring 4kV UNIT BD 2B.

CAUTIONS

- 1) Capacitor bank fuses are subject to clearing when the unit boards are being supplied from the 161 source and large pumps are started. Unit Supervisors should evaluate placing the Capacitor Banks in Manual prior to starting Condensate, CBP, RHR, CS or CCW pumps.
- 2) If 4kV Unit Board 2B is fed from the Alternate Power Supply, then Auto Transfer must be blocked for 4kV Unit Boards: 1A, 1B, 2A, 3A and 3B. (Ref. 2-45E721 OPL3 & 1-45E721 OPL5)
- 3) If 4kV Unit Board 2B is fed from the Alternate Power Supply (Start Bus), then Shutdown Bus 1 Auto transfer must be blocked.(Ref. 2-45E721 OPL3)
- 4) If either 4kV UNIT BD 1A, 1B, 2A, 3A or 3B is aligned to a Start Bus, prior to aligning UNIT BD 2B to Start Bus, check Technical Specifications 3.8.1.a and 3.8.2.a to determine operability of qualified AC circuits between the offsite transmission network and the onsite Class 1E Electrical Power Distribution System.

NOTES

- 1) All procedural steps are performed from Control Room Panel 2-9-8.
- 2) This procedure section contains actions to ensure electrical load restrictions are not exceeded when 4kV UNIT BD 2B is placed on the Alternate Supply (Start Bus).

[3] **ENSURE** 4kV Start Busses are aligned Normal:

- [3.1] On Panel 9-23-2, **VERIFY** 4kV Start Bus 1A ALT FDR BKR 1518 OPEN.
- [3.2] On Panel 9-23-2, **VERIFY** 4kV Start Bus 1B ALT FDR BKR 1414 OPEN.

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8.13.1 Transfer 4kv Unit Board 2B from USST to Start Bus (continued)

- [4] On panel 0-9-23-7, **VERIFY** Shutdown Bus 1 is fed from Normal Supply (4kV Unit Board 1A).
- [5] On panel 0-9-23-7, **MOMENTARILY DEPRESS** 0-HS-211-AB1, 4kV SD BUS 1 AUTO TO MANUAL TRIP push-button, and **CHECK** the following:
 - A. 0-HS-211-AB1, 4kV SD BUS 1 AUTO TO MANUAL TRIP push-button, light extinguished.
 - B. 0-43-211-AB1, 4kV SD BUS 1 AUTO/LOCKOUT RESET, trips.
- [6] **RE-ALIGN** 4kV Auto Transfers to meet Load Restrictions
 - [6.1] On Panel 1-9-8, **PLACE** 1-XS-57-4, 4kV UNIT BD 1A MAN/AUTO SELECT switch to MAN.
 - [6.2] On Panel 1-9-8, **PLACE** 1-XS-57-7, 4kV UNIT BD 1B MAN/AUTO SELECT switch to MAN.
 - [6.3] **PLACE** 2-XS-57-4, 4kV UNIT BD 2A MAN/AUTO SELECT switch to MAN.
 - [6.4] **PLACE** 2-XS-57-7, 4kV UNIT BD 2B MAN/AUTO SELECT switch to MAN.
 - [6.5] On Panel 3-9-8, **PLACE** 3-XS-57-4, 4kV UNIT BD 3A MAN/AUTO SELECT switch to MAN.
 - [6.6] On Panel 3-9-8, **PLACE** 3-XS-57-7, 4kV UNIT BD 3B MAN/AUTO SELECT switch to MAN.
- [7] **TRANSFER** 4kv UNIT BD 2B to the ALT FDR, BKR 1526.
 - [7.1] **PLACE** 2-XS-202-1, 4kV BD/BUS/XFMR VOLTAGE SELECT switch to START BUS 1B.
 - [7.2] **CHECK** START BUS 1B Voltage on 2-EI-57-28 is between 3950 and 4400 Volts.
 - [7.3] **PLACE** and **HOLD** 2-HS-57-8, 4kV UNIT BD 2B ALT FDR BKR 1526 switch to CLOSE.

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8.13.1 Transfer 4kv Unit Board 2B from USST to Start Bus (continued)

- [7.4] **PLACE** 2-HS-57-6, 4kV UNIT BD 2B NORM FDR
BKR 1214 switch to TRIP.
- [7.5] **CHECK CLOSED** the 4kV UNIT BD 2B, ALT FDR
BREAKER 1526.
- [7.6] **CHECK OPEN** the 4kV UNIT BD 2B, NORM FDR
BREAKER 1214.
- [7.7] **RELEASE** BKR's 1526 and 1214 control switches.
- [7.8] **PLACE** 2-XS-202-1, 4kV BD/BUS/XFMR VOLTAGE
SELECT SWITCH TO UNIT BD 2B.
- [7.9] **CHECK** 4kV UNIT BD 2B voltage is between 3950 and
4400 Volts.
- [7.10] **VERIFY LOCALLY** 4kV BKR 1526 closing spring target
indicates charged and the amber breaker spring charged
light is on.
- [7.11] As directed by the Unit Supervisor, **PLACE** a Caution
Order on the Condensate, CBP, CS, RHR or CCW
Pump stating, "Evaluate the need to place CAP Banks in
Manual prior to starting Pump."

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	9/22/99	ALL	NEW JPM
1	10/13/00	ALL	PROCEDURE REVISION
2	08/16/02	ALL	FORMAT DOCUMENT PER PROCEDURE CHANGE, DELETED SS#.
3	09/13/03	ALL	Format; Editorial; Procedure Rev; Chg indications to sticky valve.
4	01/31/2008	ALL	PROCEDURE REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 132

TASK NUMBER: U-099-NO-05

TASK TITLE: RESTORE PLANT CONDITIONS TO NORMAL FOLLOWING RPS
BUS POWER LOSS

K/A NUMBER: 295006AA1.01 K/A RATING: RO 4.2 SRO: 4.2

TASK STANDARD: PERFORM OPERATIONS REQUIRED TO RETURN VARIOUS
SYSTEMS TO SERVICE FOLLOWING A LOSS (AND RE-
ESTABLISHMENT) OF POWER TO RPS BUS A.

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-OI-99, REV 73

VALIDATION TIME: CONTROL ROOM: 15:00 LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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 has had a loss of power to RPS Bus 'A'. Power has been restored to the bus.

INITIATING CUES : The Unit 2 UNIT SUPERVISOR has the SHIFT MANAGER'S permission to restore systems to normal and directs you to restore affected systems to normal as directed by 2-OI-99, Section 8.3.

START TIME _____

Performance Step: Critical___ Not Critical X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required procedure.

Standard:

IDENTIFIED OR OBTAINED copy of 2-OI-99.

SAT___ UNSAT___ N/A___ COMMENTS: _____

8.3 Restoration to Normal Following RPS Bus Power Loss or Transfer

NOTES:

- 1) This section provides instructions for resetting the various system isolations and reopening affected valves to allow those systems to be restored to normal operation in accordance with their respective operating instructions.
- 2) The following steps are performed at Panel 2-9-5 unless otherwise noted.
- 3) When RPS Bus power is lost to some scram discharge volume level switches, their RTD heater is de-energized. Following the restoration of power, a time delay, dependent on how long the level switch was de-energized, prevents resetting the half scram signal. This may take up to 37 seconds after RPS power is restored. Precaution 3.00 can be referred to for more information on these level switches.

Performance Step : Critical___ Not Critical_ X

[1] **OBTAIN** Shift Manager's permission to restore to normal.

Standard:

N/A, given in initial conditions.

SAT___ UNSAT___ N/A ___ COMMENTS: _____

Performance Step : Critical_ X Not Critical___

[2] **MOMENTARILY PLACE** SCRAM RESET, 2-HS-99-5A-S5, as follows:

[2.1] RESET FIRST position. (Critical)

[2.2] RESET SECOND position. (Critical)

[2.3] NORMAL position. (Not Critical)

Standard:

MOMENTARILY PLACED 2-HS-99-5A-S5 in the RESET FIRST position, then RESET SECOND position, then return to NORMAL position.

SAT___ UNSAT___ N/A ___ COMMENTS: _____

Performance Step : Critical___ Not Critical_X

[3] **CHECK** the following conditions:

- A. All eight SCRAM SOLENOID GROUP A/B LOGIC RESET lights illuminated.
- B. The following four lights illuminated:
 - SYSTEM A BACKUP SCRAM VALVE, 2-IL-99-5A/AB.
 - SYSTEM B BACKUP SCRAM VALVE, 2-IL-99-5A/CD.
- C. Scram Discharge Volume vent and drain valves indicate open.
- D. Points SOE033 and SOE035 on ICS computer or on the First Out Printer reads "NOTTRIP" for RPS "A".
- E. Points SOE034 and SOE036 on ICS computer or on the First Out Printer reads "NOTTRIP" for RPS "B".

Standard:

VERIFIED the following:

- All eight SCRAM SOLENOID GROUP A/B LOGIC RESET lights illuminated.
- SYSTEM A BACKUP SCRAM VALVE, 2-IL-99-5A/AB.
- SYSTEM B BACKUP SCRAM VALVE, 2-IL-99-5A/CD.
- Scram Discharge Volume vent and drain valves indicate open.
- Points SOE033 and SOE035 on ICS computer or on the First Out Printer reads "NOTTRIP" for RPS "A" and Points SOE034 and SOE036 on ICS computer or on the First Out Printer reads "NOTTRIP" for RPS "B".

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical__ Not Critical_X

[5] **VERIFY** the green lights are illuminated on all 5 of the QLVPS located at Panel 9-14.

Standard:

VERIFIED green lights are illuminated on all 5 of the QLVPS located at Panel 9-14.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step : Critical__ Not Critical_X

[6] **RESTORE** Reactor and Refuel Zone Ventilation to normal operation. REFER TO 2-AOI-64-2D, Group 6 Ventilation System Isolation.

[7] **RESTORE** Standby Gas Treatment System to standby readiness. REFER TO 0-OI-65, Section 7.0.

Standard:

N/A due to que that another operator will perform steps 6 and 7.

SAT__ UNSAT__ N/A__ COMMENTS: _____

CUE: Another operator is performing steps 6 and 7.

Performance Step : Critical___ Not Critical_X

[11] At Panel 2-9-4, **RESTORE** Drywell Floor and Equipment Drain Systems to normal operation as follows:

[11.1] **NOTIFY** Radwaste Operator that Drywell Equipment and Floor Drain Sump isolation valves are being reopened.

Standard:

NOTIFIED Radwaste Operator Drywell Equipment and Floor Drain Sump isolation valve are being reopened.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: [SIMULATOR INSTRUCTOR WHEN RADWASTE OPERATOR CONTACTED] DRYWELL EQUIPMENT AND FLOOR DRAIN SUMP ISOLATION VALVES BEING OPENED.

Performance Step : Critical X Not Critical

[12] At Panel 2-9-2, **RESTORE** Radiation Monitoring System as follows:

- [12.1] **DEPRESS** RESET pushbutton.
- [12.2] **VERIFY OPEN** the associated valve (listed below).
- [12.3] **RELEASE** pushbutton.
 - UPPER INBD SUPPLY ISOL VALVE RESET, 2-HS-90-254A-A (opens FCV-90-254A).
 - LOWER INBD SUPPLY ISOL VALVE RESET, 2-HS-90-254B-A (opens FCV-90-254B).
 - OUTBD RETURN ISOL VALVE RESET, 2-HS-90-257A-A (opens FCV-90-257A).
 - OUTBD SUPPLY ISOL VALVE RESET, 2-HS-90-255A (opens FCV-90-255).
 - INBD RETURN ISOL VALVE RESET, 2-HS-90-257B-A (opens FCV-90-257B).

Standard:

For each of the following, **DEPRESSED** RESET pushbutton (Critical) and **VERIFIED** illuminated RED valve position indicating lamp for each associated valve (Not Critical).

	<u>PUSHBUTTON</u>	<u>VALVE</u>
•	2-HS-90-254A-A	FCV-90-254A
•	2-HS-90-254B-A	FCV-90-254B
•	2-HS-90-257A-A	FCV-90-257A
•	2-HS-90-255A	FCV-90-255
•	2-HS-90-257B-A	FCV-90-257

SAT UNSAT N/A COMMENTS: _____

Performance Step : Critical___ Not Critical_X

[13] At Panel 2-9-54, **RESTORE** H2/O2 Analyzer A as follows:

[13.1] **DEPRESS** ANALYZER 2A ISOLATION RESET pushbutton, 2-
HS-76-91.

[13.2] **IF** H2/O2 Analyzer 2A was in service, **THEN**

 PULL and **RELEASE** ANALYZER 2A SUPP CHBR/DW SELECT,
2-HS-76-49 (Otherwise N/A).

[14] At Panel 2-9-55, **RESTORE** H2/O2 Analyzer B as follows:

[14.1] **DEPRESS** ANALYZER 2B ISOLATION RESET pushbutton, 2-
HS-76-92.

[14.2] **IF** H2/O2 Analyzer 2B was in service, **THEN**

 PULL and **RELEASE** ANALYZER 2B SUPP CHBR/DW SEL, 2-
HS-76-59 (Otherwise N/A).

Standard:

Depressed ANALYZER 2A ISOLATION RESET pushbutton and ANALYZER 2B
ISOLATION RESET pushbutton

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: THE H2/O2 ANALYZERS WERE NOT IN SERVICE.

Performance Step : Critical___ Not Critical_X

[15] At Panel 2-9-55, **VERIFY** PATH A VENT FLOW CONT, 2-FIC-84-20,
in AUTO with setpoint at 100 scfm.

Standard:

VERIFIED 2-FIC-84-20 in AUTO and set for 100 SCFM.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical X Not Critical _____

[21] At Panel 2-9-14, **VERIFY** APRM and RBM Memory lights **RESET** (If current plant conditions allow).

Standard:

DEPRESSED TRIP RESET push-buttons for all Channel A APRM status indicating lamps and the RBM Channel A status indicating lamps.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step : Critical X Not Critical _____

[22] At Panel 2-9-13, **DEPRESS** TIP ISOLATION RESET pushbutton.

Standard:

DEPRESSED 2-HS-94-7D-2S.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

END OF TASK

STOP TIME: _____

GENERIC WORK PRACTICES

Performance Step: Critical__ Not Critical X

PERFORMER demonstrated the use of SELF CHECKING during this JPM.

Standard:

PERFORMER verified applicable components by utilizing SELF CHECKING in accordance with plant standards.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical__ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION in accordance with plant standards.

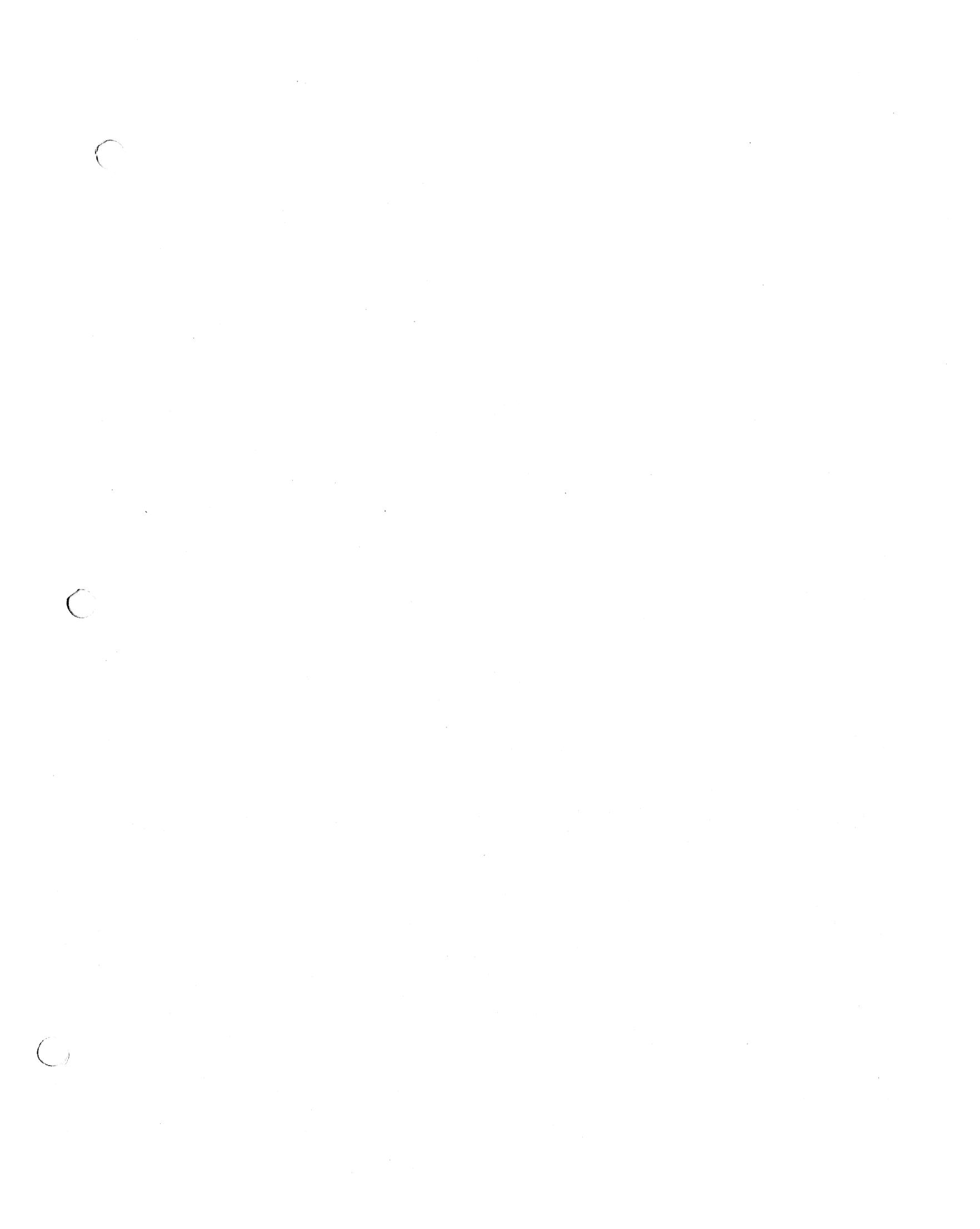
SAT__ UNSAT__ N/A__ COMMENTS: _____

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 has had a loss of power to RPS Bus 'A'. Power has been restored to the bus.

INITIATING CUES: The Unit 2 UNIT SUPERVISOR has the SHIFT MANAGER'S permission to restore systems to normal and directs you to restore affected systems to normal as directed by 2-OI-99, Section 8.3.



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 has had a loss of power to RPS Bus 'A'. Power has been restored to the bus.

INITIATING CUES : The Unit 2 UNIT SUPERVISOR has the SHIFT MANAGER'S permission to restore systems to normal and directs you to restore affected systems to normal as directed by 2-OI-99, Section 8.3.

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8.3 Restoration to Normal Following RPS Bus Power Loss or Transfer

NOTES

- 1) This section provides instructions for resetting the various system isolations and reopening affected valves to allow those systems to be restored to normal operation in accordance with their respective operating instructions.
- 2) The following steps are performed at Panel 2-9-5 unless otherwise noted.
- 3) When RPS Bus power is lost to some scram discharge volume level switches, their RTD heater is de-energized. Following the restoration of power, a time delay, dependent on how long the level switch was de-energized, prevents resetting the half scram signal. This may take up to 37 seconds after RPS power is restored. Precaution 3.00 can be referred to for more information on these level switches.

- [1] **OBTAIN** Shift Manager's permission to restore to normal.
- [2] **MOMENTARILY PLACE SCRAM RESET**, 2-HS-99-5A-S5, as follows:
- [2.1] RESET FIRST position.
- [2.2] RESET SECOND position.
- [2.3] NORMAL position.
- [3] **CHECK** the following conditions:
- A. All eight SCRAM SOLENOID GROUP A/B LOGIC RESET lights illuminated.
- B. The following four lights illuminated:
- SYSTEM A BACKUP SCRAM VALVE, 2-IL-99-5A/AB.
 - SYSTEM B BACKUP SCRAM VALVE, 2-IL-99-5A/CD.
- C. Scram Discharge Volume vent and drain valves indicate open.

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8.3 Restoration to Normal Following RPS Bus Power Loss or Transfer (continued)

D. Points SOE033 and SOE035 on ICS computer or on the First Out Printer reads "NOTTRIP" for RPS "A".

E. Points SOE034 and SOE036 on ICS computer or on the First Out Printer reads "NOTTRIP" for RPS "B".

[4] At Panel 2-9-4, **RESET** PCIS trip logic as follows:

[4.1] **MOMENTARILY PLACE** PCIS DIV I RESET, 2-HS-64-16A-S32, to left and right RESET positions.

[4.2] **CHECK** the following red lights illuminated:

• MSIV GROUP A1.

• MSIV GROUP B1.

[4.3] **MOMENTARILY PLACE** PCIS DIV II RESET, 2-HS-64-16A-S33, to left and right RESET positions.

[4.4] **CHECK** the following red lights illuminated:

• MSIV GROUP A2.

• MSIV GROUP B2.

NOTE

Steps 8.3[5] through 8.3[22] can be performed in any order.

[5] **VERIFY** the green lights are illuminated on all 5 of the QLVPS located at Panel 9-14.

[6] **RESTORE** Reactor and Refuel Zone Ventilation to normal operation. REFER TO 2-AOI-64-2D, Group 6 Ventilation System Isolation.

[7] **RESTORE** Standby Gas Treatment System to standby readiness. REFER TO 0-OI-65, Section 7.0.

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8.3 Restoration to Normal Following RPS Bus Power Loss or Transfer (continued)

- [8] At Panel 2-9-3, **PLACE** PSC head tank pumps in service as follows:
- **PLACE** PSC PUMP SUCTION INBD ISOL VALVE, 2-HS-75-57A, in AUTO After OPEN.
 - **PLACE** PSC PUMP SUCTION OUTBD ISOL VALVE, 2-HS-75-58A, in AUTO After OPEN.
- [9] **IF** RHR System was in Shutdown Cooling, **THEN**
- RESTORE** RHR System. REFER TO 2-AOI-74-1. (N/A if Section 8.7.3[13] or 8.7.3 performed).

NOTE

2-FCV-64-139 and 2-FCV-64-140 opens and closes automatically when the Drywell DP Compressor starts and stops.

- [10] At Panel 2-9-3, **RESTORE** Drywell DP Compressor to automatic operation as follows:
- [10.1] **DEPRESS** DRYWELL DP COMP SUCTION VLV RESET pushbutton, 2-HS-64-139A.
 - [10.2] **DEPRESS** DRYWELL DP COMP DISCH VLV RESET pushbutton, 2-HS-64-140A.
 - [10.3] **VERIFY OPEN** DRYWELL INBD ISOLATION VLV using 2-HS-64-31.
 - [10.4] **VERIFY OPEN** SUPPR CHBR INBD ISOLATION VLV using 2-HS-64-34.

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8.3 Restoration to Normal Following RPS Bus Power Loss or Transfer (continued)

[11] At Panel 2-9-4, **RESTORE** Drywell Floor and Equipment Drain Systems to normal operation as follows:

- [11.1] **NOTIFY** Radwaste Operator that Drywell Equipment and Floor Drain Sump isolation valves are being reopened.
- [11.2] **PLACE** DW EQPT DRAIN INBD ISOL VALVE, 2-HS-77-15A, in AUTO After OPEN.
- [11.3] **PLACE** DW EQPT DRAIN OUTBD ISOL VALVE, 2-HS-77-15B, in AUTO After OPEN.
- [11.4] **PLACE** DW FLOOR DRAIN INBD ISOL VALVE, 2-HS-77-2A, in AUTO After OPEN.
- [11.5] **PLACE** DW FLOOR DRAIN OUTBD ISOL VALVE, 2-HS-77-2B, in AUTO After OPEN.

[12] At Panel 2-9-2, **RESTORE** Radiation Monitoring System as follows:

- [12.1] **DEPRESS** RESET pushbutton.
- [12.2] **VERIFY OPEN** the associated valve (listed below).
- [12.3] **RELEASE** pushbutton.
 - **UPPER INBD SUPPLY ISOL VALVE RESET**, 2-HS-90-254A-A (opens FCV-90-254A).
 - **LOWER INBD SUPPLY ISOL VALVE RESET**, 2-HS-90-254B-A (opens FCV-90-254B).
 - **OUTBD RETURN ISOL VALVE RESET**, 2-HS-90-257A-A (opens FCV-90-257A).
 - **OUTBD SUPPLY ISOL VALVE RESET**, 2-HS-90-255A (opens FCV-90-255).
 - **INBD RETURN ISOL VALVE RESET**, 2-HS-90-257B-A (opens FCV-90-257B).

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8.3 Restoration to Normal Following RPS Bus Power Loss or Transfer (continued)

- [13] At Panel 2-9-54, **RESTORE** H2/O2 Analyzer A as follows:
- [13.1] **DEPRESS** ANALYZER 2A ISOLATION RESET pushbutton, 2-HS-76-91.
 - [13.2] **IF** H2/O2 Analyzer 2A was in service, **THEN**

PULL and **RELEASE** ANALYZER 2A SUPP CHBR/DW SELECT, 2-HS-76-49 (Otherwise N/A).
- [14] At Panel 2-9-55, **RESTORE** H2/O2 Analyzer B as follows:
- [14.1] **DEPRESS** ANALYZER 2B ISOLATION RESET pushbutton, 2-HS-76-92.
 - [14.2] **IF** H2/O2 Analyzer 2B was in service, **THEN**

PULL and **RELEASE** ANALYZER 2B SUPP CHBR/DW SEL, 2-HS-76-59 (Otherwise N/A).
- [15] At Panel 2-9-55, **VERIFY** PATH A VENT FLOW CONT, 2-FIC-84-20, in AUTO with setpoint at 100 scfm.
- [16] **RESTORE** Reactor Water Cleanup System to normal operation. REFER TO 2-OI-69, Section 5.0. (N/A if Section 8.6 performed).
- [17] **RESTORE** Control Bay Emergency Pressurization System to standby readiness. REFER TO 0-OI-31, Section 7.0.
- [18] **RESTORE** Containment Inerting System to normal. REFER TO 2-OI-76, Section 5.0.
- [19] At Panels 2-9-10 and 2-9-11, **RESTORE** Radiation Monitoring System as follows:
- [19.1] **DEPRESS** applicable RESET pushbuttons.
 - [19.2] **RESTORE** Radiation Monitoring System to normal. REFER TO 2-OI-90, Section 5.0.
- [20] **RESTORE** Main Steam System to normal. REFER TO 2-OI-1, Section 5.0.

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8.3 Restoration to Normal Following RPS Bus Power Loss or Transfer (continued)

- [21] At Panel 2-9-14, **VERIFY** APRM and RBM Memory lights **RESET** (If current plant conditions allow).
- [22] At Panel 2-9-13, **DEPRESS** TIP ISOLATION RESET pushbutton.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

U2 Sim "D" RO
U2 Sim "D" SRO

JPM NUMBER: 190

TITLE: RESPOND TO OFF-GAS POST-TREATMENT RADIATION
HI-HI-HI

TASK NUMBER: U-066-AB-02

SUBMITTED BY:  DATE: 2/7/08

VALIDATED BY:  DATE: 2/7/08

APPROVED:  DATE: 2/7/08
TRAINING

PLANT CONCURRENCE:  DATE: 2.7.08
OPERATIONS

* Examination JPMS Require Operations Training Manager or Designee Approval and Plant Concurrence

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	03/30/06	ALL	New
1	01/23/2008	ALL	Updated to new revision

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ DATE: _____

RO _____ SRO _____

JPM NUMBER: 190

TASK NUMBER: U-066-AB-02

TASK TITLE: RESPOND TO OFF-GAS POST-TREATMENT RADIATION
HI-HI-HI

K/A NUMBER: 271000K4.08 K/A RATING: RO 3.1 SRO: 3.3

TASK STANDARD: RESPOND TO OFF-GAS POST-TREATMENT RADIATION
HI-HI-HI PER 2-AOI-66-2.

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-AOI-66-2 REV 020

VALIDATION TIME: _____ CONTROL ROOM: 12:00 LOCAL: _____

MAX. TIME ALLOWED: _____ (Completed for Time Critical JPMS only)

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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 at 100% power.

INITIATING CUES: The Unit Supervisor directs you to respond to a OFF-GAS POST-TREATMENT RADIATION HI-HI-HI annunciator.

START TIME _____

Performance Step: Critical___ Not Critical_X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required
AOI.

Standard:

IDENTIFIED OR OBTAINED copy of 2-AOI-66-2. CANIDATE MAY GO TO
ARP 4C WINDOW 35 FIRST.

SAT___ UNSAT___ N/A___ COMMENTS: _____

**INSTRUCTOR NOTE: CANIDATE MAY GO TO ARP 4C WINDOW 35 AND
MAY VERIFY 2-FCV-66-28 CLOSED FROM THE ARP.**

Performance Step : Critical___ Not Critical X

4.2 Subsequent Actions

[1] **IF OFFGAS SYSTEM ISOLATION VALVE, 2-FCV-066-0028 has been mechanically restrained open due to plant conditions THEN**

DISENGAGE 2-FCV-066-0028 mechanical restraint by rotating the restraining handwheel fully in the counterclockwise direction, locally at the Stack. (Otherwise N/A)

Standard:

Not Applicable.

SAT___ UNSAT___ N/A___ COMMENTS: _____

CUE: 2-FCV-066-0028 HAS NOT BEEN MECHANICALLY RESTRAINED.

Performance Step : Critical__ Not Critical X

[2] **VERIFY CLOSED** OFFGAS SYSTEM ISOLATION VALVE,
2-FCV-66-28 on Panel 2-9-53 or locally.

Standard:

PERFORMER verified that 2-FCV-66-28 is closed. (May have
already verified valve closed from the ARP).

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical__ Not Critical X

[3] **MONITOR** area radiation levels at Panel 2-9-11.

Standard:

PERFORMER MONITORED radiation levels at Panel 2-9-11.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical___ Not Critical X

[4] REFER to EPIP-1 for emergency classification level and response.

CUE: THE SHIFT MANAGER IS IMPLEMENTING THE EPIP-1 CLASSIFICATION.

Standard:

PERFORMER continued to the next step.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[5] MONITOR the following parameters:

- A MAIN STEAM LINE RADIATION, 2-RR-90-135,
Panel 2-9-2.
- B OFF-GAS PRETREATMENT RADIATION, 2-RR-90-
157, Panel 2-9-2.
- C OFF-GAS POST-TREATMENT RADIATION, 2-RR-
90-265, Panel 2-9-2.
- D STACK GAS RADIATION, 0-RR-90-147, Unit 1
Panel 1-9-2.

CUE: WHEN PERFORMER CALLS UNIT 1 OPERATOR FOR A READING ON
0-RR-90-147: STACK GAS RADIATION, 0-RR-90-147 IS
READING..... 6×10^6 cps

Standard:

PERFORMER MONITORED 2-RR-90-135, 157, 265, on Unit 2 Panel 9-
2 and called Unit 1 Operator for a reading on 0-RR-90-147,
Unit 1 Panel 1-9-2.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[7] **PLACE** STACK DILUTION FAN SEL control switch,
2-XS-66-29, Panel 2-9-8, in OFF.

Standard:

PERFORMER places STACK DILUTION FAN SEL control switch,
2-XS-66-29, Panel 2-9-8, in OFF.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

[8] **START** standby STACK DILUTION FAN 2B(2A) using
control switch, 2-HS-66-31A(29A), Panel 2-9-8.

Standard:

PERFORMER starts standby STACK DILUTION FAN 2B(2A) using
control switch, 2-HS-66-31A(29A), Panel 2-9-8.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

[9] **REQUEST** Unit 1 and Unit 3 operators to START
Standby Stack Dilution Air Fans.

Standard:

PERFORMER requests Unit 1 and Unit 3 operators to START
Standby Stack Dilution Air Fans.

SAT___ UNSAT___ N/A___ COMMENTS: _____

CUE: ROLE PLAY as Unit 1 and Unit 3 operators and provide
verbatim repeat-backs of requested manipulations.

CUE: The Unit Supervisor has already requested that
Chemistry perform 0-SI-4.8.B.2-8 and perform a reactor
water sample.

END OF TASK

STOP TIME _____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

PERFORMER verified applicable components by utilizing TOUCH STAAR (Standard is subjective and instructor must evaluate the need for additional training on TOUCH STAAR to maintain plant standards).

SAT___ UNSAT___ N/A___ COMMENTS:

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION (Standard is subjective and instructor must evaluate the need for additional training on 3-WAY COMMUNICATION to maintain plant standards).

SAT___ UNSAT___ N/A___ COMMENTS:

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 at 100% power.

INITIATING CUES: The Unit Supervisor directs you to respond to a OFF-GAS POST-TREATMENT RADIATION HI-HI-HI annunciator.



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 at 100% power.

INITIATING CUES: The Unit Supervisor directs you to respond to a OFF-GAS POST-TREATMENT RADIATION HI-HI-HI annunciator.



Browns Ferry Nuclear Plant

Unit 2

Abnormal Operating Instruction

2-AOI-66-2

Offgas Post-Treatment Radiation HI-HI-HI

Revision 0020

Quality Related

Level of Use: Continuous Use

Effective Date: 03-27-2007

Responsible Organization: OPS, Operations

Prepared By: Ricky L. Eakin

Approved By: John T. Kulisek

BFN Unit 2	Offgas Post-Treatment Radiation HI-HI- HI	2-AOI-66-2 Rev. 0020 Page 3 of 9
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BFN Unit 2	Offgas Post-Treatment Radiation HI-HI- HI	2-AOI-66-2 Rev. 0020 Page 4 of 9
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1.0 PURPOSE

This abnormal operating instruction provides symptoms, automatic actions and operator actions for a High-High-High radiation condition in the Offgas System.

2.0 SYMPTOMS

A. Annunciators in alarm will include, but are NOT limited to, the following:

1. OG POST TRTMT RADIATION HIGH (2-XA-55-4C, Window 33).
2. OG POST TRTMT RADIATION HIGH-HIGH (2-XA-55-4C, Window 34).
3. OG POST TRTMT RAD MONITOR HI-HI-HI/INOP (2-XA-55-4C, Window 35)
4. OG PRETREATMENT RADIATION HIGH (2-XA-55-3A, Window 5).
5. STACK GAS RADIATION HIGH (2-XA-55-3A, Window 13).
6. STACK GAS RADIATION HIGH-HIGH (2-XA-55-3A, Window 6).
7. OG AVG ANNUAL RELEASE LIMIT EXCEEDED (2-XA-55-4C, Window 27).
8. OFFGAS ISOLATION VALVE CLOSED (2-XA-55-7A, Window 4).

B. Increased activity on OFFGAS PRETREATMENT RADIATION recorder, 2-RR-90-157, Panel 2-9-2.

C. Increased activity on OFFGAS POST TREATMENT RADIATION recorder, 2-RR-90-265, Panel 2-9-2.

D. Increased activity on STACK GAS RADIATION recorder, 0-RR-90-147, located on Panel 1-9-2.

BFN Unit 2	Offgas Post-Treatment Radiation HI-HI- HI	2-AOI-66-2 Rev. 0020 Page 5 of 9
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3.0 AUTOMATIC ACTIONS

- A. If the OFFGAS TREATMENT SELECT handswitch, 2-XS-66-113, Panel 9-53, is in AUTO when High radiation condition exists it will automatically align, or ensure alignment of, the charcoal adsorbers to the treatment mode, i.e., the charcoal inlet valve will receive an open signal and the charcoal bypass valve will receive a close signal.

- B. OFFGAS SYSTEM ISOLATION VALVE, 2-FCV-66-28, automatically closes on any combination of Off Gas Post Treatment Hi Hi Hi, downscale, or inop simultaneously in both channels of the O.G. post treatment radiation monitoring system after 5 seconds. 2-FCV-066-0028 will not perform it's design function to automatically close, when it is mechanically restrained open due to plant conditions.

BFN Unit 2	Offgas Post-Treatment Radiation HI-HI- HI	2-AOI-66-2 Rev. 0020 Page 6 of 9
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4.2 Subsequent Actions (continued)

4.0 OPERATOR ACTIONS

4.1 Immediate Actions

[1] **IF** scram has not occurred, **THEN**

PERFORM the following:

[1.1] **IF** core flow is above 60%, **THEN**

REDUCE core flow to between 50-60%.

[1.2] **MANUALLY SCRAM** the Reactor. (Reference 2-AOI-100-1).

4.2 Subsequent Actions

[1] **IF** OFFGAS SYSTEM ISOLATION VALVE, 2-FCV-066-0028 has been mechanically restrained open due to plant conditions **THEN**

DISENGAGE 2-FCV-066-0028 mechanical restraint by rotating the restraining handwheel fully in the counterclockwise direction, locally at the Stack. (Otherwise N/A)

[2] **VERIFY CLOSED** OFFGAS SYSTEM ISOLATION VALVE, 2-FCV-66-28 on Panel 3-9-53 or locally.

[3] **MONITOR** area radiation levels at Panel: 2-9-11.

[4] **REFER TO** EPIP-1 for emergency classification level and response.

[5] **MONITOR** the following parameters:

A. **MAIN STEAM LINE RADIATION**, 2-RR-90-135, Panel 2-9-2.

B. **OFFGAS PRETREATMENT RADIATION**, 2-RR-90-157, Panel 2-9-2.

C. **OFFGAS POST-TREATMENT RADIATION**, 2-RR-90-265, Panel 2-9-2.

D. **STACK GAS RADIATION**, 0-RR-90-147, Unit 1 Panel 1-9-2.

BFN Unit 2	Offgas Post-Treatment Radiation HI-HI- HI	2-AOI-66-2 Rev. 0020 Page 7 of 9
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[6] **IF** after five minutes from scram the Offgas Post Treatment activity is not less than 6×10^5 cps as indicated on 2-RR-90-265 on panel 2-9-2, **THEN**

CLOSE all Main Steam Isolation Valves and Main Steam Line Drain Valves, 2-FCV-1-55 and 2-FCV-1-56.

NOTE

Placing additional Stack Dilution Air Fans in service should keep 0-RM-90-147 and 0-RM-90-148 on scale.

[7] **PLACE** STACK DILUTION FAN SEL control switch, 2-XS-66-29, Panel 2-9-8, in OFF.

[8] **START** standby STACK DILUTION FAN 2B(2A) using control switch, 2-HS-66-31A(29A), Panel 2-9-8.

[9] **REQUEST** Unit 1 and Unit 3 operators to START standby Stack Dilution Air Fans.

[10] **REQUEST** Chemistry perform 0-SI-4.8.B.2-8, Airborne Effluent Analysis - Stack Noble Gas, to determine activity.

[11] **REQUEST** Chemistry sample reactor water for radioactivity.

BFN Unit 2	Offgas Post-Treatment Radiation HI-HI- HI	2-AOI-66-2 Rev. 0020 Page 8 of 9
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5.0 REFERENCES

5.1 Technical Specifications

Section 5.5.8, Explosive Gas and Storage Tank Radioactivity Monitoring Program.

5.2 Offsite Dose Calculation Manual

Section 1/2.2.2 Gaseous Effluents.

5.3 Final Safety Analysis Report

Section 9.5, Gaseous Radwaste System.

Section 14.6, Analysis of Design Basis Accidents.

5.4 Technical Requirements Manual

Section 3.3.9, Offgas Hydrogen Analyzer Instrumentation.

Section 3.7.2, Airborne Effluents.

5.5 Plant Instructions

0-SI-4.8.B.2-8, Airborne Effluent Analysis - Stack Noble Gas.

EPIP-1, Emergency Plan Classification Logic.

2-GOI-100-1A, Unit Startup and Power Operation.

2-AOI-100-1, Reactor Scram.

2-OI-66, Offgas System.

2-SI-4.6.B.1-4, Reactor Coolant Chemistry.

OPDP-8, Limiting Conditions For Operation Tracking.

BFN Unit 2	Offgas Post-Treatment Radiation HI-HI- HI	2-AOI-66-2 Rev. 0020 Page 9 of 9
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5.6 Plant Drawings

2-47E610-90-2, Mechanical Control Diagram Radiation Monitoring System.

2-47E610-66-1, Mechanical Control Diagram Offgas System.

45E614-2, Wiring Diagrams 120V AC/250V DC VALVES & MISC. Schematic Diagram.

45E620-3, Wiring Diagrams Annunciator System Key Diagram.

729E814 series, Process Radiation Mon Sys.

2-115D6410RE-3, Off Gas System Elementary Drawing

6.0 ILLUSTRATIONS/ATTACHMENTS

None

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

U3 Sim "E" RO
U3 Sim "E" SRO

JPM NUMBER: 3-136F
TITLE: RESPOND TO STUCK OPEN SRV
TASK NUMBER: U-001-AB-01

SUBMITTED BY:  DATE: 2/7/08
VALIDATED BY:  DATE: 2/7/08
APPROVED:  DATE: 2/7/08
TRAINING
PLANT CONCURRENCE:  DATE: 2-7-08
OPERATIONS

* Examination JPMS Require Operations Training Manager or Designee Approval and Plant Concurrence

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	1/4/2008	ALL	Modified from Unit-2

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 3-136F

TASK NUMBER: U-001-AB-01

TASK TITLE: RESPOND TO MAIN STEAM RELIEF VALVE STUCK OPEN

K/A NUMBER: 239002A2.03 K/A RATING: RO 4.1 SRO: 4.2

TASK STANDARD: PERFORM CONTROL ROOM OPERATIONS NECESSARY TO
RESPOND TO A STUCK OPEN MSRVS AS DIRECTED BY 3-AOI-
1-1

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 3-AOI-1-1, REV 8

VALIDATION TIME: CONTROL ROOM: 6:00 LOCAL: _____

MAX. TIME ALLOWED: _____ (Completed for Time Critical JPMS only)

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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 an Operator. Unit 3 is at 100% power.
- INITIATING CUES:** You have the shift.

START TIME: _____

Performance Step : Critical___ Not Critical_X

IDENTIFY/OBTAIN copy of required AOI.

Standard:

OBTAINED copy of 3-AOI-1-1.

SAT___ UNSAT___ N/A___ COMMENTS: _____

4.0 OPERATOR ACTION

4.1 Immediate Action

Performance Step : Critical_X Not Critical___

[1] IDENTIFY stuck open relief valve by OBSERVING following:

- SRV TAILPIPE FLOW MONITOR 3-FMT-1-4 on Panel 3-9-3,
OR
- MSRV DISCHARGE TAILPIPE TEMPERATURE recorder, 3-TR-1-1 on Panel 3-9-47.

Standard:

IDENTIFIED MSRV 1-19 OPEN as indicated on 3-FMT-1-4 SRV Tailpipe Flow Monitor on Panel 3-9-3 or elevated tailpipe temperature as indicated on 3-TR-1-1, Panel 3-9-47.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[2] **WHILE OBSERVING** the indications for the affected relief valve on the acoustic monitor;

CYCLE the affected relief valve control switch several ties as required

- CLOSE TO OPEN TO CLOSE positions

Standard:

PLACED 3-HS-1-19 in the CLOSE-OPEN-CLOSE position several times. **DETERMINED** valve DID NOT close as indicated by MSRV TAILPIPE FLOW MONITOR or generator Mwe indicating no increase in power.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical X Not Critical___

[3] **If All SRVs are closed, THEN**

CONTINUE at step 4.2.3 (Otherwise N/A)

Standard:

Verified that the SRV did not close and continued in the procedure at step 4.2.1

SAT___ UNSAT___ N/A___ COMMENTS: _____

4.2 Subsequent Action

4.2.1 Attempt to close valve from Panel 9-3

Performance Step : Critical___ Not Critical X

[1] **PLACE** the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the off position.

Standard:

PLACED the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the off position and verifies the power is off.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[2] **PLACE** the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the ON position.

Standard:

PLACED the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the ON Position and verifies SRV 1-19 did not close.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[3] **IF** all SRV'S are CLOSED, **THEN**
CONTINUE at Step 4.2.3. (Otherwise N/A)

Standard:

VERIFIES SRV 1-19 did not close and proceeds to step [4]

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

[4] **PLACE** MSRV AUTO ACTUATION LOGIC INHIBIT, 3-XS-1-202 in
INHIBIT:

Standard:

PLACED MSRV AUTO ACTUATION LOGIC INHIBIT, 3-XS-1-202 in
INHIBIT.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

[5] **IF** relief valve closes, **THEN**

OPEN breaker or **PULL** fuses as necessary using attachment 1 (UNIT 3 SRV Solenoid Power Breaker/Fuse Table).

Standard:

VERIFIES SRV 1-19 did not close and does not open the breaker or pull fuses

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[6] **PLACE** MSRV AUTO ACTUATION LOGIC INHIBIT, 3-XS-1-202 in AUTO:

Standard:

PLACED MSRV AUTO ACTUATION LOGIC INHIBIT, 3-XS-1-202 in AUTO:

SAT___ UNSAT___ N/A___ COMMENTS: _____

NOTES

- 1) Only the appropriate sections for the stuck open relief valve is required to be performed.
- 2) The ADS valves that have more than one power supply will AUTO TRANSFER on a loss of power, and are NORMAL SEEKING.
- 3) ADS Relief valves with hand-switches on Panel 25-32 are listed below and should be operated from that location first.
- 4) When opening breakers and pulling fuses, opening the breakers is the preferred method when time permits. However, the breakers with multiple locations will require opening each breaker to de-energize the control circuit. In this case, pulling the fuses from Panel 25-32 may be quicker than opening the breakers.

Performance Step : Critical ___ Not Critical X

[7] IF the SRV valve did not close, THEN

PERFORM the appropriate section from table below.

RELIEF VALVE	STEP NUMBER	Switch Location	Breaker Location	Fuse Location
SRV 1-4	Step 4.2.2[7]		3A 250 RMOV Bd	Panel 25-32
SRV 1-5	Step 4.2.2[1]	Panel 25-32	Multiple	Panel 25-32
SRV 1-18	Step 4.2.2[5]		3B 250 RMOV Bd	3-LPNL-025-0658, (EI 593' 3B Electric Board Room)
SRV 1-19	Step 4.2.2[8]		3B 250 RMOV Bd	3-LPNL-025-0658, (EI 593' 3B Electric Board Room)
SRV 1-22	Step 4.2.2[2]	Panel 25-32	Multiple	Panel 25-32
SRV 1-23	Step 4.2.2[8]		3C 250 RMOV Bd	Panel 25-32
SRV 1-30	Step 4.2.2[9]		3A 250 RMOV Bd	Panel 25-32
SRV 1-31	Step 4.2.2[10]		3B 250 RMOV Bd	3-LPNL-025-0658, (EI 593' 3B Electric Board Room)
SRV 1-34	Step 4.2.2[3]	Panel 25-32	Multiple	Panel 25-32
SRV 1-41	Step 4.2.2[4]	Panel 25-32	Multiple	Panel 25-32
SRV 1-42	Step 4.2.2[11]		3B 250 RMOV Bd	Panel 25-32
SRV 1-179	Step 4.2.2[12]		3B 250 RMOV Bd	3-LPNL-025-0658, (EI 593' 3B Electric Board Room)
SRV 1-180	Step 4.2.2[13]		3A 250 RMOV Bd	Panel 25-32

Standard:

Verifies SRV 1-19 does not go closed and continues at step 4.2.2[6] (from the table above).

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

CUE: [WHEN THE AUO/US IS DISPATCHED] THE SIMULATOR INSTRUCTOR SHOULD WAIT APPROXIMATELY ONE MINUTE AND THEN bat 1-19off TO REMOVE POWER FROM PCV-1-19.

PHONE THE PERFORMER AND NOTIFY HIM/HER THAT POWER HAS BEEN REMOVED FROM 3-PCV-1-19.

Performance Step : Critical X Not Critical

[6.2] IF the valve does NOT close, THEN

CLOSE breaker or REINSTALL fuses removed in Step 4.2.2[6.1].

[6.3] CONTINUE at Step 4.2.3.

Standard:

VERIFIES SRV 1-19 CLOSED AND HAS AUO/US LEAVE THE BREAKER OPEN, THEN CONTINUES ON TO STEP 4.2.3

SAT UNSAT N/A COMMENTS: _____

Performance Step : Critical___ Not Critical_X

4.2.3 Other Actions and Documentation

- [1] IF ANY EOI entry condition is met, THEN
ENTER the appropriate EOI(s).

- [2] REFER TO Technical Specifications Sections 3.5.1 and
3.4.3 for Automatic Depressurization System and relief
valve operability requirements.

Standard:

Examinee monitors for EOI entry conditions and notifies Unit Supervisor to review Tech Specs.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: THE UNIT SUPERVISOR IS ADDRESSING TECH SPECS.

Performance Step : Critical___ Not Critical_X

4.2.3 **Other Actions and Documentation**

[3] **INITIATE** suppression pool cooling as necessary to
 Maintain suppression pool temperature less than 95⁰F.

Standard:

Examinee addresses placing suppression pool cooling in service.

SAT___ UNSAT___ N/A ___ COMMENTS: _____

**CUE: ANOTHER OPERATOR IS PLACING SUPPRESSION POOL COOLING
IN SERVICE. THAT WILL BE ALL FOR NOW.**

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

PERFORMER verified applicable components by utilizing TOUCH STAAR (Standard is subjective and instructor must evaluate the need for additional training on TOUCH STAAR to maintain plant standards).

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION (Standard is subjective and instructor must evaluate the need for additional training on 3-WAY COMMUNICATION to maintain plant standards).

SAT___ UNSAT___ N/A___ COMMENTS_____

END OF TASK

STOP TIME_____

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 an Operator. Unit 3 is at 100% power.

INITIATING CUES: You have the shift.



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 an Operator. Unit 3 is at 100% power.

INITIATING CUES: You have the shift.



Browns Ferry Nuclear Plant

Unit 3

Abnormal Operating Instruction

3-AOI-1-1

Relief Valve Stuck Open

Revision 0008

Quality Related

Level of Use: Continuous Use

Effective Date: 12-19-2005

Responsible Organization: OPS, Operations

Prepared By: Keith Smith

Approved By: Jeffery A. Kimberlin

BFN Unit 3	Relief Valve Stuck Open	3-AOI-1-1 Rev. 0008 Page 2 of 29
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Current Revision Description

Pages Affected: All

Type of Change: XP Conversion

Tracking Number: 9

PCR's:

PER's:

This procedure was converted from Word 95 to Word 2002 (XP) using Rev 7.

Along with the conversion the following changes were made:

Separated the supplementary steps into individual valves when performing outside the control room. Identified the breakers and fuses for each valve and made them into steps for the associated valves.

Added table showing which step addresses each SRV.

Formatted the procedure to be continuous use and removed the steps that referred to the tech spec after each action item.

Added step 4.2.1[7] to reference the appropriate sections.

Added to note to clarify that fuses may be used for time requirements due to the multiple breakers that may have to be operated or locations of the boards.

BFN Unit 3	Relief Valve Stuck Open	3-AOI-1-1 Rev. 0008 Page 3 of 29
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1.0 PURPOSE

This abnormal operating instruction provides symptoms, automatic action and operator action for a stuck open relief valve.

2.0 SYMPTOMS

- A. Annunciator MAIN STEAM RELIEF VALVE OPEN 3-FA-1-1 (3-XA-55-3C, Window 25) is in alarm due to the SRV Tailpipe Flow monitor sensing flow.
- B. GENERATOR LOAD recorder, 3-XR-57-57, Panel 3-9-8, indication is lowering.
- C. MAIN STEAM/TURBINE STEAM FLOW, flow recorder 3-FR-46-5, Panel 3-9-5, indication is lowering.
- D. SUPPRESSION POOL WATER TEMPERATURE recorder, 3-TR-64-161 and SUPPRESSION POOL WATER TEMPERATURE recorder, 3-TR-64-162, Panel 3-9-3, indication is rising.

3.0 AUTOMATIC ACTION

None

BFN Unit 3	Relief Valve Stuck Open	3-AOI-1-1 Rev. 0008 Page 4 of 29
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4.0 OPERATOR ACTION

4.1 Immediate Action

[1] **IDENTIFY** stuck open relief valve by

OBSERVING the following:

- SRV TAILPIPE FLOW MONITOR, 3-FMT-1-4, on Panel 3-9-3,

OR

- MSRV DISCHARGE TAILPIPE TEMPERATURE, 3-TR-1-1 on Panel 3-9-47.

[2] **WHILE OBSERVING** the indications for the affected Relief valve on the Acoustic Monitor;

CYCLE the affected relief valve control switch several times as required:

- CLOSE to OPEN to CLOSE positions

[3] **IF** all SRVs are CLOSED, **THEN**

CONTINUE at Step 4.2.3. (Otherwise N/A)

BFN Unit 3	Relief Valve Stuck Open	3-AOI-1-1 Rev. 0008 Page 5 of 29
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<p>NOTE</p> <p>The SRV TAILPIPE FLOW MONITOR may seal-in an OPEN position indication.</p>
--

4.2 Subsequent Action

4.2.1 Attempt to close valve from Panel 9-3:

- [1] **PLACE** the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the OFF position.
- [2] **PLACE** the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the ON position.
- [3] **IF** all SRVs are CLOSED, **THEN**

CONTINUE at Step 4.2.3. (Otherwise N/A)
- [4] **PLACE** MSRV AUTO ACTUATION LOGIC INHIBIT, 3-XS-1-202 in INHIBIT:
- [5] **IF** relief valve closes, **THEN**

OPEN breaker or **PULL** fuses as necessary using Attachment 1 (Unit 3 SRV Solenoid Power Breaker/Fuse Table).
- [6] **PLACE** MSRV AUTO ACTUATION LOGIC INHIBIT 3-XS-1-202, in AUTO.

BFN Unit 3	Relief Valve Stuck Open	3-AOI-1-1 Rev. 0008 Page 6 of 29
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4.2.1 Attempt to close valve from Panel 9-3: (continued)

NOTES	
1)	Only the appropriate sections for the stuck open relief valve is required to be performed.
2)	The ADS valves that have more than one power supply will AUTO TRANSFER on a loss of power, and are NORMAL SEEKING.
3)	ADS Relief valves with hand-switches on Panel 25-32 are listed below and should be operated from that location first.
4)	When opening breakers and pulling fuses, opening the breakers is the preferred method when time permits. However, the breakers with multiple locations will require opening each breaker to de-energize the control circuit. In this case, pulling the fuses from Panel 25-32 may be quicker than opening the breakers.

[7] IF the SRV valve did not close, THEN

PERFORM the appropriate section from table below. □

RELIEF VALVE	STEP NUMBER	Switch Location	Breaker Location	Fuse Location
SRV 1-4	Step 4.2.2[7]		3A 250 RMOV Bd	Panel 25-32
SRV 1-5	Step 4.2.2[1]	Panel 25-32	Multiple	Panel 25-32
SRV 1-18	Step 4.2.2[5]		3B 250 RMOV Bd	3-LPNL-925-0658, (EI 593' 3B Electric Board Room)
SRV 1-19	Step 4.2.2[6]		3B 250 RMOV Bd	3-LPNL-925-0658, (EI 593' 3B Electric Board Room)
SRV 1-22	Step 4.2.2[2]	Panel 25-32	Multiple	Panel 25-32
SRV 1-23	Step 4.2.2[8]		3C 250 RMOV Bd	Panel 25-32
SRV 1-30	Step 4.2.2[9]		3A 250 RMOV Bd	Panel 25-32
SRV 1-31	Step 4.2.2[10]		3B 250 RMOV Bd	3-LPNL-925-0658, (EI 593' 3B Electric Board Room)
SRV 1-34	Step 4.2.2[3]	Panel 25-32	Multiple	Panel 25-32
SRV 1-41	Step 4.2.2[4]	Panel 25-32	Multiple	Panel 25-32
SRV 1-42	Step 4.2.2[11]		3B 250 RMOV Bd	Panel 25-32
SRV 1-179	Step 4.2.2[12]		3B 250 RMOV Bd	3-LPNL-925-0658, (EI 593' 3B Electric Board Room)
SRV 1-180	Step 4.2.2[13]		3A 250 RMOV Bd	Panel 25-32

<p>BFN Unit 3</p>	<p>Relief Valve Stuck Open</p>	<p>3-AOI-1-1 Rev. 0008 Page 16 of 29</p>
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**4.2.2 Attempt to close valve from outside the control room:
(continued)**

<p style="text-align: center;">NOTES</p> <p>1) 3-PCV-1-19 is an ADS Valve</p> <p>2) 3-PCV-1-19 controls have been removed from Panel 25-32.</p> <p>3) Attachment 1 may be address for fuse and breaker information.</p>
--

[6] IF 3-PCV-1-19 is NOT closed, **THEN**

PERFORM the following: (Otherwise N/A this section.)

[6.1] **REMOVE** the power from 3-PCV-1-19 by performing one of the following: (Otherwise N/A):

A. **OPEN** the following breaker: (Preferred method)

- 3B 250V RMOV, Compartment 1B2

OR

B. In 3-LPNL-925-0658, (EI 593' 3B Electric Board Room, South Wall)

PULL the following fuses as necessary:

- Fuse 3-FU1-001-0019A
- Fuse 3-FU1-001-0019B

[6.2] IF the valve does **NOT** close, **THEN**

CLOSE breaker or **REINSTALL** fuses removed in Step 4.2.2[6.1].

[6.3] **CONTINUE** at Step 4.2.3.

BFN Unit 3	Relief Valve Stuck Open	3-AOI-1-1 Rev. 0008 Page 24 of 29
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4.2.3 Other Actions and Documentation

- [1] **IF ANY** EOI entry condition is met, **THEN**
ENTER the appropriate EOI(s).
- [2] **REFER TO** Technical Specifications Sections 3.5.1 and 3.4.3 for Automatic Depressurization System and relief valve operability requirements.
- [3] **INITIATE** suppression pool cooling as necessary to maintain suppression pool temperature less than 95°F.
- [4] **IF** the relief valve can **NOT** be closed **AND** suppression pool temperature Can **NOT** be maintained less than or equal to 95°F, **THEN**
PLACE the reactor Mode⁴ in accordance with 3-GOI-100-12A.
- [5] **DOCUMENT** actions taken and **INITIATE** Work Order for the valve.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

U3 Sim "F" RO
U3 Sim "F" SRO

JPM NUMBER: 3-116F
TITLE: PLACING STANDBY STEAM JET AIR EJECTOR IN
OPERATION
TASK NUMBER: U-066-NO-07

SUBMITTED BY:  DATE: 2/7/08
VALIDATED BY:  DATE: 2/7/08
APPROVED:  DATE: 2/7/08
TRAINING
PLANT CONCURRENCE:  DATE: 2-7-08
OPERATIONS

* Examination JPMs Require Operations Training Manager or Designee Approval and Plant Concurrence

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	1/4/2008	ALL	Modified from Unit-2

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 3-116F

TASK NUMBER: U-066-NO-07

TASK TITLE: PLACE THE STANDBY SJAЕ IN OPERATION

K/A NUMBER: 271000A4.09 K/A RATING: RO 3.3 SRO: 3.2

TASK STANDARD: PERFORM CONTROL ROOM MANIPULATIONS REQUIRED TO PLACE THE STANDBY STEAM JET AIR EJECTOR IN OPERATION DURING POWER OPERATION

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 3-OI-66, REV 51

VALIDATION TIME: CONTROL ROOM: 7:00 LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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 an Operator. Unit 3 is at 100% power. 3A steam jet air ejector is in service in accordance with Section 5.9 of 3-OI-66. 3A steam jet air ejector is to be removed from service for maintenance and 3B steam jet air ejector is to be placed into operation. HWC is shutdown per 3-OI-4.

INITIATING CUES: Remove 3A steam jet air ejector from service and place 3B steam jet air ejector into operation.

START TIME _____

Performance Step: Critical___ Not Critical X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required procedure.

Standard:

IDENTIFIED OR OBTAINED copy of 3-OI-66.

SAT___ UNSAT___ N/A___ COMMENTS: _____

8.4 Placing Standby SJAE in Operation

NOTES

- 1) Panel 25-105 located in Unit 3 Turbine Bldg. EI 586' T12-C.
- 2) The HWC System is shutdown prior to intentional swapping of SJAEs to prevent receipt of the automatic trip of the HWC System that occurs when both SJAE DISCHARGE VALVES 3-FCV-66-14 and 18 are closed.

Performance Step : Critical___ Not Critical X

8.4.[1] REVIEW all Precaution and Limitations in Section 3.0.

Standard:

REVIEWED all Precautions and Limitations in Section 3.0.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[2] IF determined necessary by Unit Supervisor, THEN
Otherwise N/A)

BEFORE placing Standby SJAE in service on nuclear steam,
PERFORM the following:

[2.1] **NOTIFY** Radiation Protection that an RPHP exist for
the impending action to place the standby SJAE (3A
or 3B) in service. **RECORD** time Radiation Protection
notified in the NOMS Narrative Log. [BFN PER 126211]

[2.2] **VERIFY** appropriate data and signatures recorded on
Appendix A in accordance with Appendix A
Instructions [Tech Spec 5.7, SOER 01-1, BFN PER 126211]

CUE: Provide the candidate with a signed copy of Appendix A.

Standard:

None

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

8.4.[3] VERIFY the following initial conditions have been
met:

A IF HWC System is in service, THEN Otherwise NA)

SHUTDOWN HWC System. REFER TO 3-OI-4.

Standard:

None

SAT___ UNSAT___ N/A X COMMENTS: Given in initial
conditions.

Performance Step : Critical___ Not Critical_X

B SJAES are in operation. **REFER TO** Section 5.9.

Standard:

None

SAT___ UNSAT___ N/A___ X COMMENTS: Given in initial
conditions.

Performance Step : Critical___ Not Critical_X

8.4.[4] VERIFY OPEN the following valves At Panel 3-9-6,:

A. SJAЕ 3B(3A) CNDS INLET VALVE, using 3-HS-2-31A(36A) .

B. SJAЕ 3B(3A) CNDS OUTLET VALVE, using 3-HS-2-35A(41A) .

Standard:

At Panel 3-9-6, **VERIFIED** illuminated RED valve position indicating lamps above 3-HS-2-31A and 3-HS-2-35A.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

8.4.[5] **VERIFY** CONDENSATE FROM SJAE B(A) pressure, 3-PI-2-34(40), is greater than 60 psig at Panel 25-105.

Standard:

DISPATCHED/CALLED Turbine Building AUO to determine reading from 3-PI-2-34, CONDENSATE FROM SJAE B, Panel 25-105.

SAT___ UNSAT___ N/A___ COMMENTS: _____

CUE: [WHEN DISPATCHED/CALLED] 3-PI-2-34, CONDENSATE FROM SJAE B, INDICATES 90 PSIG.

Performance Step : Critical___ Not Critical_X___

8.4.[6] At Panel 25-105, **VERIFY** manual/hand loader output pressure and pressure controller setpoints are adjusted as follows:

- A. Setpoint for STEAM TO SJAE B(A) STAGE I & II, 3-PC-001-152(150) set for approximately 225 psig (dial located inside controller housing).
- B. Manual/Hand loader for STEAM TO SJAE B(A) STAGE I & II, 3-PC-001-152(150) set for approximately 8 psig.
- C. Setpoint for STEAM TO SJAE B(A) STAGE III, 3-PC-001-167(166) set for approximately 225 psig (dial located inside controller housing).
- D. Manual/hand loader for STEAM TO SJAE B(A) STAGE III, 3-PC-001-167(166), set for approximately 8 psig.

CUE: [WHEN DISPATCHED/CALLED], THE SETPOINT FOR STEAM TO SJAE B STAGES I AND II, 3-PC-001-152 IS SET FOR 225 PSIG. (INSIDE CONTROLLER HOUSING).

MANUAL HAND LOADER FOR SJAE B STAGE I AND II 3PC-001-152 IS SET AT 8 PSIG.

SETPOINT FOR STEAM TO SJAE B, STAGE III, 3-PC-001-167 IS SET FOR 225 PSIG. (INSIDE CONTROLLER HOUSING)

MANUAL HAND LOADER FOR STEAM TO SJAE B, STAGE III, 3-PC-001-167 IS SET FOR 8 PSIG.

Standard:

DISPATCH US/AUO to perform/verify steps 8.4.[6].A through 8.4.[6].D

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical X Not Critical _____

8.4. [9] **PLACE** the STEAM TO SJAE 3A(3B) handswitch, 3-HS-1-155A(156A), in CLOSE at panel 3-9-7.

Standard:

VERIFIED/PLACED 3-HS-1-155A in CLOSED position.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step : Critical X Not Critical _____

8.4. [10] **PLACE** the SJAE 3A(3B) PRESS CONTROLLER handswitch, 3-HS-1-150(152), in CLOSE at panel 3-9-7.

Standard:

VERIFIED/PLACED 3-HS-1-150 in CLOSED position.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step : Critical X Not Critical _____

8.4. [11] At Panel 3-9-8, **PLACE** the SJAE 3A(3B) OG OUTLET VALVE using 3-HS-66-14(18), in CLOSE.

Standard:

VERIFIED/PLACED 3-HS-66-14 in CLOSED position.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step : Critical X Not Critical _____

8.4. [12] **PLACE** in OPEN/AUTO the SJAE 3B(3A) OG OUTLET VALVE using
3-HS-66-18(14) at panel 3-9-8.

Standard:

VERIFIED/PLACED 3-HS-66-18 in the OPEN/AUTO position.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step : Critical X Not Critical _____

8.4. [13] **PLACE** the STEAM TO SJAE 3B(3A) handswitch, 3-HS-1-
156A(155A), in OPEN at panel 3-9-7,

Standard:

PLACED 3-HS-1-156A in OPEN position.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step : Critical X Not Critical _____

8.4. [14] **PLACE** the STEAM TO SJAE 3B(3A)PRESS CONTROLLER
handswitch, 3-HS-1-152(150), in OPEN at Panel 3-9-7.

Standard:

PLACED 3-HS-1-152 in the OPEN position AND RECOGNIZED THAT SJAE
B DID NOT GO INTO SERVICE—NOTIFIED US. Valve opens and then re-
closes and then will not re-open.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

NOTE

It may be necessary to return 3-HS-1-152(150) to the CLOSE position, then back to OPEN
in order to open the SJAE steam supply valves. This action resets the logic sequence.

CUE: When failure of 3B SJAE recognized, STATE as UNIT SUPERVISOR
"Place 3A SJAE back in service in accordance with 3-OI-66
Section 8.14."

NOTES

- 1) This section may be used to return either SJAE to service following a shutdown or an isolation.
- 2) Potential causes of PCV valve closure are:
 - Condensate pressure from SJAE 3A(3B) less than 60 psig, 3-PI-002-0034(0040), 3-LPNL-925-105
 - SJAE 3A(3B) CONDS INLET VALVE closed at 3-HS-2-31A(36), Panel 3-9-6
 - SJAE 3A(3B) CONDS OUTLET VALVE closed at 3-HS-2-35A(41A), Panel 3-9-6
 - STEAM TO SJAE 3B(3A) open at 3-HS-1-156A(155A), Panel 3-9-7
 - STEAM TO SJAE 3A(3B) STAGE I & II, 3-PI-001-0150(0152), Panel 25-105 is less than 155 psig (disabled for the SJAE selected by 3-HS-001-0375)
 - Loss of I&C bus A(B), power is required to be restored to return the SJAE to service
- 3) If problems are encountered while placing a SJAE in service and time permits, operation of SJAE TRAIN PERMISSIVE 3-HS-001-0375 as required during the performance of this section is allowed.

Performance Step : Critical___ Not Critical X

8.14. [1] IF determined necessary by Unit Supervisor, THEN
Otherwise N/A)

BEFORE placing Standby SJAE in service on nuclear
steam, PERFORM the following:

[1.1] NOTIFY Radiation Protection that an RPHP exist for
the impending action to place the standby SJAE (3A
or 3B) in service. RECORD time Radiation Protection
notified in the NOMS Narrative Log. [BFN PER 126211]

[1.2] VERIFY appropriate data and signatures recorded on
Appendix A in accordance with Appendix A
Instructions [Tech Spec 5.7, SOER 01-1, BFN PER 126211]

CUE: The Unit Supervisor has determined this step is not necessary

Standard:

None

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

[2] PLACE SJAE TRAIN PERMISSIVE 3-HS-001-0375 in the position for
the SJAE being placed in service. This switch will normally be
in the position of the standby SJAE.

Standard:

DIRECTS AUO to place 3-HS-001-0375 in SJAE A position.

SAT___ UNSAT___ N/A___ X COMMENTS: _____

Performance Step : Critical___ Not Critical X

[3] **VERIFY RESET** off-gas isolation using OG OUTLET/DRAIN ISOLATION VLVS, 3-HS-90-155 on Panel 3-9-8.

Standard:

VERIFY OG OUTLET/DRAIN ISOLATION VLVS, 3-HS-90-155 is reset.

SAT___ UNSAT___ N/A X COMMENTS: _____

Performance Step : Critical X Not Critical___

[4] **VERIFY OPEN** the following valves.

- SJAE 3A(3B) INLET VALVE, 3-HS-66-11(15), Panel 3-9-8
- STEAM TO SJAE 3A(3B), 3-HS-1-155A(156A), Panel 3-9-7

Standard:

OPENS 3-HS-66-11 and 3-HS-1-155A.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical Not Critical

[7] **VERIFY** the following valves open. Panel 3-9-7

- STEAM TO SJAE 3A(3B) STAGES 1,2, AND 3, 3-PCV-1-151/166 (153/167)
- SJAE 3A(3B) INTMD CONDENSER DRAIN 3-FCV-1-150(152)

Standard:

VERIFIES 3-PCV-1-151/166 and 3-FCV-1-150 open.

SAT UNSAT N/A COMMENTS: _____

Performance Step : Critical Not Critical

[8] **MONITOR** hotwell pressure as indicated on HOTWELL TEMP AND PRESS recorder, 3-XR-2-2, Panel 3-9-6.

Standard:

MONITORS HOTWELL TEMP AND PRESS recorder, 3-XR-2-2.

SAT UNSAT N/A COMMENTS: _____

Performance Step : Critical___ Not Critical_ X

[9] For the SJAE **NOT** being placed in service,

- **VERIFY CLOSED** SJAE 3B(3A) OG OUTLET VALVE, 3-HS-66-18(14),
Panel 3-9-8
- **VERIFY CLOSED** SJAE 3B(3A) PRESSURE CONTROLLER 3-HS-1-
152(150)

Standard:

VERIFIED CLOSED 3-HS-66-18 and 3-HS-1-152 in CLOSED position.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical_ X

[10] **VERIFY** SJAE TRAIN PERMISSIVE 3-HS-001-0375 in the position for
the SJAE selected for Standby operation SJAE A(SJAE B).

Standard:

DIRECTS AUO to place 3-HS-001-0375 in SJAE B position.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical _____ Not Critical X _____

[11] After stable SJAE operation has been confirmed, **REFER TO** 3-OI-4, HWC System for shut down and restart guidance if the HWC System had previously been in service. (otherwise N/A)

Standard:

End of Task.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

CUE: End of Task

Performance Step: Critical ___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

PERFORMER verified applicable components by utilizing TOUCH STAAR (Standard is subjective and instructor must evaluate the need for additional training on TOUCH STAAR to maintain plant standards).

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical ___ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION (Standard is subjective and instructor must evaluate the need for additional training on 3-WAY COMMUNICATION to maintain plant standards).

SAT ___ UNSAT ___ N/A ___ COMMENTS _____

END OF TASK

STOP TIME: _____

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 an Operator. Unit 3 is at 100% power. 3A steam jet air ejector is in service in accordance with Section 5.9 of 3-OI-66. 3A steam jet air ejector is to be removed from service for maintenance and 3B steam jet air ejector is to be placed into operation. HWC is shutdown per 3-OI-4.

INITIATING CUES: Remove 3A steam jet air ejector from service and place 3B steam jet air ejector into operation.



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 an Operator. Unit 3 is at 100% power. 3A steam jet air ejector is in service in accordance with Section 5.9 of 3-OI-66. 3A steam jet air ejector is to be removed from service for maintenance and 3B steam jet air ejector is to be placed into operation. HWC is shutdown per 3-OI-4.

INITIATING CUES : Remove 3A steam jet air ejector from service and place 3B steam jet air ejector into operation.

BFN Unit 3	Off-Gas System	3-OI-66 Rev. 0051 Page 113 of 113
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**Appendix A
(Page 2 of 2)**

Name Of Radiation Protection Person Notified: John E. Smith

Date: 02 / 28 / 2008 Time: 0530

Step# 8.4[2.1] Procedure: 3-OI-66 (if not this procedure) Rev: 51

RPHP Required by OI? (Y) (N) RPHP Required For GOI? (Y) (N)

RCI-17 Controls Necessary? (Y) (N)

Radiation Protection Supervisor Signature for Release

John E. Smith Date: 02 / 28 / 2008 Time: 0545

Comments:

Name Of Radiation Protection Person Notified: _____

Date: ___ / ___ / _____ Time: _____

Step# _____ Procedure: _____ (if not this procedure) Rev: _____

RPHP Required by OI? ___ (Y) ___ (N) RPHP Required For GOI? ___ (Y) ___ (N)

RCI-17 Controls Necessary? ___ (Y) ___ (N)

Radiation Protection Supervisor Signature for Release

_____ Date: ___ / ___ / _____ Time: _____

Comments:

FORWARD copies of completed Appendix pages to Radiation Protection Supervisor.

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8.4 Placing Standby SJAE in Operation

NOTES
<p>1) Panel 25-105 located in Unit 3 Turbine Bldg. EI 586' T12-C.</p> <p>2) The HWC system is shut down prior to intentional swapping of SJAEs to prevent receipt of the automatic trip of the HWC system that will occur when both SJAE DISCHARGE VALVES 3-FCV-66-14 and 18 are closed.</p>

- [1] **REVIEW** all Precautions and Limitations in Section 3.0.
- [2] **IF** determined necessary by Unit Supervisor, **THEN** (Otherwise N/A)
- BEFORE** placing Standby SJAE in service on nuclear steam, **PERFORM** the following:
- [2.1] **NOTIFY** Radiation Protection that an RPHP exist for the impending action to place the standby SJAE (3A or 3B) in service. **RECORD** time Radiation Protection notified in the NOMS Narrative Log. [BFN PER 126211]
- (R) _____
Initials
- [2.2] **VERIFY** appropriate data and signatures recorded on Appendix A in accordance with Appendix A Instructions [Tech Spec 5.7, SOER 01-1, BFN PER 126211]
- (R) _____
Initials
- [3] **VERIFY** the following initial conditions have been met:
- A. **IF** HWC System is in service, **THEN**
- SHUT DOWN** HWC System. **REFER TO** 3-OI-4.(otherwise N/A)
- B. SJAEs are in operation. **REFER TO** Section 5.9.

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8.4 Placing Standby SJAE in Operation (continued)

- [4] **VERIFY OPEN** the following valves at Panel 3-9-6, :
- A. SJAE 3B(3A) CNDS INLET VALVE, using 3-HS-2-31A(36A)
 - B. SJAE 3B(3A) CNDS OUTLET VALVE, using 3-HS-2-35A(41A)
- [5] **VERIFY CONDENSATE FROM SJAE B(A) pressure**, 3-PI-2-34(40), is greater than 60 psig at Panel 25-105, .
- [6] **VERIFY** manual/hand loader output pressure and pressure controller setpoints at panel 25-105, are adjusted as follows:
- A. Setpoint for STEAM TO SJAE B(A) STAGE I & II, 3-PC-001-0152(0150) set for approximately 225 psig (dial located inside controller housing).
 - B. Manual/Hand loader for STEAM TO SJAE B(A) STAGE I & II, 3-PC-001-0152(0150) set for approximately 8 psig.
 - C. Setpoint for STEAM TO SJAE B(A) STAGE III, 3-PC-001-0167(0166) set for approximately 225 psig (dial located inside controller housing).
 - D. Manual/hand loader for STEAM TO SJAE B(A) STAGE III, 3-PC-001-0167(0166), set for approximately 8 psig.
- [7] **VERIFY** both SJAE dilution steam pressure modifiers (located at the rear of panel 25-105).are adjusted to approximately mid-position
- A. MS SJAE B(A) PRESS MODIFIER, 3-XM-001-0152(0150)
 - B. MS SJAE B(A) PRESS MODIFIER, 3-XM-001-0167(0166)
- [8] **VERIFY OPEN** both SJAE Inlet Valves at panel 3-9-8, using the following:
- A. SJAE 3A INLET VALVE, 3-HS-66-11
 - B. SJAE 3B INLET VALVE, 3-HS-66-15
- [9] **PLACE** the STEAM TO SJAE 3A(3B) handswitch, 3-HS-1-155A(156A), in CLOSE at panel 3-9-7. .

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8.4 Placing Standby SJAE in Operation (continued)

- [10] **PLACE** the SJAE 3A(3B) PRESS CONTROLLER handswitch, 3-HS-1-150(152), in CLOSE at panel 3-9-7. .
- [11] At Panel 3-9-8, **PLACE** the SJAE 3A(3B) OG OUTLET VALVE using 3-HS-66-14(18) in CLOSE.
- [12] **PLACE** in OPEN/AUTO the SJAE 3B(3A) OG OUTLET VALVE using, 3-HS-66-18(14) at panel 3-9-8.
- [13] **PLACE** the STEAM TO SJAE 3B(3A) handswitch, 3-HS-1-156A(155A), in OPEN at panel 3-9-7. .
- [14] **PLACE** the STEAM TO SJAE 3B(3A)PRESS CONTROLLER handswitch, 3-HS-1-152(150), in OPEN at Panel 3-9-7. .

NOTE

It may be necessary to return 3-HS-1-152(150) to CLOSE position, then back to OPEN in order to open the SJAE steam supply valves. This will reset the logic sequence.

- [15] **ADJUST** manual/hand loaders at Panel 25-105, until dilution steam pressure is indicating approximately 190 to 220 psig on the following indications:
 - A. STEAM TO SJAE B(A) STAGE I & II, 3-PI-001-0152(0150)
 - B. STEAM TO SJAE B(A) STAGE III, 3-PI-001-0167(0166)

NOTE

It is possible in the next step to fully close the modifiers, while trying to obtain stable steam pressure. A swing of 2-3 psig is considered stable. If this occurs the indicated pressure will slowly drop to zero. Adjusting the pressure to the point where there is a swing of 2-3 psig, will indicate the modifier is **NOT** closed.

- [16] **ADJUST** the SJAE dilution steam pressure modifiers (located at the rear of panel 25-105):as necessary to obtain stable steam pressure indication on the following instruments.
 - A. SJAE B(A) PRESS MODIFIER, 3-XM-1-152(150)
 - B. SJAE B(A) PRESS MODIFIER, 3-XM-1-167(166)

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8.14 Returning a SJAE to Service

<p style="text-align: center;">NOTES</p>	
<p>1)</p>	<p>This section may be used to return either SJAE to service following a shutdown or an isolation.</p>
<p>2)</p>	<p>Potential causes of PCV valve closure are:</p> <ul style="list-style-type: none"> • Condensate pressure from SJAE 3A(3B) less than 60 psig, 3-PI-002-0034(0040), 3-LPNL-925-105 • SJAE 3A(3B) CONDS INLET VALVE closed at 3-HS-2-31A(36), Panel 3-9-6 • SJAE 3A(3B) CONDS OUTLET VALVE closed at 3-HS-2-35A(41A), Panel 3-9-6 • STEAM TO SJAE 3B(3A) open at 3-HS-1-156A(155A), Panel 3-9-7 • STEAM TO SJAE 3A(3B) STAGE I & II, 3-PI-001-0150(0152), Panel 25-105 is less than 155 psig (disabled for the SJAE selected by 3-HS-001-0375) • Loss of I&C bus A(B), power is required to be restored to return the SJAE to service
<p>3)</p>	<p>If problems are encountered while placing a SJAE in service and time permits, operation of SJAE TRAIN PERMISSIVE 3-HS-001-0375 as required during the performance of this section is allowed.</p>

[1] **IF** determined necessary by Unit Supervisor, **THEN** (Otherwise N/A)

BEFORE Standby SJAE in service on nuclear steam, **PERFORM** the following:

[1.1] **NOTIFY** Radiation Protection that an RPHP exist for the impending action to place the SJAE (3A or 3B) in service. **RECORD** time Radiation Protection notified in the NOMS Narrative Log. [BFN PER 126211]

(R) _____
Initials

[1.2] **VERIFY** appropriate data and signatures recorded on Appendix A in accordance with Appendix A Instructions [Tech Spec 5.7, SOER 01-1, BFN PER 126211]

(R) _____
Initials

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8.14 Returning a SJAE to Service (continued)

- [2] **PLACE** SJAE TRAIN PERMISSIVE 3-HS-001-0375 in the position for the SJAE being placed in service. This switch will normally be in the position of the standby SJAE.
- [3] **VERIFY RESET** off-gas isolation using OG OUTLET/DRAIN ISOLATION VLVS, 3-HS-90-155 on Panel 3-9-8.
- [4] **VERIFY OPEN** the following valves.
- SJAE 3A(3B) INLET VALVE, 3-HS-66-11(15), Panel 3-9-8
 - STEAM TO SJAE 3A(3B), 3-HS-1-155A(156A).
Panel 3-9-7
- [5] **VERIFY** in AUTO/OPEN the following valve:
- SJAE 3A(3B) OG OUTLET VALVE, 3-HS-66-14(18).
Panel 3-9-8
- [6] **PLACE** SJAE 3A(3B) PRESS CONTROLLER 3-HS-1-150(152) in CLOSE, and THEN in OPEN. Panel 3-9-7
- [7] **VERIFY** the following valves open. Panel 3-9-7
- STEAM TO SJAE 3A(3B) STAGES 1,2, AND 3,
3-PCV-1-151/166 (153/167)
 - SJAE 3A(3B) INTMD CONDENSER DRAIN
3-FCV-1-150(152)
- [8] **MONITOR** hotwell pressure as indicated on HOTWELL TEMP AND PRESS recorder, 3-XR-2-2, Panel 3-9-6.
- [9] For the SJAE **NOT** being placed in service,
- **VERIFY CLOSED** SJAE 3B(3A) OG OUTLET VALVE,
3-HS-66-18(14). Panel 3-9-8
 - **VERIFY CLOSED** SJAE 3B(3A) PRESSURE
CONTROLLER 3-HS-1-152(150)

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8.14 Returning a SJAE to Service (continued)

- [10] **VERIFY** SJAE TRAIN PERMISSIVE 3-HS-001-0375 in the position for the SJAE selected for Standby operation SJAE A(SJAE B).

- [11] After stable SJAE operation has been confirmed, **REFER TO** 3-OI-4, HWC System for shut down and restart guidance if the HWC System had previously been in service. (otherwise N/A)

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	1/4/2008	ALL	Modified from Unit-2

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 3-126F

TASK NUMBER: U-064-AB-01

TASK TITLE: RESPOND TO DRYWELL PRESSURE AND/OR TEMPERATURE
HIGH OR EXCESSIVE LEAKAGE INTO DRYWELL

K/A NUMBER: 223001A4.07 K/A RATING: RO 4.2 SRO: 4.1

TASK STANDARD: PERFORM SUBSEQUENT OPERATOR ACTION REQUIRED TO
REDUCE DRYWELL PRESSURE AS DIRECTED BY 2-AOI-64-1

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 3-AOI-64-1, REV 0003

VALIDATION TIME: CONTROL ROOM: 7:00 LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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 an Operator. Unit 3 is experiencing rising drywell pressure

INITIATING CUES: Respond to rising drywell pressure in accordance with 3-AOI-64-1.

START TIME _____

Performance Step: Critical___ Not Critical X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required
Abnormal Operating Instruction.

Standard:

IDENTIFIED OR OBTAINED copy of 3-AOI-64-1.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

4.2 Subsequent Actions

4.2.1 EOI Entry Conditions

- [1] If any EOI entry condition is met, THEN
 ENTER appropriate EOI(s). (Otherwise N/A)

4.2.2 Drywell Pressure is High

- [1] CHECK Drywell pressure using multiple indications.
- [2] ALIGN and START additional Drywell coolers and
 fans as necessary. REFER TO 3-OI-64.

Standard:

Determine no EOI Entry condition is met and verifies all DW
coolers are in service.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical_X

[3.3] **VERIFY** 3-FIC-84-20 is in AUTO and SET at
100 scfm (Panel 3-9-55).

Standard:

VERIFIED 3-FIC-84-20 in AUTO and set for 100 scfm.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical_X Not Critical___

[3.4] **VERIFY RUNNING**, required Standby Gas
treatment Fan(s) STGTS TRAIN(s) A, B, C
(Panel 3-9-25.)

[3.5] **If** required, **then**

REQUEST Unit 1 Operator to START Standby Gas
Treatment Fan(s) SGTS Train A, B.
(Otherwise **N/A**)

Standard:

At Panel 3-9-25, **DISCOVERED** that SGT Fan C would not start
(Tagged). Requests Unit 1 Operator to start A or B SGT.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CAUTION

If 3-FCV-84-20 closes after 3-HS-64-35 is opened, the reason for
valve closure must be cleared and 3-HS-64-35 must be returned to
OPEN in order for 3-FCV-84-20 to re-open.

Performance Step: Critical ___ Not Critical X

[3.6] If required, Then

RECORD venting data in 3-SI-4.7.A.2.a
(Otherwise N/A)

CUE: 3-SI-4.7.A.2.a is being performed by another operator.

Standard:

None.

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step : Critical X Not Critical _____

[3.7] **PLACE** 3-FCV-84-20 CONTROL DW/SUPPR CHBR VENT,
3-HS-64-35, in OPEN (Panel 3-9-3).

Standard:

PLACED 3-HS-64-35 in the OPEN position.

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

PERFORMER verified applicable components by utilizing TOUCH STAAR (Standard is subjective and instructor must evaluate the need for additional training on TOUCH STAAR to maintain plant standards).

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION (Standard is subjective and instructor must evaluate the need for additional training on 3-WAY COMMUNICATION to maintain plant standards).

SAT___ UNSAT___ N/A___ COMMENTS: _____

END OF TASK

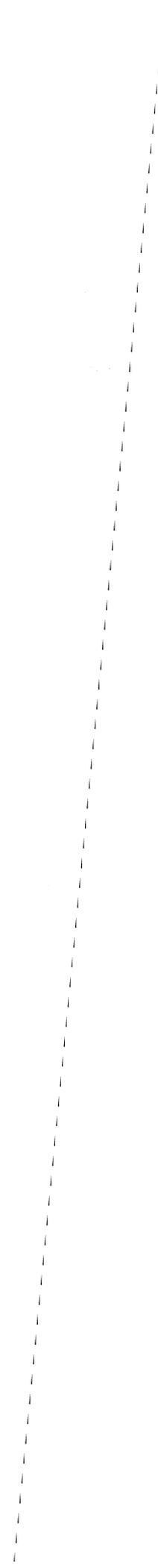
STOP TIME: _____

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 an Operator. Unit 3 is experiencing rising drywell pressure

INITIATING CUES: Respond to rising drywell pressure in accordance with 3-AOI-64-1.



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 an Operator. Unit 3 is experiencing rising drywell pressure

INITIATING CUES: Respond to rising drywell pressure in accordance with 3-AOI-64-1.



Browns Ferry Nuclear Plant

Unit 3

Abnormal Operating Instruction

3-AOI-64-1

**Drywell Pressure and/or Temperature High, or Excessive Leakage Into
Drywell**

Revision 0003

Quality Related

Level of Use: Continuous Use

Effective Date: 05-17-2005

Responsible Organization: OPS, Operations

Prepared By: R L Eakin

Approved By: Jeffrey A. Kimberlin

BFN Unit 3	Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell	3-AOI-64-1 Rev. 0003 Page 2 of 10
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Current Revision Description

Pages Affected:

Type of Change: IC - ENHANCMENT

Tracking Number: 004

PCRS: 05001191 and 05001234

PERS:

This procedure was converted from Word 95 to Word 2002 (XP) using Rev 2.

Editorial changes were made throughout this procedure to update to the current Operational Procedure format.

Level of use of the procedure was changed to CONTINUOUS USE. [PCR 05001191]

Page 6: Caution above Step :4.2.2[3.6] was made into a more appropriate note.

Page 6: Removed note about place keeping blanks, that no longer applies due to the use of place keeping boxes

Page 7: Caution above Step 4.2.2[3] was made into a more appropriate warning.

Page 8, 9,10:Removed reference to Drywell Television Camera that is no longer used in steps 4.2.2[13], 4.2.3[6] and 4.2.4[5] {PCR 05001234}

BFN Unit 3	Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell	3-AOI-64-1 Rev. 0003 Page 3 of 10
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1.0 PURPOSE

This instruction provides symptoms, automatic actions and operator actions for a High Drywell Pressure Condition, and/or High Drywell Temperature Condition, or Drywell Excessive Leakage.

2.0 SYMPTOMS

2.1 Common Symptoms for High Drywell Pressure, High Drywell Temperature and Drywell Excessive Leakage

- DRYWELL ATMOSPHERIC TEMP HIGH (3-XA-55-3B, Window 3)
- PRI CONTAINMENT N₂ PRESS HIGH (3-XA-55-3B, Window 10)
- DRYWELL TEMP HIGH (3-XA-55-3B, Window 16)
- DRYWELL PRESS APPROACHING SCRAM (3-XA-55-3B, Window 30)
- DRYWELL LEAK DETECTION RADIATION HIGH (3-XA-55-3D, Window 12)
- RBCCW PUMP SUCT HDR TEMP HIGH (3-XA-55-4C, Window 5)
- DRYWELL FD SUMP PUMP EXCESSIVE OPRN (3-XA-55-4C, Window 11)
- DRYWELL EQPT DR SUMP PUMP EXCESSIVE OPRN (3-XA-5-4C, Window 18)
- DRYWELL PRESSURE ABNORMAL (3-XA-55-5B, Window 31)
- Drywell humidity rising as indicated on DRYWELL ATMOSPHERE DEWPOINT TEMPERATURE, (Panel 3-9-47)

2.2 Symptoms for High Drywell Pressure

- SUPPR CHAMBER WATER LEVEL ABNORMAL (3-XA-55-3B, Window 15)
- Drywell Radiation levels rising, as indicated on DW/SUPPR CHBR RAD DIV I and II, 3-RR-90-272 and 273 (Panel 3-9-54 and 55) and AIR PARTICULATE MONITOR CONSOLE, 3-CONS-90-50A (Panel 3-9-2)
- Excessive Nitrogen usage, as indicated when performing 3-SI-4.7.A.2.a

BFN Unit 3	Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell	3-AOI-64-1 Rev. 0003 Page 4 of 10
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2.3 Symptoms for High Drywell Temperature

- DRYWELL NORM OPERATING PRESS HIGH (3-XA-55-3B, Window 19)
- Drywell temperature rising, as indicated on DRYWELL TEMPERATURE/PRESSURE, 3-XR-064-050 (Panel 3-9-3)
- Drywell pressure rising, as indicated on DRYWELL TEMPERATURE/PRESSURE, 3-XR-64-50 (Panel 3-9-3)

2.4 Symptoms for Drywell Excessive Leakage

- DRYWELL NORM OPERATING PRESS HIGH (3-XA-55-3B, Window 19)
- DRYWELL FD SUMP LEVEL ABN (3-XA-55-4C, Window 2)
- DRYWELL EQPT DR SUMP LEVEL ABN (3-XA-55-4C, Window 9)
- RBCCW SURGE TANK LEVEL LOW (3-XA-55-4C, Window 13)
- DRYWELL EQPT DR SUMP TEMP HIGH (3-XA-55-4C, Window 16)
- REACTOR WATER LEVEL ABNORMAL (3-XA-55-5A, Window 8)
- RECIRC PUMP A NO. 2 SEAL LEAKAGE HIGH (3-XA-55-4A, Window 18)
- RECIRC PUMP A NO. 1 SEAL LEAKAGE ABN (3-XA-55-4A, Window 25)
- RECIRC PUMP B NO. 2 SEAL LEAKAGE HIGH (3-XA-55-4B, Window 18)
- RECIRC PUMP B NO. 1 SEAL LEAKAGE ABN (3-XA-55-4B, Window 25)

3.0 AUTOMATIC ACTIONS

None

BFN Unit 3	Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell	3-AOI-64-1 Rev. 0003 Page 5 of 10
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4.0 OPERATOR ACTIONS

NOTE

This procedure covers possible multiple symptoms of a problem within primary containment. Any or all of the symptoms may exist. The SRO will direct actions based on symptoms and experience.

4.1 Immediate Actions

None

4.2 Subsequent Actions

4.2.1 EOI Entry Conditions

[1] IF any EOI entry condition is met, THEN

ENTER appropriate EOI(s). (Otherwise N/A)

4.2.2 Drywell Pressure is High

[1] CHECK Drywell pressure using multiple indications.

[2] ALIGN and START additional Drywell coolers and fans as necessary. REFER TO 3-OI-64.

BFN Unit 3	Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell	3-AOI-64-1 Rev. 0003 Page 6 of 10
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4.2.2 Drywell Pressure is High (continued)

WARNING

Stack release rates exceeding 1.4×10^7 $\mu\text{ci}/\text{sec}$, or a SI-4.8.B.1.a.1 release fraction above one will result in ODCM release limits being exceeded.

- [3] **VENT** Drywell as follows:
- [3.1] **CLOSE** SUPPR CHBR INBD ISOLATION VLV
 3-FCV-64-34 (Panel 3-9-3).
- [3.2] **VERIFY OPEN**, DRYWELL INBD ISOLATION VLV,
 3-FCV-64-31 (Panel 3-9-3).
- [3.3] **VERIFY** 3-FIC-84-20 is in AUTO and SET at 100 scfm
 (Panel 3-9-55).
- [3.4] **VERIFY** Running, required Standby Gas Treatment
 Fan(s) SGTS Train(s) A, B, C (Panel 3-9-25).
- [3.5] **IF** required, **THEN**

 REQUEST Unit 1 Operator to START Standby Gas
 Treatment Fan(s) SGTS Train(s) A, B. (Otherwise **N/A**)

NOTE

If 3-FCV-84-20 closes after placing 3-HS-64-35 to open, the valve's closure signal must be reset and 3-HS-64-35 must be returned to the OPEN position in order for 3-FCV-84-20 to RE-OPEN.

- [3.6] **IF** required, **THEN**

 RECORD venting data in 3-SI-4.7.A.2.a (Otherwise **N/A**)
- [3.7] **PLACE** 3-FCV-84-20 CONTROL DW/SUPPR CHBR
 VENT, 3-HS-64-35, in OPEN (Panel 3-9-3).

BFN Unit 3	Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell	3-AOI-64-1 Rev. 0003 Page 7 of 10
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4.2.2 Drywell Pressure is High (continued)

CAUTION

Stack release rates exceeding 1.4×10^7 $\mu\text{ci}/\text{sec}$, or a SI-4.8.B.1.a.1 release fraction above one will result in ODCM release limits being exceeded.

- | | | |
|--------|---|--|
| [3.8] | MONITOR stack release rates to prevent exceeding ODCM limits. | <input type="checkbox"/> |
| [3.9] | WHEN Drywell pressure has been reduced as required,
THEN

STOP SGT Train(s). | <input type="checkbox"/> |
| [3.10] | VERIFY 3-HS-64-35, in AUTO and 3-FCV-84-20
CLOSED (Panel 3-9-3). | <input type="checkbox"/> |
| [3.11] | OPEN SUPPR CHBR INBD ISOLATION VLV
3-FCV-64-34 (Panel 3-9-3). | <input type="checkbox"/> |
| [3.12] | VERIFY Drywell DP compressor operates correctly to
maintain required Drywell to Suppression Chamber DP. | <input type="checkbox"/> |
| [3.13] | RECORD SGTS Train(s) run time in appropriate Control
Room Reactor Narrative Log for transfer to 1-SR-2. | <input type="checkbox"/> |
| [4] | CHECK for proper RBCCW operation. REFER TO 3-OI-70. | <input type="checkbox"/> |
| [5] | VERIFY CLOSED , N ₂ makeup valves to Drywell and
Suppression Chamber. | <input type="checkbox"/> |
| [6] | CHECK Suppression Chamber pressure. | <input type="checkbox"/> |
| [7] | CHECK Suppression Pool water level. | <input type="checkbox"/> |
| [8] | CHECK Suppression Pool temp for indication of a leaking or
stuck open relief valve. | <input type="checkbox"/> |
| [9] | VERIFY CLOSED the following (locally): | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> • STATION AIR TO DRYWELL, 3-FCV-33-10, (Rx Bldg.,
EI 565', above TIP Room) • DW DEMIN WTR SPLY VLV, 3-2-1383, (Rx Bldg, EI 565') | <input type="checkbox"/>

<input type="checkbox"/> |

BFN Unit 3	Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell	3-AOI-64-1 Rev. 0003 Page 8 of 10
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4.2.2 Drywell Pressure is High (continued)

- [10] **CHECK** for proper Drywell Control Air System operation.
REFER TO 3-OI-32A.
- [11] **CHECK DRYWELL ATMOSPHERE DEWPOINT TEMPERATURE**, 3-MR-80-36, for indication of a steam or water leak in the Drywell (Panel 3-9-47).
- [12] **CALCULATE** Drywell Sump Leakage using the integrator or manual method at a frequency of once every two hours.
REFER TO 3-SR-2.
- [13] **NOTIFY** Chemistry to sample Drywell atmosphere for radioactivity.
- [14] **NOTIFY** Radwaste that fluids being discharged from Drywell may be highly radioactive.
- [15] **IF** Drywell pressure rise rate indicates Reactor Scram at 2.45 psi is imminent, **THEN**

REDUCE Reactor power via Recirc flow to minimize the impact of a scram from high power. (Otherwise **N/A**)

4.2.3 High Drywell Temperature

- [1] **IF** Reactor is at power **AND** Drywell cooling is lost and can **NOT** be immediately restored, **THEN**

PERFORM the following: (Otherwise **N/A**)
- [1.1] **IF** core flow is above 60%, **THEN**

REDUCE core flow to between 50-60%.
- [1.2] **MANUALLY SCRAM** the reactor and **REFER TO 3-AOI-100-1.**
- [1.3] **INITIATE** a 90°F/hr cooldown rate. **REFER TO 3-AOI-100-1.**
- [2] **CHECK** Drywell temperature using multiple indications.
- [3] **ALIGN** and **START** additional Drywell coolers and fans as necessary. **REFER TO 3-OI-64.**
- [4] **VENT** Drywell. **REFER TO Section 4.2.2[3].**

BFN Unit 3	Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell	3-AOI-64-1 Rev. 0003 Page 9 of 10
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4.2.3 High Drywell Temperature (continued)

- [5] **CHECK** RBCCW for proper operation. **REFER TO** 3-OI-70.
- [6] **CALCULATE** Drywell Sump Leakage, using the integrator or manual method, at a frequency of once every two hours. **REFER TO** 3-SR-2.

4.2.4 Excessive Leakage Drywell

- [1] **CALCULATE** Drywell sump leakage using the integrator or the manual method, at a frequency of once every two hours. **REFER TO** 3-SR-2.
- [2] **CHECK** DRYWELL EQPT DRAIN SUMP TEMP, 3-TIS-77-14 (Panel 3-9-4).
- [3] **CHECK** Recirc Pump seal pressures.
- [4] **IF** any of the following conditions exist:
- Unidentified leakage is ≥ 5 gpm,
 - ≥ 2 gpm rise in unidentified leakage within the previous 24 hour period,
 - Total leakage is ≥ 30 gpm averaged over a 24 hour period, **THEN**
- REFER TO** Tech Specs 3.4.4 (Otherwise **N/A**)
- [5] **IF** possible **AND** with Shift Manager concurrence, **THEN**
- SHUT DOWN** and **ISOLATE** components to determine source of leak. (Otherwise **N/A**)
- [6] **IF** leakage exceeds Tech Spec limits **AND** can **NOT** be reduced or stopped, **THEN**
- COMMENCE** a normal Reactor Shutdown. **REFER TO** 3-GOI-100-12A. (Otherwise **N/A**)

BFN Unit 3	Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell	3-AOI-64-1 Rev. 0003 Page 10 of 10
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5.0 REFERENCES

5.1 Technical Specification

Section 3.3.6.1, Primary Containment Isolation Instrumentation

Section 3.4.4, RCS Operational Leakage

5.2 Final Safety Analysis Report

Section 5.2, Primary Containment System

5.3 Plant Instructions

3-ARP-9-3, Panel 9-3 Annunciator Response Procedure

3-ARP-9-4, Panel 9-4 Annunciator Response Procedure

3-ARP-9-5, Panel 9-5 Annunciator Response Procedure

3-ARP-9-6, Panel 9-6 Annunciator Response Procedure

3-AOI-70-1, Loss of RBCCW

3-AOI-100-1, Reactor Scram

3-OI-32A, Drywell Control Air System

3-OI-64, Primary Containment System

3-OI-70, Reactor Building Closed Cooling Water System

3-SR-2, Instruments Checks and Observations

3-SI-4.7.A.2.a, Primary Containment Nitrogen Consumption and Leakage

REP Implementing Procedures Document

5.4 Plant Drawings

730E927 Series, Primary Containment Isolation System

6.0 ILLUSTRATIONS/ATTACHMENTS

None

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

U3 Sim "H" RO

JPM NUMBER: 3-22F

TITLE: 3-EOI APPENDIX 6D - INJECTION SUBSYSTEM LINEUP -
CS SYSTEM I

TASK NUMBER: U-000-EM-35

SUBMITTED BY:  DATE: 2/7/08

VALIDATED BY:  DATE: 2/7/08

APPROVED:  DATE: 2/7/08
TRAINING

PLANT CONCURRENCE:  DATE: 2-7-08
OPERATIONS

* Examination JPMs Require Operations Training Manager or Designee Approval and Plant Concurrence

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	01/04/2008	ALL	Modified from U2

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 3-22F

TASK NUMBER: U-000-EM-35

TASK TITLE: LINE UP INJECTION SUBSYSTEMS - CORE SPRAY LOOP I
IN ACCORDANCE WITH 3-EOI APPENDIX 6D

K/A NUMBER: 209001A4.05 K/A RATING: RO 3.8 SRO: 3.6

TASK STANDARD: PERFORM VALVE MANIPULATION REQUIRED TO INJECT
WATER INTO THE RPV VIA CORE SPRAY SYSTEM I AS
DIRECTED BY 3-EOI APPENDIX 6D

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 3-EOI APPENDIX 6D, REV 3

VALIDATION TIME: _____ CONTROL ROOM: 4:15 LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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 Board Unit Operator. The Unit 3 reactor has scrammed and RPV water level is lowering slowly. EOI-1 has been entered and followed to RC/L-4.

INITIATING CUES: The Unit Supervisor directs you to inject water into the RPV to restore RPV water level using Core Spray System I as directed by 3-EOI Appendix 6D, INJECTION SUBSYSTEMS LINEUP - CORE SPRAY SYSTEM I.

START TIME _____

INSTRUCTOR NOTE:

VERIFY LP# CS VALVES ARE ALIGNED INBD - OPEN, OUTBOARD
CLOSED. (This is the fault)

Performance Step: Critical___ Not Critical X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required
procedure.

Standard:

IDENTIFIED OR OBTAINED copy of 3-EOI APPENDIX 6D.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

1. **VERIFY OPEN** the following valves:

- 3-FCV-75-2, CORE SPRAY PUMP 3A SUPPR POOL
 SUCT VLV.

Standard:

VERIFIED illuminated RED valve position indicating lamp
located above 3-HS-75-2A.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

1. **VERIFY OPEN** the following valves:

- 3-FCV-75-11, CORE SPRAY PUMP 3C SUPPR POOL
 SUCT VLV.

Standard:

VERIFIED illuminated RED valve position indicating lamp
located above 3-HS-75-11A.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical X Not Critical___

1. **VERIFY OPEN** the following valves:

- 3-FCV-75-23, CORE SPRAY SYS I OUTBD INJECT
 VALVE.

Standard:

RECOGNIZED illuminated **GREEN** valve position indicating lamp
located above 3-HS-75-23A (OUTBOARD VALVE) and **RED** valve
position indicating lamp located above 3-HS-75-25A (INBOARD
VALVE): **CLOSED** 3-FCV-75-25 with 3-HS-75-25A and **OPENED** 3-FCV-
75-23 with 3-HS-75-23A.

SAT___ UNSAT___ N/A___ COMMENTS: _____

EXAMINER NOTE: The outboard injection valve (23) is interlocked to prevent opening unless the Inboard injection valve (25) is closed. In order to open both injection valves, the Inboard valve (25) must first be closed to satisfy the interlock. Then the Outboard valve (23) can be opened, followed by the Inboard valve (25).

Performance Step: Critical Not Critical

2. **VERIFY CLOSED** 3-FCV-75-22, CORE SPRAY SYS I TEST VALVE.

Standard:

VERIFIED illuminated GREEN valve position indicating lamp located above 3-HS-75-22A.

SAT UNSAT N/A COMMENTS: _____

Performance Step: Critical Not Critical

3. **VERIFY** CS Pump 3A and/or 3C running.

Standard:

PLACED 3-HS-74-5A and/or 3-HS-74-14A in the START position and **VERIFIED** illuminated RED motor breaker position indicating lamp(s) above associated control switches.

SAT UNSAT N/A COMMENTS: _____

Performance Step: Critical ___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

PERFORMER verified applicable components by utilizing TOUCH STAAR (Standard is subjective and instructor must evaluate the need for additional training on TOUCH STAAR to maintain plant standards).

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical ___ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION (Standard is subjective and instructor must evaluate the need for additional training on 3-WAY COMMUNICATION to maintain plant standards).

SAT ___ UNSAT ___ N/A ___ COMMENTS _____

END OF TASK

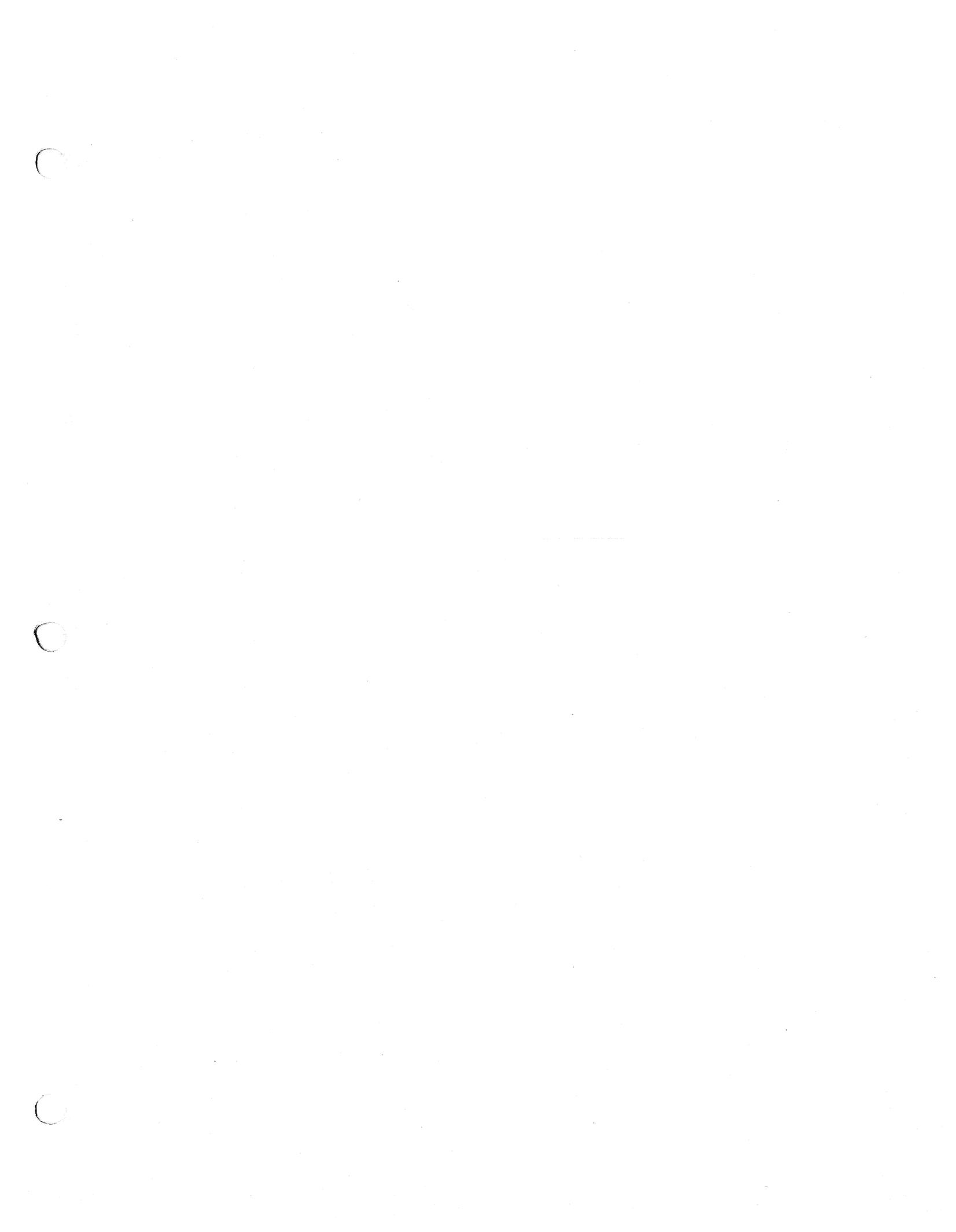
STOP TIME _____

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 Board Unit Operator. The Unit 3 reactor has scrammed and RPV water level is lowering slowly. EOI-1 has been entered and followed to RC/L-4.

INITIATING CUES: The Unit Supervisor directs you to inject water into the RPV to restore RPV water level using Core Spray System I as directed by 3-EOI Appendix 6D, INJECTION SUBSYSTEMS LINEUP - CORE SPRAY SYSTEM I.



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 Board Unit Operator. The Unit 3 reactor has scrammed and RPV water level is lowering slowly. EOI-1 has been entered and followed to RC/L-4.

INITIATING CUES: The Unit Supervisor directs you to inject water into the RPV to restore RPV water level using Core Spray System I as directed by 3-EOI Appendix 6D, INJECTION SUBSYSTEMS LINEUP - CORE SPRAY SYSTEM I.

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

EOI PROGRAM MANUAL SECTION IX

3-EOI APPENDIX-6D

**INJECTION SUBSYSTEMS LINEUP
CORE SPRAY SYSTEM I**

REVISION 3

PREPARED BY: MICHAEL MORROW

PHONE: 3708

RESPONSIBLE ORGANIZATION: Operations

APPROVED BY: GILBERT LITTLE

EFFECTIVE DATE: 04/07/02

LEVEL OF USE: REFERENCE USE

VALIDATION DATE: 05/04/94

QUALITY-RELATED

3-EOI APPENDIX-6D

**INJECTION SUBSYSTEMS LINEUP
CORE SPRAY SYSTEM I**

LOCATION: Unit 3 Control Room

ATTACHMENTS: 1. NPSH Monitoring (✓)

- 1. **VERIFY OPEN** the following valves:
 - 3-FCV-75-2, CORE SPRAY PUMP 3A SUPPR POOL SUCT VLV _____
 - 3-FCV-75-11, CORE SPRAY PUMP 3C SUPPR POOL SUCT VLV _____
 - 3-FCV-75-23, CORE SPRAY SYS I OUTBD INJECT VALVE. _____

- 2. **VERIFY CLOSED** 3-FCV-75-22, CORE SPRAY SYS I TEST VALVE. _____

- 3. **VERIFY** CS Pump 3A and/or 3C **RUNNING**. _____

- 4. WHEN ...RPV pressure is below 450 psig,
THEN ... **THROTTLE** 3-FCV-75-25, CORE SPRAY SYS I INBD
INJECT VALVE, as necessary to control injection
at or below 4000 gpm per pump. _____

CAUTION

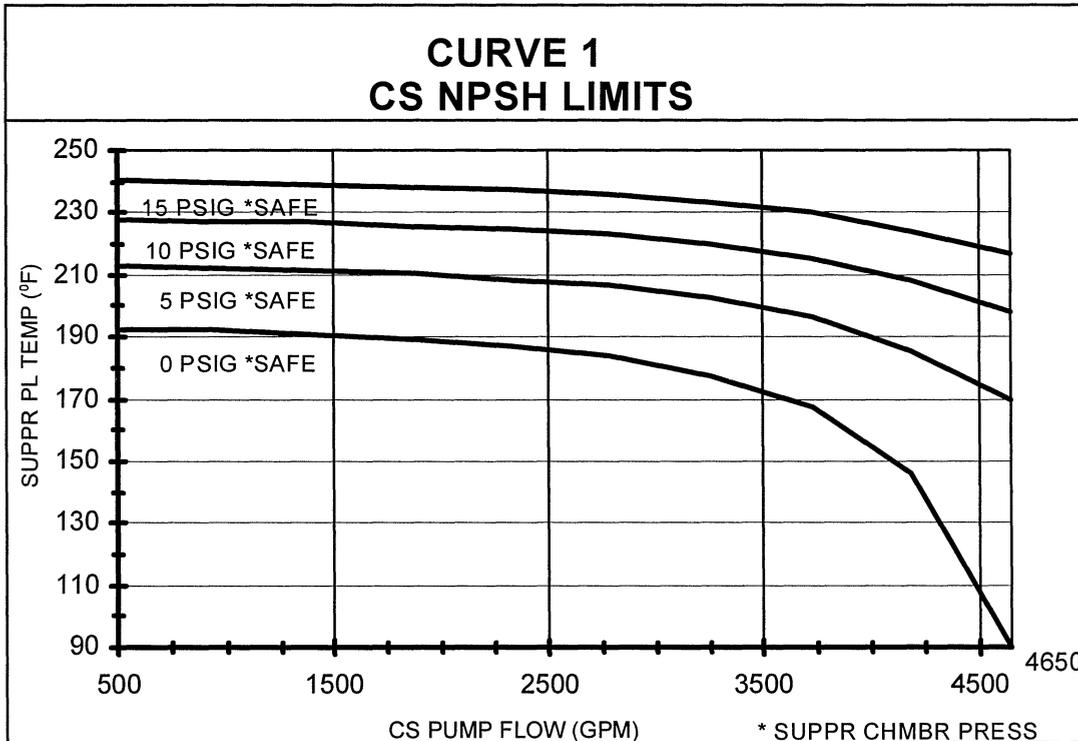
Continuous operation with inadequate NPSH may result in pump damage or pump inoperability.

- 5. **MONITOR** Core Spray Pump NPSH using Attachment 1. _____

END OF TEXT

NPSH MONITORING

Adequate NPSH is assured by maintaining pump flow rates below the curve for the applicable Suppression Chamber pressure. For Suppression Chamber pressures between the values on the curves extrapolation must be used.



Other indications of inadequate NPSH are:

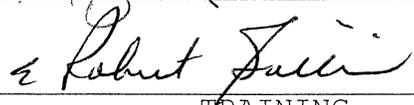
- Suppression pool level below 10 ft
- System flowrate decreasing with constant valve position
- System flowrate or discharge pressure less than expected for present system conditions
- Pump discharge pressure lower than expected or fluctuating excessively
- Pump motor amps lower than expected or fluctuating excessively
- Pump suction pressure low (local indication)

LAST PAGE

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

U2 Plant "I" RO
U2 Plant "I" SRO

JPM NUMBER: JPM 86
TITLE: PLACE A 250V BATTERY CHARGER IN SERVICE
TASK NUMBER: S-57D-NO-02

SUBMITTED BY:  DATE: 2/7/08
VALIDATED BY:  DATE: 2/7/08
APPROVED:  DATE: 2/7/08
TRAINING
PLANT CONCURRENCE:  DATE: 2.7.08
OPERATIONS

* Examination JPMs Require Operations Training Manager or Designee Approval and Plant Concurrence

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
2	10/4/94	1,2,3,4	REVISE TO NEW FORMAT
3	12/1/94	1,2,3,4	REVISE TO NEW FORMAT
4	4/25/95	ALL	GENERAL
5	10/26/95	1,2,3,6,11,15	PROCEDURE REVISION
6	10/31/95	11	ADDED INSTRUCTOR'S NOTE
7	11/9/95	15	ADDED CUES
8	11/30/95	11	STEP 5.2.7.5 CHANGED TO NOT CRITICAL
9	10/9/97	ALL	FORMAT, PROCEDURE REVISION, ADDED PLANT WORK EXPECTATIONS TOUCH STAAR, SAFETY, AND 3-WAY COMM., AND INST. STATEMENT REQUIRING PROCEDURE REV. CHECK ON FIRST JPM.
10	10/28/98	3,4	PROCEDURE REVISION
11	10/11/00	all	GENERAL REVISION
12	8/27/05	all	PROCEDURE REVISION
13	08/17/07	All	General Revision
14	1/25/08	All	Procedure Revision

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: JPM 86

TASK NUMBER: S-57D-NO-02

TASK TITLE: PLACE A 250V UNIT BATTERY CHARGER IN SERVICE TO A
BATTERY BOARD

K/A NUMBER: 263000A4.1 K/A RATING: RO 3.3 SRO: 3.5

TASK STANDARD: SIMULATE PLACING 250V UNIT BATTERY CHARGER 2A IN
SERVICE TO BATTERY BOARD 2

LOCATION OF PERFORMANCE: SIMULATOR ___ PLANT X CONTROL ROOM ___

REFERENCES/PROCEDURES NEEDED: 0-OI-57D, REV 117

VALIDATION TIME: CONTROL ROOM: _____ LOCAL: 25:00

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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. Touch STAAR 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. 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. 250V Battery Board 2 is being fed by 250V (Spare) Battery Charger 2B for testing purposes. Testing has been completed. 250V Unit Battery 2 is in service in accordance with Section 5.1 of 0-OI-57D.

INITIATING CUES:

The US has directed you to return 250V Battery Board 2 to its normal charging supply, i.e. place 250V Battery Charger 2A in service to Battery Board 2 using the NORMAL power source as directed by 0-OI-57D.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

START TIME _____

Performance Step: Critical___ Not Critical_X___

WHEN REQUESTED BY EXAMINER identify/obtain copy of required procedure, 0-OI-57D.

Standard:

IDENTIFIED OR OBTAINED copy of 0-OI-57D.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X___

5.2.2 Placing the 250V Unit Battery Charger 2A in Service to Battery Board 2

[1] VERIFY 250V Battery 2 is in service in accordance with Section 5.1.

Standard: N/A GIVEN IN INITIAL CONDITIONS.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X___

[2] REVIEW all Precautions and Limitations in Section 3.0.

Standard:

REVIEWED precautions and limitations in Section 3.0.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X___

[3] VERIFY the following AC source breakers are CLOSED:

- Normal Source

480v SD Bd 2A, Compt 6D, 2-BKR-248-0002A/6D

Standard:

LOCATED Compartment 6D on 480V SD Bd 2A and VERIFIED breaker position indicator indicates CLOSED.

CUE: (IF IN A DIFFERENT POSITION) THE BREAKER INDICATES CLOSED.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X___

- Alternate Source

(Charger Service Bus) 480v Common Bd 1, Compt 3A,
0-BKR-215-0001/03A

Standard:

LOCATED Compartment 3A on 480v Common Bd 1 and VERIFIED breaker position indicator indicates CLOSED.

CUE: The Turbine Building AUO has verified that 0-BKR-215-0001/03A is closed.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X

[4] PERFORM the following in Battery Board Room 2:

[4.1] VERIFY that DC BUS FILTER CAPACITORS U2, 0-BKR-280-0002/711 is ON.

Standard:

LOCATED breaker 0-BKR-280-0002/711 and VERIFIED in the ON position IN BB RM 2.

CUE: (IF IN A DIFFERENT POSITION) THE BREAKER INDICATES ON.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X

[4.3] IF the ALTERNATE SUPPLY INPUT FROM 480V CMN
BD 1/3A, 2-BKR-248-0002AB is the desired AC power
source, THEN

ALIGN BATTERY CHARGER 2A INPUT TRANSFER
SWITCH, 2-XSW-248-0002AA, AND CLOSE the
ALTERNATE SUPPLY INPUT FROM 480V CMN
BD 1/3A, 2-BKR-248-0002AB.

Standard:

DOES NOT CLOSE THE ALTERNATE SUPPLY 2-BKR-248-0002AB

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical_X Not Critical___

[4.4] VERIFY the 250V BAT CHGR 2A DISCT FROM BAT
BD 2 NORM FDR, 0-BKR-280-0002/608 on Battery
Board 2 is ON.

Standard:

LOCATED BREAKER 0-BKR-280-0002/608 ON BATTERY BOARD 2 AND
VERIFIED THE BREAKER IS IN ON.

CUE: (IF IN A DIFFERENT POSITION) THE BREAKER INDICATES ON.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical X Not Critical _____

[5] IF the 250V BATTERY CHARGER 2B, 0-CHGA-248-0002B is supplying power to Battery Board 2 **AND** a transfer to 250V BATTERY CHARGER 2A, 2-CHGA-248-0002A is desired, **THEN**

[5.1] **PLACE** the 2B Battery Charger POWER ON, 0-HS-248-0002B switch to OFF.

Standard:

LOCATED 2B Battery Charger POWER ON switch 0-HS-248-0002B and **SIMULATED PLACING** in the OFF position.

CUE: (WHEN SIMULATED) YOU HEAR A CLICK, THE 2B CHARGER POWER SWITCH IS IN OFF.

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical X Not Critical _____

[5.2] **PLACE** the DC BREAKER, 0-BKR-248-0002B/DC on front of 250V Battery Charger 2B to OFF.

Standard:

LOCATED 2B Battery Charger DC BREAKER 0-BKR-248-0002B/DC and **SIMULATED PLACING** in the OFF position.

CUE: (WHEN SIMULATED) YOU HEAR A LOUD CLICK, THE 2B CHARGER DC BREAKER IS IN OFF.

Performance Step: Critical___ Not Critical_X___

[5.4] PLACE the following 2B BATTERY CHARGER
OUTPUT TRANSFER SWITCH 2B, 0-XSW-248-0002B
breaker to OFF:

- TO BATTERY BD 2 BKR 607

Standard:

At 250V Battery Charger 2B Output Transfer Switch Panel,
SIMULATED PLACING TO BATTERY BD 2 BKR 607 to the OFF
position.

CUE: (WHEN SIMULATED) YOU HEAR A LOUD CLICK, THE BREAKER IS IN THE OFF POSITION.

SAT___ UNSAT___ N/A___ COMMENTS: _____

NOTE

BATTERY CHARGER 2A OUTPUT TRANSFER SWITCH, 2-XSW-248-0002A has a mechanical interlock that prevents closing output supply breakers simultaneously. OUTPUT XFER SW, 2-BKR-248-0002AD and OUTPUT XFER SW, 2-BKR-248-000AC are spare output supply breakers.

Performance Step : Critical___ Not Critical_X

[6] **ALIGN** BATTERY CHARGER 2A OUTPUT TRANSFER SWITCH, 2-XSW-248-0002A on 250V Battery Charger 2A Output Transfer Switch Panel to OUTPUT XFER SW TO BKR 608, 2-BKR-248-0002AE.

[6.1] **PLACE** OUTPUT XFER SW TO BKR 608, 2-BKR-248-0002AE ON.

Standard:

SIMULATED placing OUTPUT XFER SW TO BKR 608 TO ON.

CUE: (WHEN SIMULATED) YOU HEAR A LOUD CLICK, THE BREAKER IS IN THE ON POSITION.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical_X Not Critical___

[7] **PLACE** the POWER ON, 2-HS-248-0002A to ON and allow voltage to stabilize for approximately 2 minutes.

Standard:

LOCATED BATTERY CHARGER 2A POWER ON Select Switch and **SIMULATED PLACING** in the ON position and allowed to stabilize.

CUE: (WHEN SIMULATED) THE SWITCH IS IN THE ON POSITION. 2 MINUTES HAVE ELAPSED

SAT___ UNSAT___ N/A___ COMMENTS: _____

CAUTION

If a charger malfunction occurs, the Normal and Alternate AC Input Supply and DC Breakers should be placed to the OFF position and the Shift Manager informed immediately.

Performance Step: Critical__ Not Critical_ X

[10] **If** the Charger is out of service because the Load Shed Logic has been initiated or an Appendix R Fire has occurred in Fire Area 16, **THEN**

PERFORM the following:

- [10.1] **VERIFY** Load Shed Logic reset. (N/A if Load Shed has not occurred).
- [10.2] **IF** an Appendix R fire occurred in Fire Area 16, **THEN RESET** Battery Charger 1 in accordance with 0-SSI-16. (N/A if an Appendix R fire has not occurred)
- [10.3] **OPEN** the DC BREAKER, 2-BKR-248-0002A/DC on front of Battery Charger 2A by placing it to OFF.
- [10.4] **PLACE** POWER ON, 2-HS-248-0002A to ON.
- [10.5] **CHECK** DC Voltage stabilized greater than 250 Volts on DC VOLTMETER, 2-EI-248-0002A.
- [10.6] **CLOSE** the DC BREAKER, 2-BKR-248-0002A/DC on front of Battery Charger 2A by placing it to ON.

CUE: SSI PROCEDURE HAS NOT BEEN IMPLEMENTED AND NO LOCA SIGNAL OR LOSS OF OFF-SITE POWER HAS BEEN RECEIVED.

Standard:

N/A's [10] - [10.6] after CUE given.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical___ Not Critical X

[12] **VERIFY** that EQUALIZE TIMER, 2-TMR-248-0002A is set to zero.

Standard:

LOCATED equalize timer and **VERIFIED** set to zero.

CUE: (IF TIMER NOT SET TO ZERO) THE TIMER INDICATES ZERO.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Step: Critical___ Not Critical X

[13] **CHECK** 250V DC Battery Charger 2A is supplying power to the bus by observing DC amps, 2-II-248-0002A indication greater than zero amps.

Standard:

VERIFIED 2-II-248-0002A indication is greater than zero amps.

CUE: 2-II-248-0002A indication is as read.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Step: Critical___ Not Critical X

[14] IF the 250V Battery Board 2 is unloaded, THEN
LOAD the Battery Board IAW 2-SR-3.8.4.4 (MB-2).

CUE: THE BATTERY BOARD IS ALREADY LOADED. THIS ENDS THE JPM.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

PERFORMER verified applicable components by utilizing TOUCH STAAR (Standard is subjective and instructor must evaluate the need for additional training on TOUCH STAAR to maintain plant standards).

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION (Standard subjective and instructor must evaluate the need for additional training on 3-WAY COMMUNICATION to maintain plant standards.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

PERFORMER complied with all safety rules and regulations.

Standard:

PERFORMER complied with all safety rules and regulations (hardhat, safety glasses, sideshields, and hearing protection was worn **AS REQUIRED.**) (INSTRUCTOR determines if N/A due to plant conditions)

ELECTRICAL SAFETY was also adhered to: Exposed conductive articles such as rings, metal wristwatches, bracelets, metal necklaces, key chains, and metal belt buckles shall not be worn by employees within reaching distance of exposed energized electrical conductors of 50 volts or greater.

SAT___ UNSAT___ N/A___ COMMENTS: _____

END OF TASK

STOP TIME _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

STUDENT HANDOUT

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. Touch STAAR 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. 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.

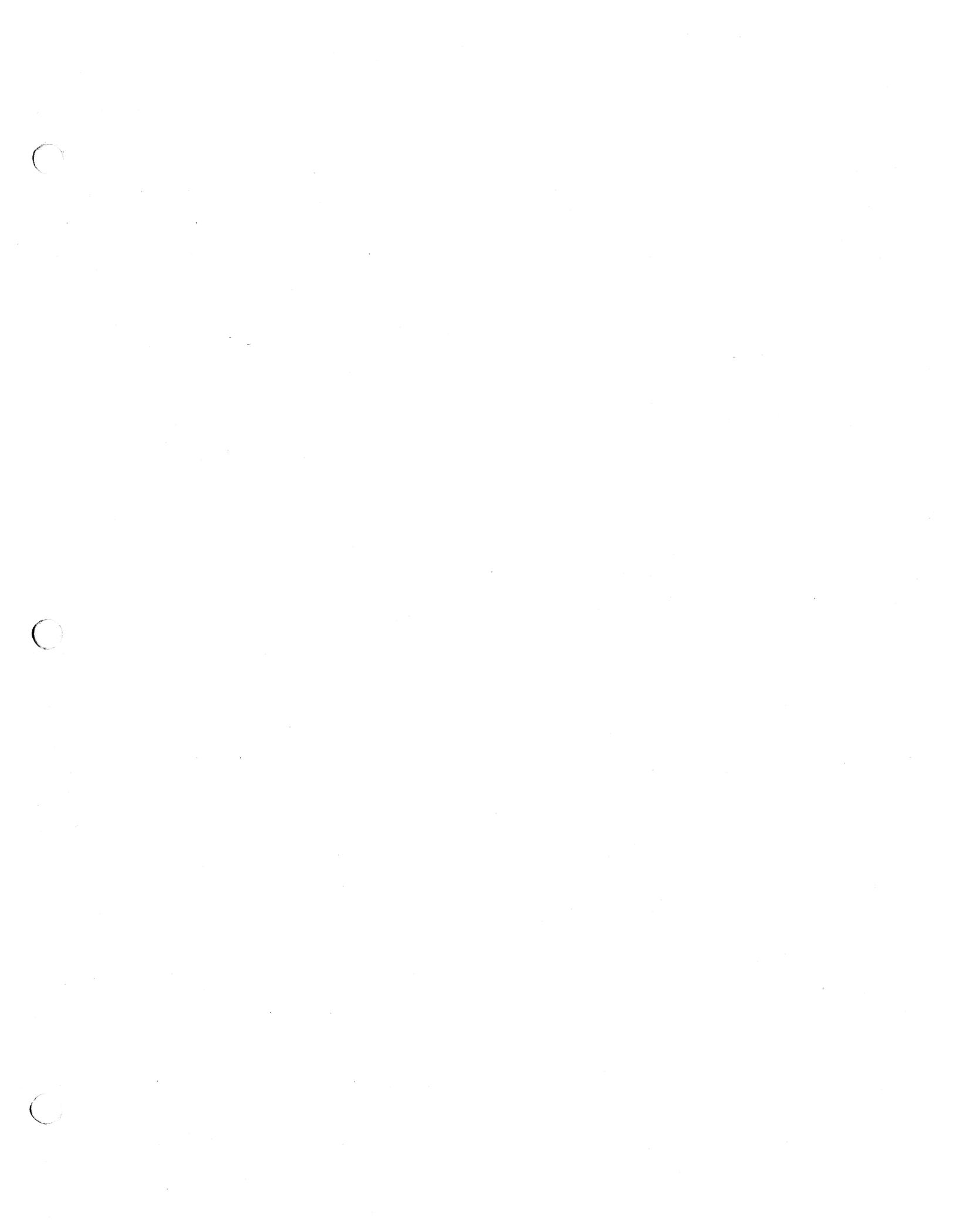
INITIAL CONDITIONS :

You are an operator. 250V Battery Board 2 is being fed by 250V (Spare) Battery Charger 2B for testing purposes. Testing has been completed. 250V Unit Battery 2 is in service in accordance with Section 5.1 of 0-OI-57D.

INITIATING CUES:

The US has directed you to return 250V Battery Board 2 to its normal charging supply, i.e. place 250V Battery Charger 2A in service to Battery Board 2 using the NORMAL power source as directed by 0-OI-57D.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!



BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

STUDENT HANDOUT

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. Touch STAAR 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. 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. 250V Battery Board 2 is being fed by 250V (Spare) Battery Charger 2B for testing purposes. Testing has been completed. 250V Unit Battery 2 is in service in accordance with Section 5.1 of 0-OI-57D.

INITIATING CUES :

The US has directed you to return 250V Battery Board 2 to its normal charging supply, i.e. place 250V Battery Charger 2A in service to Battery Board 2 using the NORMAL power source as directed by 0-OI-57D.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

BFN Unit 0	DC Electrical System	0-OI-57D Rev. 0117 Page 39 of 247
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5.2.2 Placing the 250V Battery Charger 2A in Service to Battery Board 2

- [1] **VERIFY** 250V Battery 2 is in service in accordance with Section 5.1.
- [2] **REVIEW** all Precautions and Limitations in Section 3.0.
- [3] **VERIFY** the following AC source breakers are CLOSED:
 - Normal Source
480V SD Bd 2A, Compt 6D, 2-BKR-248-0002A/6D
 - Alternate Source
(Charger Service Bus) 480V Common Bd 1, Compt 3A, 0-BKR-215-0001/03A
- [4] **PERFORM** the following in Battery Board Room 2:
 - [4.1] **VERIFY** that DC BUS FILTER CAPACITORS U-2, 0-BKR-280-0002/711 is ON.

NOTE

BATTERY CHARGER 2A INPUT TRANSFER SWITCH, 2-XSW-248-0002AA has a mechanical interlock that prevents closing both input supply breakers simultaneously on Battery Charger 2A.

- [4.2] **IF** the NORMAL SUPPLY INPUT FROM 480V SD BD 2A/6D, 2-BKR-248-0002AA is the desired AC power source, **THEN**

ALIGN BATTERY CHARGER 2A INPUT TRANSFER SWITCH, 2-XSW-248-0002AA, **AND CLOSE** the NORMAL SUPPLY INPUT FROM 480V SD BD 2A/6D, 2-BKR-248-0002AA.

BFN Unit 0	DC Electrical System	0-OI-57D Rev. 0117 Page 40 of 247
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5.2.2 Placing the 250V Battery Charger 2A in Service to Battery Board 2 (continued)

[4.3] **IF** the ALTERNATE SUPPLY INPUT FROM 480V CMN BD 1/3A, 2-BKR-248-0002AB is the desired AC power source, **THEN**

ALIGN BATTERY CHARGER 2A INPUT TRANSFER SWITCH, 2-XSW-248-0002AA, **AND CLOSE** the ALTERNATE SUPPLY INPUT FROM 480V CMN BD 1/3A, 2-BKR-248-0002AB.

[4.4] **VERIFY** the 250V BAT CHGR 2A DISCT FROM BAT BD 2 NORM FDR, 0-BKR-280-0002/608 on Battery Board 2 is ON.

[5] **IF** the 250V BATTERY CHARGER 2B, 0-CHGA-248-0002B is supplying power to Battery Board 2 **AND** a transfer to 250V BATTERY CHARGER 2A, 2-CHGA-248-0002A is desired, **THEN**

[5.1] **PLACE** the 2B Battery Charger POWER ON, 0-HS-248-0002B switch to OFF.

[5.2] **PLACE** the DC BREAKER, 0-BKR-248-0002B/DC on front of 250V Battery Charger 2B to OFF.

[5.3] **PLACE** the following AC input supply breakers on front of 250V Battery Charger 2B to OFF:

- **NORMAL** SUPPLY INPUT FROM 480V SD BD 2B/6D, 0-BKR-248-0002BA
- **ALTERNATE** SUPPLY INPUT FROM 480V CMN BD 1/3A, 0-BKR-248-0002BB

[5.4] **PLACE** the following 2B BATTERY CHARGER OUTPUT TRANSFER SWITCH 2B, 0-XSW-248-0002B breaker to OFF:

- **TO BATTERY** BD 2 BKR 607

BFN Unit 0	DC Electrical System	0-OI-57D Rev. 0117 Page 41 of 247
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5.2.2 Placing the 250V Battery Charger 2A in Service to Battery Board 2 (continued)

<p>NOTE</p> <p>BATTERY CHARGER 2A OUTPUT TRANSFER SWITCH, 2-XSW-248-0002A has a mechanical interlock that prevents closing output supply breakers simultaneously. OUTPUT XFER SW, 2-BKR-248-0002AD and OUTPUT XFER SW, 2-BKR-248-000AC are spare output supply breakers.</p>

- [6] **ALIGN** BATTERY CHARGER 2A OUTPUT TRANSFER SWITCH, 2-XSW-248-0002A on 250V Battery Charger 2A Output Transfer Switch Panel to OUTPUT XFER SW TO BKR 608, 2-BKR-248-0002AE.
- [6.1] **PLACE** OUTPUT XFER SW TO BKR 608, 2-BKR-248-0002AE ON.
- [7] **PLACE** the POWER ON, 2-HS-248-0002A to ON and allow voltage to stabilize for approximately 2 minutes.
- [8] **CHECK** DC Voltage stabilized greater than 250 Volts on DC VOLTMETER, 2-EI-248-0002A.
- [9] **CLOSE** the DC BREAKER, 2-BKR-248-0002A/DC on front of Battery Charger 2A, by placing it to ON.

BFN Unit 0	DC Electrical System	0-OI-57D Rev. 0117 Page 42 of 247
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5.2.2 Placing the 250V Battery Charger 2A in Service to Battery Board 2 (continued)

CAUTION

If a charger malfunction occurs, the Normal and Alternate AC Input Supply and DC Breakers should be placed to the OFF position and the Shift Manager informed immediately.

NOTE

If no Load Shed has occurred or there was no Appendix R fire in Fire Area 16 then Step 5.2.2[10.3] is N/A.

[10] **If the Charger is out of service because the Load Shed Logic has been initiated or an Appendix R Fire has occurred in Fire Area 16, THEN**

PERFORM the following:

- [10.1] **VERIFY** Load Shed Logic reset. (N/A if Load Shed has not occurred).
- [10.2] **IF** an Appendix R fire occurred in Fire Area 16, **THEN**

RESET Battery Charger 1 in accordance with 0-SSI-16. (N/A if an Appendix R fire has not occurred)
- [10.3] **OPEN** the DC BREAKER, 2-BKR-248-0002A/DC on front of Battery Charger 2A by placing it to OFF.
- [10.4] **PLACE POWER ON**, 2-HS-248-0002A to ON.
- [10.5] **CHECK** DC Voltage stabilized greater than 250 Volts on DC VOLTMETER, 2-EI-248-0002A.
- [10.6] **CLOSE** the DC BREAKER, 2-BKR-248-0002A/DC on front of Battery Charger 2A by placing it to ON.

BFN Unit 0	DC Electrical System	0-OI-57D Rev. 0117 Page 43 of 247
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5.2.2 Placing the 250V Battery Charger 2A in Service to Battery Board 2 (continued)

- [11] **CHECK** the following indications of normal operation on 250V Battery Charger 2A, 2-CHGA-248-0002A:
- DC VOLTMETER, 2-EI-248-0002A greater than 250 Volts
 - DC amps, 2-II-248-0002A less than 300 amps
 - POWER ON, 2-IL-248-0002AA light illuminated
 - TRANSFORMER OVER TEMPERATURE, 2-IL-248-0002AB light extinguished
 - DC OVER VOLTAGE, 2-IL-248-0002AC light extinguished
 - DC UNDER VOLTAGE, 2-IL-248-0002AD light extinguished
 - AC UNDER VOLTAGE, 2-IL-248-0002AE light extinguished
- [12] **VERIFY** that EQUALIZE TIMER, 2-TMR-248-0002A is set to zero.
- [13] **CHECK** 250V DC Battery Charger 2A is supplying power to the bus by observing DC amps, 2-II-248-0002A indication greater than zero amps.
- [14] **IF** the 250V Battery Board 2 is unloaded, **THEN** **LOAD** the Battery Board IAW 2-SR-3.8.4.4(MB-2).

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

U1 Plant "J" RO
U1 Plant "J" SRO

JPM NUMBER: 1-8

TITLE: 1-EOI APPENDIX 1B - VENT AND REPRESSURIZE THE
SCRAM PILOT AIR HEADER

TASK NUMBER: U-000-EM-20

SUBMITTED BY: *Dustin Ben* DATE: 2/7/08

VALIDATED BY: *PLT* DATE: 2/7/08

APPROVED: *Robert J. ...* DATE: 2/7/08
TRAINING

PLANT CONCURRENCE: *Dee* DATE: 2-7-08
OPERATIONS

* Examination JPMs Require Operations Training Manager or Designee Approval and Plant Concurrence

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	1/31/2008	All	Modified for Unit-1

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 1-8

TASK NUMBER: U-000-EM-20

TASK TITLE: VENT AND REPRESSURIZE THE SCRAM PILOT AIR HEADER
IN ACCORDANCE WITH EOI APPENDIX 1B

K/A NUMBER: 295015AA1.01 K/A RATING: RO 3.8 SRO: 3.9

TASK STANDARD: SIMULATE COMPONENT MANIPULATIONS REQUIRED TO VENT
AND SUBSEQUENTLY REPRESSURIZE THE SCRAM PILOT AIR
HEADER AS DIRECTED BY EOI APPENDIX 1B

LOCATION OF PERFORMANCE: SIMULATOR ___ PLANT X CONTROL ROOM ___

REFERENCES/PROCEDURES NEEDED: 1-EOI-APPENDIX 1B, REV 1

VALIDATION TIME: CONTROL ROOM: _____ LOCAL: 7:00

MAX. TIME ALLOWED: _____ (Completed for Time Critical JPMS only)

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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. Touch STAAR 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. 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. The Unit 1 reactor has scrammed and all control rods failed to insert to position 02. EOI-1 has been entered and followed to RC/Q-23.

INITIATING CUES: The UNIT SUPERVISOR has directed you to perform 1-EOI Appendix 1B, VENTING AND REPRESSURIZING THE SCRAM PILOT AIR HEADER.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

START TIME _____

Performance Step: Critical___ Not Critical X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required procedure.

Standard:

IDENTIFIED OR OBTAINED copy of 1-EOI Appendix 1B.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

1. NOTIFY the Unit Operator and CONTINUE in this procedure.

NOTE: A ladder may be required to perform the following step. REFER TO Tools and Equipment, Attachment 1.

Standard:

SIMULATED NOTIFYING Unit 1 Operator by phone or radio that procedure is being performed.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical X Not Critical _____

2. CLOSE the following valves (El. 565, R5, N-Line):

- 1-SHV-085-0260, CONT AIR HDR SPLY SHUTOFF VLV,

Standard:

LOCATED AND SIMULATED CLOSING 1-SHV-085-0260.

CUE: THE HANDWHEEL IS TURNING, THE STEM IS MOVING INWARD.

PAUSE

THE HANDWHEEL IS SNUG, THE STEM HAS STOPPED MOVING.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step: Critical X Not Critical _____

EXAMINER NOTE: Continued from step 2, bullet 2.

2. **CLOSE** the following valves (El. 565, R5, N-Line):
- 1-SHV-085-0261, CONT AIR HDR SPLY SHUTOFF VLV,

Standard:

LOCATED AND SIMULATED CLOSING 1-SHV-085-0261.

CUE: THE HANDWHEEL IS TURNING, THE STEM IS MOVING INWARD.

PAUSE

THE HANDWHEEL IS SNUG, THE STEM HAS STOPPED MOVING.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step: Critical ___ Not Critical X

3. **INSTALL** quick disconnects on drain nipples downstream the following drain valves (Panel 1-LPNL-925-0018B, east end):

- 1-DRIV-085-0038A, INSTR DRAIN VLV FOR PS-85-38

Standard:

LOCATED AND INSTALLED quick disconnects on drain nipple.

EXAMINER NOTE: Verify the candidate locates the quick disconnects identified in Attachment 1 of this procedure at Unit 1 RB, el. 565', R6 and P-Line.

CUE: The quick disconnects are installed on drain valve 1-DRIV-085-0038A.

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical ___ Not Critical X

EXAMINER NOTE: Continued from step 3, bullet 2.

3. **INSTALL** quick disconnects on drain nipples downstream the following drain valves (Panel 1-LPNL-925-0018B, east end):

- 1-DRIV-085-0038B, INSTR DRAIN VLV FOR PS-85-38

Standard:

LOCATED AND INSTALLED quick disconnects on drain nipple.

EXAMINER NOTE: Verify the candidate locates the quick disconnects identified in Attachment 1 of this procedure at Unit 1 RB, el. 565', R6 and P-Line.

CUE: The quick disconnects are installed on drain valve 1-DRIV-085-0038B.

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical X Not Critical _____

4. **OPEN** the following instrument drain valves (Panel 1-LPNL-925-0018B, east end):

- 1-DRIV-085-0038A, INSTR DRAIN VLV FOR PS-85-38

Standard:

LOCATED AND SIMULATED OPENING instrument drain valve 1-DRIV-085-0038A for PS-85-38.

CUE: THE HANDWHEEL IS TURNING, THE STEM IS MOVING OUTWARD.

PAUSE

THE HANDWHEEL IS SNUG, THE STEM HAS STOPPED MOVING.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step: Critical X Not Critical _____

EXAMINER NOTE: Continued from step 4, bullet 2.

4. **OPEN** the following instrument drain valves (Panel 1-LPNL-925-0018B, east end):

- 1-DRIV-085-0038B, INSTR DRAIN VLV FOR PI-85-38

Standard:

LOCATED AND SIMULATED OPENING instrument drain valve 1-DRIV-085-0038B for PI-85-38.

CUE: THE HANDWHEEL IS TURNING, THE STEM IS MOVING OUTWARD.

PAUSE

THE HANDWHEEL IS SNUG, THE STEM HAS STOPPED MOVING.

CUE: 1-PI-85-38 INDICATES 0 PSIG.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

CUE: THE UNIT SUPERVISOR HAS DIRECTED REPRESSURIZING THE SCRAM PILOT AIR HEADER

Performance Step: Critical X Not Critical _____

5. WHEN...Unit Supervisor directs re-pressurizing Scram Pilot Air Header,

THEN...**RE-PRESSURIZE** the Scram Pilot Air Header as follows:

a. **CLOSE** the following instrument drain valves:

- 1-DRIV-085-0038A, INSTR DRAIN VLV FOR PS-85-38

Standard:

SIMULATED CLOSING 1-DRIV-085-0038A for PS-85-38.

CUE: THE HANDWHEEL IS TURNING, THE STEM IS MOVING INWARD.
PAUSE
THE HANDWHEEL IS SNUG, THE STEM HAS STOPPED MOVING.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step: Critical X Not Critical _____

EXAMINER NOTE: Continued from step 5A.

- a. **CLOSE** the following instrument drain valves:
 - 1-DRIV-085-0038B, INSTR DRAIN VLV FOR PI-85-38

Standard:

SIMULATED CLOSING 1-DRIV-085-0038B for PI-85-38.

CUE: THE HANDWHEEL IS TURNING, THE STEM IS MOVING INWARD.

PAUSE

THE HANDWHEEL IS SNUG, THE STEM HAS STOPPED MOVING.

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical__ Not Critical_X

EXAMINER NOTE: Continued from step 5.

c. REMOVE quick disconnects on drain nipples downstream the following drain valves (Panel 1-LPNL-925-0018B, east end):

- 1-DRIV-085-0038A, INSTR DRAIN VLV FOR PS-85-38

Standard:

LOCATED AND INSTALLED quick disconnects on drain nipple.

CUE: The quick disconnects are removed from drain valve 1-DRIV-085-0038A.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical___ Not Critical_ X

EXAMINER NOTE: Continued from step 5C.

c. **REMOVE** quick disconnects on drain nipples downstream the following drain valves (Panel 1-LPNL-925-0018B, east end):

- 1-DRIV-085-0038B, INSTR DRAIN VLV FOR PI-85-38

Standard:

LOCATED AND INSTALLED quick disconnects on drain nipple.

CUE: The quick disconnects are removed from drain valve 1-DRIV-085-0038B.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X

- 6. WHEN...Scram Pilot Air Header is re-pressurized,
THEN...**NOTIFY** Unit Operator.

Standard:

NOTIFIED Unit 1 Operator by phone or radio that scram pilot air header is re-pressurized.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: 2-PI-85-38 INDICATES 73 PSIG.

END OF TASK

STOP TIME _____

Performance Step: Critical___ Not Critical X

PERFORMER complied with all safety rules and regulations.

Standard:

PERFORMER complied with all safety rules and regulations (hardhat, safety glasses, sideshields, and hearing protection was worn **AS REQUIRED**.)

ELECTRICAL SAFETY was also adhered to **AS REQUIRED**: Exposed conductive articles such as rings, metal wristwatches, bracelets, and metal necklaces shall not be worn by employees within reaching distance of exposed energized electrical conductors of 50 volts or greater.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated proper radiological practices **AS REQUIRED**.

Standard:

PERFORMER applied proper radiological practices, **AS REQUIRED**, during JPM performance.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of SELF CHECKING during this JPM.

Standard:

PERFORMER verified applicable components by utilizing SELF CHECKING in accordance with plant standards.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION in accordance with plant standards.

SAT___ UNSAT___ N/A___ COMMENTS:_____

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. Touch STAAR 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. 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. The Unit 1 reactor has scrammed and all control rods failed to insert to position 02. EOI-1 has been entered and followed to RC/Q-23.

INITIATING CUES: The UNIT SUPERVISOR has directed you to perform 1-EOI Appendix 1B, VENTING AND REPRESSURIZING THE SCRAM PILOT AIR HEADER.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!



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. Touch STAAR 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. 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. The Unit 1 reactor has scrammed and all control rods failed to insert to position 02. EO1-1 has been entered and followed to RC/Q-23.

INITIATING CUES: The UNIT SUPERVISOR has directed you to perform 1-EO1 Appendix 1B, VENTING AND REPRESSURIZING THE SCRAM PILOT AIR HEADER.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

EOI PROGRAM MANUAL SECTION IX

1-EOI APPENDIX-1B

**VENTING AND REPRESSURIZING
THE SCRAM PILOT AIR HEADER**

Revision 1

PREPARED BY: D. Powell

PHONE: 2528

RESPONSIBLE ORGANIZATION: Operations

APPROVED BY: Tony Elms

EFFECTIVE DATE: 08/22/2007

LEVEL OF USE: REFERENCE USE

EOI VALIDATION DATE: 03/30/2007

QUALITY-RELATED

BFN UNIT 1	VENTING AND REPRESSURIZING THE SCRAM PILOT AIR HEADER	1-EOI APPENDIX-1B Rev. 1
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HISTORY OF REVISION/REVIEW

<u>REV. NO.</u>	<u>REVISED PAGES</u>	<u>REASON FOR CURRENT REVISION</u>
1	3	TR# 02 - Tool description in Attachment 1 changed to "quick disconnects (2)."

BFN UNIT 1	VENTING AND REPRESSURIZING THE SCRAM PILOT AIR HEADER	1-EOI APPENDIX-1B Rev. 1 Page 1 of 3
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LOCATION: Unit 1 RB NE, EI 565 ft, 1-LPNL-925-0018B ATTACHMENTS: 1. Tools and Equipment (<input checked="" type="checkbox"/>)

1. **NOTIFY** Unit Operator and **CONTINUE** in this procedure. _____
2. **CLOSE** the following valves (El. 565, R5, N-Line):
 - 1-SHV-085-0260, CONT AIR HDR SPLY SHUTOFF VLV, _____
 - 1-SHV-085-0261, CONT AIR HDR SPLY SHUTOFF VLV. _____
3. **INSTALL** quick disconnects on drain nipples downstream the following drain valves (Panel 1-LPNL-925-0018B, east end):
 - 1-DRIV-085-0038A, INSTR DRAIN VLV FOR PS-85-38 _____
 - 1-DRIV-085-0038B, INSTR DRAIN VLV FOR PI-85-38. _____
4. **OPEN** the following instrument drain valves (Panel 1-LPNL-925-0018B, east end):
 - 1-DRIV-085-0038A, INSTR DRAIN VLV FOR PS-85-38 _____
 - 1-DRIV-085-0038B, INSTR DRAIN VLV FOR PI-85-38. _____
4. **WHEN**..... 1-PI-085-0038, CRD SCRAM VALVE PILOT AIR HEADER PRESS, indicates 0 psig,
THEN..... **NOTIFY** Unit 1 Operator. _____

BFN UNIT 1	VENTING AND REPRESSURIZING THE SCRAM PILOT AIR HEADER	1-EOI APPENDIX-1B Rev. 1 Page 2 of 3
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5. WHEN..... Unit Supervisor directs re-pressurizing Scram Pilot Air Header,
- THEN..... **REPRESSURIZE** the Scram Pilot Air Header as follows:
- a. **CLOSE** the following instrument drain valves:
 - 1-DRIV-085-0038A, INSTR DRAIN VLV FOR PS-85-38 _____
 - 1-DRIV-085-0038B, INSTR DRAIN VLV FOR PI-85-38. _____
 - b. **SLOWLY OPEN** the following valves (El. 565, R5, N-Line):
 - 1-SHV-085-0260, CONT AIR HDR SPLY SHUTOFF VLV, _____
 - 1-SHV-085-0261, CONT AIR HDR SPLY SHUTOFF VLV. _____
 - c. **REMOVE** quick disconnects on drain nipples downstream the following drain valves (Panel 1-LPNL-925-0018B, east end):
 - 1-DRIV-085-0038A, INSTR DRAIN VLV FOR PS-85-38 _____
 - 1-DRIV-085-0038B, INSTR DRAIN VLV FOR PI-85-38. _____
6. WHEN..... Scram Pilot Air Header is re-pressurized,
- THEN..... **NOTIFY** Unit 1 Operator. _____

END OF TEXT

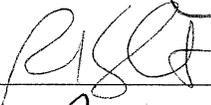
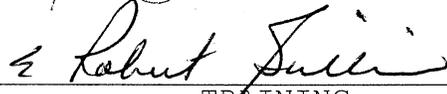
BFN UNIT 1	VENTING AND REPRESSURIZING THE SCRAM PILOT AIR HEADER	1-EOI APPENDIX-1B Rev. 1 Page 3 of 3 ATTACHMENT 1
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TOOLS AND EQUIPMENT:	LOCATION:
Quick disconnects (2)	Unit 1 RB, el. 565', R6 and P-Line

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

U1 Plant "K" RO
U1 Plant "K" SRO

JPM NUMBER: 1-108
TITLE: REMOVE A CRD HYDRAULIC CONTROL UNIT FROM SERVICE
TASK NUMBER: A-085-NO-09

SUBMITTED BY:  DATE: 2/7/08
VALIDATED BY:  DATE: 2/7/08
APPROVED:  DATE: 2/7/08
TRAINING
PLANT CONCURRENCE:  DATE: 2-7-08
OPERATIONS

* Examination JPMs Require Operations Training Manager or Designee Approval and Plant Concurrence

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	01/31/08	All	Modified from Unit-2

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 1-108

TASK NUMBER: A-085-NO-09

TASK TITLE: REMOVE CRD HCU FROM SERVICE

K/A NUMBER: 201003G13 K/A RATING: RO 3.4 SRO: 3.3

TASK STANDARD: PERFORM NECESSARY OPERATIONS REQUIRED TO REMOVE A
CRD HYDRAULIC CONTROL UNIT FORM SERVICE

LOCATION OF PERFORMANCE: SIMULATOR ___ PLANT X CONTROL ROOM ___

REFERENCES/PROCEDURES NEEDED: 1-OI-85, REV 5

VALIDATION TIME: _____ CONTROL ROOM: _____ LOCAL: 13:00

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

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. Touch STAAR 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. 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 AUO. Unit 1 is at 100% power. CRD hydraulic control unit 06-19 (East side) is to be removed from service. The control rod associated with the Hydraulic Control Unit (HCU) to be isolated is fully inserted. Cooling water flow is to be maintained and nitrogen is to be discharged from the accumulator.

INITIATING CUES: The Unit Operator directs you to remove CRD HCU 06-19 from service as directed by 1-OI-85 section 8.6. All Precautions and Limitations in Section 3.1 have been reviewed.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

START TIME _____

Performance Step: Critical___ Not Critical_X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required procedure.

Standard:

IDENTIFIED OR OBTAINED copy of 1-OI-85.

SAT___ UNSAT___ N/A___ COMMENTS: _____

8.6 Removing a Hydraulic Control Unit from Service

CAUTIONS

- 1) HCU valving sequences should **NOT** deviate from those listed in this instruction, otherwise, serious damage to the CRD could result.
- 2) HCU valves should only be opened or closed hand tight unless there is a need to apply additional torque to ensure leak tightness. The torque values provided in Illustration 2 shall be used when torquing is required.
- 3) [NER/C] If a maximum torque value is exceeded, a WO shall be initiated and the System Engineer shall be notified. [GE SIL 419]
- 4) The following steps totally isolate an HCU from the Control Rod Drive, Control Rod Drive Hydraulic System, Reactor Manual Control System and the Reactor Protection System for the purposes of removing and replacing HCU parts. These steps should be performed only when the period of isolation is **NOT** to exceed several hours or only during periods of reactor shutdown when the reactor is **NOT** at operating pressure and temperature.
- 5) The following steps isolate the flow of cooling water from the HCU to the Control Rod Drive. Sustained loss of cooling water when the reactor is at operating pressure and temperature will shorten the life of the Control Rod Drive internal seals.

NOTE

This section is written to allow total isolation of an HCU (Step 8.6[4]) or HCU isolation while maintaining cooling water flow (Step 8.6[3]). This section also provides a simplified method of disabling control rod withdrawal due to Technical Specification restrictions when no maintenance is involved (Step 8.6[5]).

Performance Step: Critical__ Not Critical X

[1] **VERIFY** at least one of the following initial conditions are satisfied:

- The control rod associated with the Hydraulic Control Unit (HCU) to be isolated is fully inserted, **OR**
- The control rod associated with the HCU to be isolated is inoperable and Shift Manager/Unit Supervisor notified to verify Technical Specifications and rod pattern restraints, **OR**
- Fuel in that cell around a withdrawn control rod has been off loaded.

Standard:

The control rod associated with the Hydraulic Control Unit (HCU) to be isolated is fully inserted - Given in the initial conditions.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical__ Not Critical X

[2] **REVIEW** all Precautions and Limitations in Section 3.1.

Standard:

Given in the initial conditions.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical___ Not Critical X

[3] **IF** it is desired to isolate the HCU but retain cooling water flow, **THEN PERFORM** the following:

[3.4] **INSTALL** pipe fittings and drain hose at the outlet of the ACCUM WATER SIDE DR, 1-DRV-085-590 and **ROUTE** hose to a floor drain or a suitable container.

Standard:

Simulated installing pipe fittings and drain hose at the outlet of the ACCUM WATER SIDE DR, 1-DRV-085-590 and simulated routing hose to a floor drain.

SAT___ UNSAT___ N/A___ COMMENTS: _____

CUE: You have the pipe fitting and drain hose and they have been connected to 1-85-590 and the hose routed to the floor drain.

Performance Step: Critical___ Not Critical X

[3] **IF** it is desired to isolate the HCU but retain cooling water flow, **THEN PERFORM** the following:

[3.5] **SLOWLY OPEN** ACCUM WATER SIDE DR, 1-DRV-085-590.

Standard:

Simulated rotating 1-DRV-085-590 handwheel slowly in the counterclockwise direction.

SAT___ UNSAT___ N/A___ COMMENTS: _____

CUE: The handwheel is turning, the stem is moving outward. PAUSE The handwheel is snug, the stem has stopped moving.

Performance Step: Critical__ Not Critical X

[3.8.5] LOOSELY REPLACE the cap on the nitrogen charging connection fitting.

Standard:

Simulates loosely replacing cap.

SAT__ UNSAT__ N/A__ COMMENTS: _____

CUE: The cap is now loosely replaced.

Performance Step: Critical X Not Critical__

[3.9] CLOSE DRIVE WATER SOV, 1-SHV-085-593.

Standard:

Simulated rotating 1-SHV-085-593 handwheel in the clockwise direction.

SAT__ UNSAT__ N/A__ COMMENTS: _____

**CUE: The handwheel is turning, the stem is moving inward. PAUSE
The handwheel is snug, the stem has stopped moving.**

Performance Step: Critical___ Not Critical X

[3.11] **DISCONNECT** amphenol connectors to the following valves:

- CRD DIR CONT VLV W/SPEED ADJ-INSERT, 1-FCV-085-40A.
- CRD DIR CONT VLV W/SPEED ADJ-WITHDRAW, 1-FCV-085-40B.
- CRD DIRECTION CONT VALVE-WITHDRAW, 1-FCV-085-40C.
- CRD DIRECTION CONT VLV-INSERT, 1-FCV-085-40D.

Standard:

Simulated disconnecting and protecting amphenol connectors. (All four steps are critical)

SAT___ UNSAT___ N/A___ COMMENTS: _____

CUE: All four amphenol connectors have been disconnected, protected and are in the process of being tagged.

Performance Step: Critical___ Not Critical X

[3.12] **RECORD** the Control Rod coordinates in the Narrative Log.

Standard:

Simulated notifying the Unit Operator to make the log entry.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

PERFORMER verified applicable components by utilizing TOUCH STAAR (Standard is subjective and instructor must evaluate the need for additional training on TOUCH STAAR to maintain plant standards).

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION (Standard subjective and instructor must evaluate the need for additional training on 3-WAY COMMUNICATION to maintain plant standards).

SAT___ UNSAT___ N/A___ COMMENTS: _____

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. Touch STAAR 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. 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 AUO. Unit 1 is at 100% power. CRD hydraulic control unit 06-19 (East side) is to be removed from service. The control rod associated with the Hydraulic Control Unit (HCU) to be isolated is fully inserted. Cooling water flow is to be maintained and nitrogen is to be discharged from the accumulator.

INITIATING CUES:

The Unit Operator directs you to remove CRD HCU 06-19 from service as directed by 1-OI-85 section 8.6. All Precautions and Limitations in Section 3.1 have been reviewed.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

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C

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. Touch STAAR 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. 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 AUO. Unit 1 is at 100% power. CRD hydraulic control unit 06-19 (East side) is to be removed from service. The control rod associated with the Hydraulic Control Unit (HCU) to be isolated is fully inserted. Cooling water flow is to be maintained and nitrogen is to be discharged from the accumulator.

INITIATING CUES:

The Unit Operator directs you to remove CRD HCU 06-19 from service as directed by 1-OI-85 section 8.6. All Precautions and Limitations in Section 3.1 have been reviewed.

CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

BFN Unit 1	Control Rod Drive System	1-OI-85 Rev. 0005 Page 88 of 179
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8.6 Removing a Hydraulic Control Unit from Service

CAUTIONS

- 1) HCU valving sequences should **NOT** deviate from those listed in this instruction, otherwise, serious damage to the CRD could result.
- 2) HCU valves should only be opened or closed hand tight unless there is a need to apply additional torque to ensure leak tightness. The torque values provided in Illustration 2 shall be used when torquing is required.
- 3) [NER/C] If a maximum torque value is exceeded, a WO shall be initiated and the System Engineer shall be notified. [GE SIL 419]
- 4) The following steps totally isolate an HCU from the Control Rod Drive, Control Rod Drive Hydraulic System, Reactor Manual Control System and the Reactor Protection System for the purposes of removing and replacing HCU parts. These steps should be performed only when the period of isolation is **NOT** to exceed several hours or only during periods of reactor shutdown when the reactor is **NOT** at operating pressure and temperature.
- 5) The following steps isolate the flow of cooling water from the HCU to the Control Rod Drive. Sustained loss of cooling water when the reactor is at operating pressure and temperature will shorten the life of the Control Rod Drive internal seals.

NOTE

This section is written to allow total isolation of an HCU (Step 8.6[4]) or HCU isolation while maintaining cooling water flow (Step 8.6[3]). This section also provides a simplified method of disabling control rod withdrawal due to Technical Specification restrictions when no maintenance is involved (Step 8.6[5]).

[1] **VERIFY** at least one of the following initial conditions are satisfied:

- The control rod associated with the Hydraulic Control Unit (HCU) to be isolated is fully inserted, **OR**
- The control rod associated with the HCU to be isolated is inoperable and Shift Manager/Unit Supervisor notified to verify Technical Specifications and rod pattern restraints, **OR**
- Fuel in that cell around a withdrawn control rod has been off loaded.

[2] **REVIEW** all Precautions and Limitations in Section 3.1.

BFN Unit 1	Control Rod Drive System	1-OI-85 Rev. 0005 Page 89 of 179
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8.6 Removing a Hydraulic Control Unit from Service (continued)

CAUTION

The following step permits isolation of an HCU during reactor operation, when it is desirable to maintain a flow of cooling water to the CRD. This method will prevent CRD movement in response to Reactor Manual Control System or Reactor Protection System signals and is **NOT** to be used for maintenance on the HCU.

NOTE

The HCU should be returned to service in accordance with Section 8.7 following any maintenance activities on the HCU.

- [3] **IF** it is desired to isolate the HCU but retain cooling water flow,
THEN

PERFORM the following:

- [3.1] **CLOSE** INSERT RISER SOV, 1-SHV-085-612.
- [3.2] **UNLOCK** and **CLOSE** WITHDRAW RISER SOV, 1-SHV-085-615.
- [3.3] **CLOSE** CHARGING WATER SOV, 1-SHV-085-588.
- [3.4] **INSTALL** pipe fittings and drain hose at the outlet of the ACCUM WATER SIDE DR, 1-DRV-085-590 and **ROUTE** hose to a floor drain or a suitable container.
- [3.5] **SLOWLY OPEN** ACCUM WATER SIDE DR, 1-DRV-085-590.

NOTE

The accumulator is fully drained when the gas pressure, as indicated on 1-PI-085-034, remains constant. This indicates that the piston in the water accumulator has reached the mechanical stop.

- [3.6] **IF** the Control Rod Drive Hydraulic System is shut down,
THEN

CLOSE ACCUM WATER SIDE DR, 1-DRV-085-590, when all water has drained.

BFN Unit 1	Control Rod Drive System	1-OI-85 Rev. 0005 Page 90 of 179
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8.6 Removing a Hydraulic Control Unit from Service (continued)

- [3.7] **IF** the Control Rod Drive Hydraulic System is in operation, **THEN**
- MAINTAIN OPEN** ACCUM WATER SIDE DR, 1-DRV-085-590, to drain possible leakage through the CHARGING WATER SOV, 1-SHV-085-588.
- [3.8] **IF** the Unit Supervisor determines the Nitrogen gas accumulator is required to be discharged, **THEN**
- PERFORM** the following:
- [3.8.1] **CLOSE** ROOT VLV TO PI-85-34, 1-RTV-085-229A.

CAUTION

High pressure nitrogen may be trapped between the nitrogen charging connection and ROOT VLV TO PI-85-34, 1-RTV-085-229A.

- [3.8.2] **SLOWLY REMOVE** cap from the nitrogen charging connection fitting.
- [3.8.3] **SLOWLY OPEN** ROOT VLV TO PI-85-34, 1-RTV-085-229A, to vent the nitrogen gas through the nitrogen charging connection. [GE SIL 536]
- [3.8.4] **VERIFY** CRD ACCUMULATOR NITROGEN SIDE PRESS, 1-PI-085-034, indicates the nitrogen gas is completely vented.
- [3.8.5] **LOOSELY REPLACE** the cap on the nitrogen charging connection fitting.
- [3.9] **CLOSE** DRIVE WATER SOV, 1-SHV-085-593.
- [3.10] **OPEN** INSERT RISER SOV, 1-SHV-085-612, to reestablish cooling water flow to the CRD.

BFN Unit 1	Control Rod Drive System	1-OI-85 Rev. 0005 Page 91 of 179
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8.6 Removing a Hydraulic Control Unit from Service (continued)

NOTE

Disconnected directional control valve amphenol connectors should be tagged and protected from dirt, moisture and electrical hazard using a suitable material.

- [3.11] **DISCONNECT** amphenol connectors to the following valves:
- CRD DIR CONT VLV W/SPEED ADJ-INSERT, 1-FCV-085-40A
 - CRD DIR CONT VLV W/SPEED ADJ-WITHDRAW, 1-FCV-085-40B
 - CRD DIRECTION CONT VALVE-WITHDRAW, 1-FCV-085-40C
 - CRD DIRECTION CONT VLV-INSERT, 1-FCV-085-40D

[3.12] **RECORD** the Control Rod coordinates in the Narrative Log.

[4] **IF** it is desired to totally isolate the HCU, **THEN**

PERFORM the following:

- [4.1] **CLOSE** INSERT RISER SOV, 1-SHV-085-612.
- [4.2] **UNLOCK** and **CLOSE** WITHDRAW RISER SOV, 1-SHV-085-615.
- [4.3] **CLOSE** CHARGING WATER SOV, 1-SHV-085-588.
- [4.4] **CLOSE** COOLING WATER SOV, 1-SHV-085-596.
- [4.5] **CLOSE** DRIVE WATER SOV, 1-SHV-085-593.
- [4.6] **CLOSE** EXHAUST WATER SOV, 1-SHV-085-600.
- [4.7] **INSTALL** pipe fittings and drain hose at the outlet of ACCUM WATER SIDE DR, 1-DRV-085-590 and **ROUTE** hose to a floor drain or a suitable container.