Draft Submittal

(Pink Paper)

BROWNS FERRY
EXAM 2002-301
50-259, 50-260, & 50-296

DECEMBER 13, 16-19, 2002

1. Administrative Questions/JPMs
2. In-plant JPMs
3. Control Room JPMs (simulator JPMs)
4. Administrative Topics Outline ES-301-1
5. Control Room Systems and Facility Walk-Through Test Outline ES-301-2

Facility: BFN Date of Examination: 12/16/02
Examination Level (circle one): RO Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	FUEL HANDLING	ADMINISTRATIVE QUESTION A1.1 ✓
		ADMINISTRATIVE QUESTION A1.5 ✓
	SECURITY	
		JPM A4.1 RESPOND TO A SECURITY EVENT ✓
A.2	SURVEILLANCE TESTING	
		JPM 510 - EVALUATE RECOMBINER PERFORMANCE ✓
A.3	RADIATION CONTROL	ADMINISTRATIVE QUESTION A3.1 ✓
		ADMINISTRATIVE QUESTION A3.2 ✓
A.4	EPIP	ADMINISTRATIVE QUESTION A4.6 ✓
		ADMINISTRATIVE QUESTION A4.7 ✓

Facility: BFN Date of Examination: 12/16/02
Examination Level (circle one): SRO Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Fuel Handling	ADMINISTRATIVE QUESTION A1.1 ✓
		ADMNISTRATIVE QUESTION A1.8 ✓
	SECURITY	
		JPM A4.2 - RESPOND TO A SECURITY EVENT ✓
A.2	EQUIPMENT CONTROL	
		JPM 510 - EVALUATE RECOMBINER PERRORAMANCE ✓
A.3	RADIATION CONTROL	ADMINISTRATIVE QUESTION A3.1 ✓
		ADMINISTRATIVE QUESTION A3.3 ✓
A.4	EPIP	JPM A4.5 - CLASSIFY THE EVENT ✓

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A3.1

TITLE: SECTION A QUESTION

TASK NUMBER: U-000-AD-17 S-000-AD-89

SUBMITTED BY: _____ DATE: ____

VALIDATED BY: _____ DATE: ____

APPROVED: _____ DATE: ____
TRAINING

PLANT CONCURRENCE: _____ DATE: ____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO ____ DATE: _____
JPM NUMBER: A3.1

TASK NUMBER: U-000-AD-17 S-000-AD-89

TASK TITLE: SECTION A QUESTION

K/A NUMBER: 2.3.11 K/A RATING: RO 2.7 SRO: 3.2

****

TASK STANDARD: Using available references, answer the question as described.

LOCATION OF PERFORMANCE: SIMULATOR x PLANT x CONTROL ROOM x

REFERENCES/PROCEDURES NEEDED: 2-ARP-9-3A, Rev 19

VALIDATION TIME: CONTROL ROOM: N/A LOCAL: N/A
MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____ CONTROL ROOM __ LOCAL __
COMMENTS: _____

Additional comment sheets attached? YES __ NO __

RESULTS: SATISFACTORY ___ UNSATISFACTORY ___

EXAMINER SIGNATURE: _____ DATE: ____
EXAMINER

EXAMINER'S KEY

REFERENCES ALLOWED

QUESTION

2-XA-55-3A, Window 27, 'MAIN STEAM LINE RADIATION HIGH-HIGH' is in alarm. The following steam line radiation readings are obtained:

2-RM-90-136	1.9E3 MR/HR	(Panel 9-10)
2-RM-90-137	2.6E3 MR/HR	(Panel 9-10)
2-RM-90-138	2.4E3 MR/HR	(Panel 9-10)
2-RM-90-139	2.1E3 MR/HR	(Panel 9-10
2-RR-90-135	2.31E3 MR/HR (Both Channels)	(Panel 9-2)
2-RR-90-157 (Panel 9-2)	5.30 R/HR (Was steady at 4.0 R/HR over the previous 12 hours.)	

What actions are required?

EXPECTED RESPONSE (EXACT WORDING NOT REQUIRED)

1. Notify RADCON (25%)
2. Request chemical analysis of primary coolant (25%)
3. Secure Hydrogen Water Chemistry (25%)
4. Possible power reduction (25%)

REFERENCES

2-ARP-9-3A, Rev 19, Page 29

OPERATOR ACTION:

4. If off –gas pretreatment radiation, 2-RR-90-157, has risen significantly (30% above

previous hour average), THEN…

CANDIDATE'S HANDOUT

REFERENCES ALLOWED

2-XA-55-3A, Window 27, 'MAIN STEAM LINE RADIATION HIGH-HIGH' is in alarm. The following steam line radiation readings are obtained:

2-RM-90-136	1.9E3 MR/HR
2-RM-90-137	2.6E3 MR/HR
2-RM-90-138	2.4E3 MR/HR
2-RM-90-139	2.1E3 MR/HR
2-RR-90-135	2.31E3 MR/HR (Both Channels)
2-RR-90-157	5.30 R/HR (Was steady at 4.0 R/HR over the previous 12 hours.)

What actions are required?

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A3.2

TITLE: SECTION A QUESTION

TASK NUMBER: U-000-AD-01

SUBMITTED BY: _____ DATE: ____

VALIDATED BY: _____ DATE: ____

APPROVED: _____ DATE: ____
TRAINING

PLANT CONCURRENCE: _____ DATE: ____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ____ SRO ____ DATE: _____

JPM NUMBER: A3.2

TASK NUMBER: U-000-AD-01

TASK TITLE: SECTION A QUESTION

K/A NUMBER: 2.3.10 K/A RATING: RO 2.9 SRO: 3.3

****

TASK STANDARD: Using available references, answer the question as described.

LOCATION OF PERFORMANCE: SIMULATOR x PLANT x CONTROL ROOM x

REFERENCES/PROCEDURES NEEDED: RCI-15, Rev 27, Attachment 1, Page 6

VALIDATION TIME: CONTROL ROOM: N/A LOCAL: N/A

MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____ CONTROL ROOM __ LOCAL __
COMMENTS: _____

Additional comment sheets attached? YES __ NO __

RESULTS: SATISFACTORY ___ UNSATISFACTORY ___

EXAMINER SIGNATURE: _____ DATE: ____

EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

EXAMINER'S KEY

REFERENCES ALLOWED

QUESTION

Unit 2 is at 100% rated power. While planning maintenance near the feedwater lines it has been determined that the total dose received by the four required maintenance personnel can be reduced by ~475 mrem if reactor power is reduced to 75% (with or without a reduction in hydrogen injection) or can be reduced by ~160 mrem if the hydrogen injection rate is reduced.

In terms of ALARA considerations, what recommendation should be made to management?

EXPECTED RESPONSE (EXACT WORDING NOT REQUIRED)

The recommendation should be to remain at 100% rated power (50%) and reduce the hydrogen injection rate (50%).

REFERENCES

RCI-15.1, Maintaining Occupational Radiation Exposure as Low as Reasonably Achievable (ALARA), Rev. 27, Page 6, Attachment 1

CANDIDATE'S HANDOUT

REFERENCES ALLOWED

Unit 2 is at 100% rated power. While planning maintenance near the feedwater lines it has been determined that the total dose received by the four required maintenance personnel can be reduced by ~475 mrem if reactor power is reduced to 75% (with or without a reduction in hydrogen injection) or can be reduced by ~160 mrem if the hydrogen injection rate is reduced.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A3.3

TITLE: SECTION A QUESTION (SRO ONLY)

TASK NUMBER: S-000-AD-91

SUBMITTED BY:_____ _____ DATE:____

VALIDATED BY:_____ _____ DATE:____

APPROVED: _____ _____ DATE:____
TRAINING

PLANT CONCURRENCE: _____ _____ DATE:____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ____ SRO ____ DATE: _____

JPM NUMBER: A3.2

TASK NUMBER: S-000-AD-91

TASK TITLE: SECTION A QUESTION (SRO ONLY)

K/A NUMBER: 268000A1.02 RO 2.6 SRO 3.6

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TASK STANDARD: Using available references, answer the question as described.

LOCATION OF PERFORMANCE: SIMULATOR _x_ PLANT _x_ CONTROL ROOM _x_

REFERENCES/PROCEDURES NEEDED: ODCM, Rev 14, Page 19

VALIDATION TIME: CONTROL ROOM: N/A LOCAL: N/A

MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____ CONTROL ROOM __ LOCAL __

COMMENTS: _____

Additional comment sheets attached? YES __ NO __

RESULTS: SATISFACTORY ___ UNSATISFACTORY ___

EXAMINER SIGNATURE: _____ DATE: ____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

EXAMINER'S KEY

REFERENCES ALLOWED

SRO ONLY

QUESTION

During discharge of a floor drain sample tank to the river, 0-RM-90-130, Liquid Radwaste Effluent Monitor, went downscale and it has been determined that the detector must be replaced.

What compensatory actions must be taken in order to complete the release without 0-RM-90-130?

EXPECTED RESPONSE (EXACT WORDING NOT REQUIRED)

1. The instrument should be declared inop (10%)
2. The release must be suspended until compensatory measures are completed (20%)
3. Two independent samples of the tank contents shall be analyzed by two qualified station personnel who shall independently verify the release rate calculations and check valving before the discharge. (70%)

REFERENCES

1. 0-OI-77B, Rev 38, Page18
2. 0-SI-4.8.A.1-1, Rev 60, Page 4

3. Offsite Dose Calculation Manual (ODCM), Rev 14, Page 19

CANDIDATE'S HANDOUT

REFERENCES ALLOWED

During discharge of a floor drain sample tank to the river, 0-RM-90-130, Liquid Radwaste Effluent Monitor, went downscale and it has been determined that the detector must be replaced.

What compensatory actions must be taken in order to complete the release without 0-RM-90-130?

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A4.1

TITLE: RESPOND TO A SECURITY EVENT IAW 0-AOI-100-8

TASK NUMBER: U-000-AB-11 S-000-AB-11

SUBMITTED BY: _____ _____ DATE:____

VALIDATED BY: _____ _____ DATE:____

APPROVED: _____ _____ DATE:____
TRAINING

PLANT CONCURRENCE: _____ _____ DATE:____
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	9/9/02	ALL	NEW

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ____ SRO ____ DATE: _____ __ __

JPM NUMBER: 204

TASK NUMBER: ADMIN

TASK TITLE: RESPOND TO A SECURITY EVENT IAW 0-AOI-100-8

K/A NUMBER: 2.1.8 K/A RATING: RO 3.8 SRO: 3.6

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TASK STANDARD: DISPATCH PERSONNEL IN RESPONSE TO A SECURITY EVENT IAW 0-AOI-100-8.

LOCATION OF PERFORMANCE: SIMULATOR _X_ PLANT _ CONTROL ROOM _

REFERENCES/PROCEDURES NEEDED: 0-AOI-100-8, REV 0009

VALIDATION TIME: CONTROL ROOM: 20:00 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 ___

EXAMINER SIGNATURE: _____ DATE: ____

EXAMINER

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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.

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INITIAL CONDITIONS: You are the Unit 1 Operator. Unit 2 is at 100% power and Unit 3 is 3 days into a refueling outage. Site Security has just notified the Shift Manager that a group of armed guerrillas have breached the protected area but have been stymied for the present by Nuclear Security.

INITIATING CUES: The Shift Manager directs you to carry out the operator actions of 0-AOI-100-8, Security Event Response.

1.0 PURPOSE

This instruction provides guidance for Operations Management to evaluate and respond to site security events, and provides appropriate interface with Nuclear Security Services (NSS).

2.0 SYMPTOMS

- Notified that an air attack on the plant site is imminent.
- Notified that plant security has been violated or degraded by attack threat.
- Notified of potential or actual acts of tampering, vandalism, or malicious mischief. [NRC IE Notice 96-71]
- Bomb threat received or sabotage device discovered.
- Notified of other security contingency event (ex., civil disturbance, internal disturbance, fire, explosion, non-attack threats).

3.0 AUTOMATIC ACTIONS

NONE.

4.0 OPERATOR ACTIONS

4.1 Immediate Actions

NONE.

4.2 Subsequent Actions

NOTE:

The following steps are presented in a recommended order. However, these steps may be performed in any order and readdressed at any time due to circumstances and chronology of the security event, but all steps shall be addressed prior to procedure exit.

4.2.1 **IF** notified that an air attack on the plant site is imminent, **THEN** extinguish all visible sources of light at the plant as follows: .....

.....

NOTE:

Shift Managers and licensed personnel have responsibility to direct reasonable action that departs from a license condition or Technical Specifications in an emergency when this action is immediately needed to protect the public health and safety where no action consistent with license conditions and Technical Specifications that can provide equivalent protection is immediately apparent. [10CFR50.54(x) and (y)]

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*

Performance Step: Critical___ Not Critical X___

4.2.2 **IF** notified that plant security has been violated or degraded by attack threat (Protected Area breached by Adversarial Force), **THEN**

4.2.2.1 **IMMEDIATELY NOTIFY** Unit 2 and Unit 3 Unit Supervisors of the site security event.

Standard:

NOTIFIES Unit 2 and Unit 3 Unit Supervisors of site security event.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

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CUE: CONSOLE OPERATOR ACKNOWLEDGES FOR UNITS 2 and 3.

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Performance Step: Critical___ Not Critical_X

4.2.2.2 **PERFORM** the following as applicable:

4.2.2.2.1 **INITIATE** a manual Reactor Scram on all operating units. **REFER TO** 2(3)-AOI-100-1.

4.2.2.2.2 **ENSURE** fuel movement stopped and place any fuel bundle being moved in a safe condition. **REFER TO** 0-GOI-100-3C.

Standard:

None

SAT___UNSAT___N/A___ COMMENTS:_____

_____

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*

CUES: BY SHIFT MANAGER DIRECTIVE UNIT 2 HAS BEEN MANUALLY SCRAMMED AND UNIT 3 REFUELING SUSPENDED WITH ALL FUEL BUNDLES SECURED.

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*

Performance Step: Critical_X_____ Not Critical_____

4.2.2.3 Unit 1 Operator **MAKE** a plant announcement similar to the following: "ATTENTION, ALL PLANT PERSONNEL, A SITE SECURITY EVENT IS IN PROGRESS."

Standard:

MAKES P.A. announcement.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

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Performance Step: Critical___ Not Critical_X____

4.2.2.4 Units 1, 2, 3 **VERIFY** ZETRON dispatch console is selected to NSS Channel (PSS HB) and **MONITOR** the security event **UNTIL** terminated. **REFER TO** Attachment 1 **AND** PIP 97-182, Site Security Diagram, as necessary.

- **PERFORM** all communication with Operations personnel **USING** communication systems **OTHER THAN** the Unit ZETRON dispatch console.

Standard:

VERIFIEDS ZETRON selected to NSS Channel and **DIRECTED** all operations communication be performed using OTHER THAN ZETRON.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

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*

Performance Step: Critical___ Not Critical_X____

4.2.2.5 Shift Manager/affected Unit Supervisor **ESTABLISH AND MAINTAIN** open channel communication with NSS Shift Supervisor, using X2219 and/or Operations frequency 1 (NSS frequency 5).

Standard:

ESTABLISHES AND MAINTAINS open channel communication with NSS Shift Supervisor, using X2219 and/or Operations frequency 1 (NSS frequency 5).

SAT___UNSAT___N/A___ COMMENTS:_____

_____

CUE: [WHEN ESTABLISHED] COMMUNICATIONS WITH THE NUCLEAR SECURITY SUPERVISOR HAVE BEEN ESTABLIHED.

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Performance Step: Critical X Not Critical____

4.2.2.6 **INITIATE** Control Room Emergency Ventilation System from panel 2-9-22 by **PLACING** CREV TRAIN A(B) INIT/CB ISOL, 0-HS-31-150A (0-HS-31-150B) in the INIT/TEST position.

Standard:

SIMULATES PLACING 0-HS-31-150A OR 0-HS-150B in the INIT/TEST position.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
*CUE: [WHEN SIMULATED] CREVS HAS BEEN INITIATED.

****
*

Performance Step: Critical X Not Critical____

4.2.2.7 **PERFORM** a Manual Fast Start of the Standby Diesel Generators from panel 2-9-8 and 3-9-8 via switches 2-HS-82-1 and 3-HS-82-1.

Standard:

At Panel 2-9-8 manually fast **STARTS** OR requests U2 Operator to fast start Unit 1/2 diesel generators and **DIRECTS** Unit 3 Operator to start Unit 3 diesel generators.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

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CUE: [WHEN CONTACTED] ALL 4 UNIT 3 DIESEL GENERATORS ARE RUNNING.

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Performance Step: Critical X_____ Not Critical_____

4.2.2.8 START a Fire Pump (Preferred start of an electric fire pump in the selected sequence at panel 1-9-20 via switch HS-26-1A, 2A or 3A).

Standard:

At Panel 1-9-20, STARTS one of the electric fire pumps..

SAT___UNSAT___N/A___ COMMENTS:_____

_____

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NUCLEAR SECURITY HAS ADVISED THE SHIFT MANAGER THAT TWO OF THE INTRUDERS HAVE MADE THEIR WAY INTO THE SERVICE BUILDING.

NOTE:
For purposes of this instruction, Power Block refers to the contiguous enclosed buildings comprised of the Unit 3 D.G. Building, the combined Unit Reactor Buildings, the combined Turbine Building, the Unit 1/2 D.G. Building, the Radwaste Building, the Service Building and the Plant Office Building.

4.2.3 **IF** notified that the Adversarial Force has entered the Power Block, **THEN:**

****

Performance Step: Critical__X_ Not Critical_____

4.2.3.1 **UNLESS** notified by NSS that the Control Bay elevator is immobilized, **THEN** at panel 0-9-23-7, **DEENERGIZE** 4KV Shutdown Board A as follows:

NOTE:

4KV Shutdown Board A is deenergized from the control room so that 480v DSL Aux Board A is deenergized and thus the Control Bay elevator is verified immobilized.

4.2.3.1.1 Momentarily **DEPRESS**, 0-HS-211-A, 4KV SD BD AUTO TO MANUAL TRIP push-button.

4.2.3.1.2 Momentarily **DEPRESS** the DG A EMERGENCY SHUTDOWN push-button, 0-HS-82-A/4.

4.2.3.1.3 Momentarily **PLACE** 0-HS-211-A/3A, 4KV SD BD A NORM FDR BKR 1614, to **TRIP**.

Standard:

DEENERGIZES 'A' 4KV Shutdown Board by:

- **DEPRESSING** 0-HS-211-A, 4KV SD BD AUTO TO MANUAL TRIP
- **DEPRESSING** DG A EMERGENCY SHUTDOWN push-button, 0-HS-82-A/4
- **PLACING** 0-HS-211-A/3A, 4KV SD BD A NORM FDR BKR 1614, to **TRIP**

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
*

Performance Step: Critical___ Not Critical_X___

4.2.3.2 **PLACE** CONTROL ROOM DOORS MANUAL CONTROL keylock switch in **LOCK** at Unit 1/2 Shift Manager's Console.

Standard:

REQUESTS Shift Manager to lock the control room doors.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

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*

CUE: [WHEN REQUESTED] CONTROL ROOM DOORS ARE LOCKED.

****

Performance Step: Critical__ Not Critical_X_

4.2.3.3 Unit 1 Operator **MAKE** a plant announcement similar to:

"ATTENTION, ALL PLANT PERSONNEL, PLEASE STAY AT YOUR CURRENT LOCATION DURING THIS SECURITY EVENT."

Standard:

MAKES plant announcement.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****
*

Performance Step: Critical X Not Critical_____

4.2.3.4 **RAISE** Reactor Water Level to maximum level indication on the normal reactor water level monitoring instrumentation.

Standard:

REQUESTS U2 US/Unit Operator to raise RPV water level to +60 inches.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
*

CUE: {WHEN REQUESTED] U2 RPV WATER LEVEL IS +60 INCHES.

****
*

Performance Step: Critical X Not Critical_____

4.2.3.5 **COMMENCE** a reactor plant cooldown to expedite reaching cold shutdown conditions.

Standard:

INFORMS Shift Manager that a Unit 2 cooldown is required.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
*

CUE: [WHEN REQUESTED] THE SHIFT MANAGER HAS DIRECTED A U2 COOLDOWN

4.2.4 **IF** notified of any act of tampering, vandalism, malicious mischief, bomb threat, or other security contingency event, **THEN**.....

CUE: NUCLEAR SECURITY HAS INFORMED THE SHIFT MANAGER THAT THE INTRUDERS HAVE BEEN NEUTRALIZED. THIS ENDS THE JPM.

END OF TASK

STOP TIME_____

****

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_ 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:_____

_____

_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A4.2 (SRO ONLY)

TITLE: RESPOND TO A SECURITY EVENT IAW 0-AOI-100-8

TASK NUMBER: S-000-AB-11

SUBMITTED BY: _____ DATE: ____

VALIDATED BY: _____ DATE: ____

APPROVED: _____ DATE: ____
TRAINING

PLANT CONCURRENCE: _____ DATE: ____
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	9/9/02	ALL	NEW

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ___ SRO ___ DATE: _____

JPM NUMBER: A4.2 (SRO ONLY)

TASK NUMBER: S-000-AB-11

TASK TITLE: RESPOND TO A SECURITY EVENT IAW 0-AOI-100-8

K/A NUMBER: 2.1.8 K/A RATING: RO 3.8 SRO: 3.6

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TASK STANDARD: PERFORM THE ACTIONS REQUIRED BY 0-AOI-100-8, RESPONSE TO A SECURITY EVENT.

LOCATION OF PERFORMANCE: SIMULATOR _X_ PLANT _ CONTROL ROOM _

REFERENCES/PROCEDURES NEEDED: 0-AOI-100-8, REV 9

VALIDATION TIME: CONTROL ROOM: 9:00 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 ___

EXAMINER 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.

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INITIAL CONDITIONS: You are a Unit Supervisor. Security has notified the Shift Manager that a warning has been received from the FAA that unknown and unresponsive aircraft are approaching the Browns Ferry Nuclear Plant area and an air attack on the plant is possible. The time is 2:30 AM. Units 2 and 3 are at 100% power.

INITIATING CUES: The Shift Manager directs you to carry out the actions of 0-AOI-100-8, Security Event Response.

1.0 PURPOSE

This instruction provides guidance for Operations Management to evaluate and respond to site security events, and provides appropriate interface with Nuclear Security Services (NSS).

2.0 SYMPTOMS

- Notified that an air attack on the plant site is imminent.
- Notified that plant security has been violated or degraded by attack threat.
- Notified of potential or actual acts of tampering, vandalism, or malicious mischief. [NRC IE Notice 96-71]
- Bomb threat received or sabotage device discovered.
- Notified of other security contingency event (ex., civil disturbance, internal disturbance, fire, explosion, non-attack threats).

3.0 AUTOMATIC ACTIONS

NONE.

4.0 OPERATOR ACTIONS

4.1 Immediate Actions

NONE.

4.2 Subsequent Actions

NOTE:

The following steps are presented in a recommended order. However, these steps may be performed in any order and readdressed at any time due to circumstances and chronology of the security event, but all steps shall be addressed prior to procedure exit.

4.2.1 **IF** notified that an air attack on the plant site is imminent, **THEN** extinguish all visible sources of light at the plant as follows:

****

Performance Step: Critical X Not Critical_____

4.2.1.1 **PLACE** 0-HS-247-R1/R2, EAST/WEST STREET AND STACK LIGHTING, on panel 0-9-23-3 to **OFF**.

4.2.1.2 **OPEN** Breaker 4D on 480v Common Board 1 for WEST AND SOUTH SIDE STREET & STACK LIGHTING.

4.2.1.3 **OPEN** Breaker 5C on 480v Common Board 2 for NORTH, EAST AND SOUTH SIDE STREET LIGHTING.

Standard:

DISPATCHED personnel to

- Place 0-HS-247-R1/R2 to OFF
- OPEN Breaker 4D on 480v Common Board 1
- OPEN Breaker 5C on 480v Common Board 2

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
*

Performance Step: Critical X Not Critical_____

4.2.1.4 **IF** exterior plant lighting (transformer yard, parking, switchyard, etc.) is illuminated, **THEN PERFORM** the following steps to extinguish exterior lighting:

4.2.1.4.1 **DISPATCH** personnel to the Security Diesel Building to **OPEN** the following breakers on the 480v SECURITY MCC Board (may require an MC key to access the building):

- Breaker 2A, Yard Lighting
- Breaker 2E, Yard Lighting
- Breaker 3A, Yard Lighting

Standard:

DISPATCHED personnel to the Security Diesel Building to OPEN the above 3 breakers

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
*

****
*

Performance Step: Critical X Not Critical

4.2.1.4.2 **DISPATCH** personnel to the following switchyard distribution cabinets to **OPEN** the following breakers to deenergize transformer and switchyard area lighting:

- Breaker 15 (LC 60), 480V XFMR YARD DIST CAB 1
- Breaker 17 (LC 61), 480V XFMR YARD DIST CAB 3
- Breaker 9 (LC 66), 500KV SWITCHYARD 240V DISTRIBUTION CABINET No. 1-1
- Breaker 10 (LC 71), 500KV SWITCHYARD 240V DISTRIBUTION CABINET No. 1-2
- Breaker 10 (LC 73), 500KV SWITCHYARD 240V DISTRIBUTION CABINET No. 2-1
- Breaker 10 (LC 72), 500KV SWITCHYARD 240V DISTRIBUTION CABINET No. 2-2

Standard:

DISPATCHED personnel to switchyard to OPEN the above 6 breakers.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
*

****
*

Performance Step: Critical X Not Critical_____

4.2.1.4.3 Based on estimated reaction time **PERFORM** one of the following:

4.2.1.4.3.1 **DISPATCH** personnel to the Office Buildings, Cooling Towers, Administration Building, Engineering Building, Training Building, Livewell Center, Warehouse Building and any other outbuildings which may be illuminated to ensure lighting is extinguished.

- **OR** -

4.2.1.4.3.2 **DISPATCH** personnel to the COOLING TOWER SWITCHGEAR C & D BUILDING to **OPEN** the following breakers:

- 4KV COOLING TOWER SWITCHGEAR C, Breaker 7, SOUTH LOOP LINE POWER
- 4KV COOLING TOWER SWITCHGEAR D, Breaker 1, CONSTRUCTION LOOP LINE
- 4KV COOLING TOWER SWITCHGEAR D, Breaker 7, NORTH LOOP LINE POWER

Standard:

DISPATCHED personnel to individual areas to extinguish lights OR to
cooling tower switchgear to open 3 breakers.

SAT___UNSAT___N/A___ COMMENTS:_____

****
*

CUE: SECURITY HAS NOTIFIED YOU THAT THE IMMINENT AIR ATTACK WAS A FALSE ALARM AND ALL IS CLEAR. THIS ENDS THE JPM.

STOP TIME_____

****
***

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__ COMMENTS:_____

_____

_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A3.1

TITLE: SECTION A QUESTION

TASK NUMBER: U-000-AD-17 S-000-AD-89

SUBMITTED BY: _____ DATE: ____

VALIDATED BY: _____ DATE: ____

APPROVED: _____ DATE: ____
TRAINING

PLANT CONCURRENCE: _____ DATE: ____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ____ SRO ____ DATE: _____
JPM NUMBER: A3.1

TASK NUMBER: U-000-AD-17 S-000-AD-89

TASK TITLE: SECTION A QUESTION

K/A NUMBER: 2.3.11 K/A RATING: RO 2.7 SRO: 3.2

****

TASK STANDARD: Using available references, answer the question as described.

LOCATION OF PERFORMANCE: SIMULATOR _x_ PLANT _x_ CONTROL ROOM _x_

REFERENCES/PROCEDURES NEEDED: 2-ARP-9-3A, Rev 19

VALIDATION TIME: CONTROL ROOM: N/A LOCAL: N/A
MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____ CONTROL ROOM __ LOCAL __
COMMENTS: _____

Additional comment sheets attached? YES __ NO __

RESULTS: SATISFACTORY ___ UNSATISFACTORY ___

EXAMINER SIGNATURE: _____ DATE: ____
EXAMINER

EXAMINER'S KEY

REFERENCES ALLOWED

QUESTION

2-XA-55-3A, Window 27, 'MAIN STEAM LINE RADIATION HIGH-HIGH' is in alarm. The following steam line radiation readings are obtained:

2-RM-90-136	1.9E3 MR/HR	(Panel 9-10)
2-RM-90-137	2.6E3 MR/HR	(Panel 9-10)
2-RM-90-138	2.4E3 MR/HR	(Panel 9-10)
2-RM-90-139	2.1E3 MR/HR	(Panel 9-10
2-RR-90-135	2.31E3 MR/HR (Both Channels)	(Panel 9-2)
2-RR-90-157 (Panel 9-2)	5.30 R/HR (Was steady at 4.0 R/HR over the previous 12 hours.)	

What actions are required?

EXPECTED RESPONSE (EXACT WORDING NOT REQUIRED)

1. Notify RADCON (25%)
2. Request chemical analysis of primary coolant (25%)
3. Secure Hydrogen Water Chemistry (25%)
4. Possible power reduction (25%)

REFERENCES

2-ARP-9-3A, Rev 19, Page 29

OPERATOR ACTION:

4. If off –gas pretreatment radiation, 2-RR-90-157, has risen significantly (30% above

previous hour average), THEN...

CANDIDATE'S HANDOUT

REFERENCES ALLOWED

2-XA-55-3A, Window 27, 'MAIN STEAM LINE RADIATION HIGH-HIGH' is in alarm. The following steam line radiation readings are obtained:

2-RM-90-136	1.9E3 MR/HR
2-RM-90-137	2.6E3 MR/HR
2-RM-90-138	2.4E3 MR/HR
2-RM-90-139	2.1E3 MR/HR
2-RR-90-135	2.31E3 MR/HR (Both Channels)
2-RR-90-157	5.30 R/HR (Was steady at 4.0 R/HR over the previous 12 hours.)

What actions are required?

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A1.1

TITLE: SECTION A QUESTION

TASK NUMBER: U-074-NO-12 S-074-AB-01

SUBMITTED BY: _____ DATE: ____

VALIDATED BY: _____ DATE: ____

APPROVED: _____ DATE: ____
TRAINING

PLANT CONCURRENCE: _____ DATE: ____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ____ SRO ____ DATE: _____
JPM NUMBER: A1.1

TASK NUMBER: U-074-NO-12 S-074-AB-01

TASK TITLE: SECTION A QUESTION

K/A NUMBER: 2.1.23 K/A RATING: RO 3.9 SRO: 4.0

****

TASK STANDARD: Using available references, answer the question as shown. Exact wording is not required.

LOCATION OF PERFORMANCE: SIMULATOR x PLANT x CONTROL ROOM x

REFERENCES/PROCEDURES NEEDED: 0-GOI-300-3C, FUEL MOVEMENT OPERATIONS DURING REFUELING

VALIDATION TIME: CONTROL ROOM: N/A LOCAL: N/A
MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: N/A CONTROL ROOM N/A LOCAL N/A
COMMENTS: _____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY ___ UNSATISFACTORY ___

EXAMINER SIGNATURE: _____ DATE: ____

EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

EXAMINER'S KEY

REFERENCES ALLOWED

QUESTION

During Unit 2 refueling operations near the core periphery, RHR shutdown cooling flow is making it difficult for the fuel handlers to see into the reactor core. What measures can be taken to rectify the problem?

EXPECTED RESPONSE (exact wording not required)

1. Reduce shutdown cooling flow (40%)
2. Temporarily secure shutdown cooling if: (40%)
   - Shift manager approves (10%)
   - An alternate means of core temperature monitoring is initiated (10%)

Reference: 0-GOI-100-3C, Rev 41, Page 10, Step 3.3.5

CANDIDATE'S HANDOUT

REFERENCES ALLOWED

QUESTION

During Unit 2 refueling operations near the core periphery, RHR shutdown cooling flow is making it difficult for the fuel handlers to see into the reactor core. What measures can be taken to rectify the problem?

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A4.5

TITLE: CLASSIFY THE EVENT PER THE REP

TASK NUMBER: S-000-EM-21

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	10/25/02	ALL	NEW

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO __X_____ DATE:_____

JPM NUMBER: A4.5

TASK NUMBER: S-000-EM-21 (SRO ONLY)

TASK TITLE: CLASSIFY THE EVENT PER THE REP

K/A NUMBER: 2.4.38 K/A RATING: RO 2.2 SRO: 4.0

****
*

TASK STANDARD: THE EVENT IS CLASSIFIED AS AN SITE AREA EMERGENCY BASED ON REACTOR WATER LEVEL CANNOT BE MAINTAINED ABOVE -162 INCHES

LOCATION OF PERFORMANCE: SIMULATOR _X__ PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: EPIP 1, REV 29; EPIP 4, REV 26

VALIDATION TIME: CONTROL ROOM: 8:00 LOCAL: N/A

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

PERFORMANCE TIME: _____CONTROL ROOM _____ LOCAL N/A

COMMENTS: _____

Additional comment sheets attached? YES _____ NO ____

RESULTS: **SATISFACTORY** _____ **UNSATISFACTORY** _____

SIGNATURE: _____ **DATE:** _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

INITIAL CONDITIONS: You are the SHIFT MANAGER. Unit 2 was operating at 100% power. A large reactor coolant leak occurred on Unit 2. Drywell pressure increased above 2.45 psig. All high pressure ECCS fail. Unit 1 and 3 are in cold shutdown. EOI-1 and 2 are in progress on Unit 2. Operations personnel are venting primary containment per 2-EOI Appendix 12.

INITIATING CUES: The Unit 2 UNIT SUPERVISOR has informed you that reactor water level has lowered to -162" and is slowly trending downward due the failure of all high pressure ECCS makeup. RHR and CORE SPRAY systems are available, and preparations are in progress for emergency depressurization by control room personnel.
CLASSIFY THE EVENT according to the EPIPs.

Reactor Power	Shutdown with all rods in
Reactor Level	-162" inches and trending down
Reactor Pressure	950 psig
DW Pressure	3.6 psig and rising
DW Temperature	182 degrees F
DW Radiation	RR-90-256 slowly rising (prior to isolation)
Torus Temperature	96 degrees F
Torus Pressure	2.2 psig
Torus Level	+4 inches

NOTE: Unit 2 conditions are deteriorating and wind speed is 10 mph from the NW. No abnormal radiological releases offsite.

STUDENT HANDOUT

INITIAL CONDITIONS: You are the SHIFT MANAGER. Unit 2 was operating at 100% power. A large reactor coolant leak occurred on Unit 2. Drywell pressure increased above 2.45 psig. All high pressure ECCS fail. Unit 1 and 3 are in cold shutdown. EOI-1 and 2 are in progress on Unit 2. Operations personnel are venting primary containment per 2-EOI Appendix 12.

INITIATING CUES: The Unit 2 UNIT SUPERVISOR has informed you that reactor water level has lowered to -162" and is slowly trending downward due the failure of all high pressure ECCS makeup. RHR and CORE SPRAY systems are available, and preparations are in progress for emergency depressurization by control room personnel.

CLASSIFY THE EVENT according to the EPIPs.

Reactor Power	Shutdown with all rods in
Reactor Level	-162" inches and trending down
Reactor Pressure	950 psig
DW Pressure	3.6 psig and rising
DW Temperature	182 degrees F
DW Radiation	RR-90-256 slowly rising (prior to isolation)
Torus Temperature	96 degrees F
Torus Pressure	2.2 psig
Torus Level	+4 inches

NOTE: Unit 2 conditions are deteriorating and wind speed is 10 mph from the NW. No abnormal radiological releases offsite.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A4.7

TITLE: SECTION A QUESTION

TASK NUMBER: U-000-AD-17 S-000-AD-89

SUBMITTED BY: _____ DATE: ____

VALIDATED BY: _____ DATE: ____

APPROVED: _____ DATE: ____
TRAINING

PLANT CONCURRENCE: _____ DATE: ____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ____ SRO ____ DATE: _____

JPM NUMBER: A4.7

TASK NUMBER: U-000-AD-17 S-000-AD-89

TASK TITLE: SECTION A QUESTION

K/A NUMBER: 2.4.39 K/A RATING: RO 3.3 SRO: 3.1

****

TASK STANDARD: Without using references, answer the question as described. (Exact wording is not required.)

LOCATION OF PERFORMANCE: SIMULATOR x PLANT x CONTROL ROOM x

REFERENCES/PROCEDURES NEEDED: None

VALIDATION TIME: CONTROL ROOM: N/A LOCAL: N/A
MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: N/A CONTROL ROOM N/A LOCAL N/A
COMMENTS: _____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY ___ UNSATISFACTORY ___

EXAMINER SIGNATURE: _____ DATE: ____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

EXAMINER'S KEY

REFERENCES **NOT** ALLOWED

QUESTION:

Upon receiving a fire emergency call and obtaining the pertinent information, what four (4) actions should the Unit Operator take?

EXPECTED RESPONSE:

1. Initiate the fire alarm (50%)
2. Announce the fire location over the PA system at regular intervals until otherwise instructed.(30%)
3. Notify fire protection personnel using the Ops/Fire Protection radio(10%)
4. Notify the Shift Manager of the fire(10%)

REFERENCE:

EPIP-21, Fire Emergency Procedure, Page 1, Step 3.2

CANDIDATE'S HANDOUT

REFERENCES **NOT** ALLOWED

Upon receiving a fire emergency call and obtaining the pertinent information, what four (4) actions should the Unit Operator take?

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A4.6

TITLE: SECTION A QUESTION

TASK NUMBER: U-000-AD-17 S-000-AD-89

SUBMITTED BY: _____ DATE: ____

VALIDATED BY: _____ DATE: ____

APPROVED: _____ DATE: ____
TRAINING

PLANT CONCURRENCE: _____ DATE: ____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ____ SRO ____ DATE: _____

JPM NUMBER: A4.6

TASK NUMBER: U-000-AD-17 S-000-AD-89

TASK TITLE: SECTION A QUESTION

K/A NUMBER: 2.4.39 K/A RATING: RO 3.3 SRO: 3.1

****

TASK STANDARD: Without using references, answer the question as described. (Exact wording is not required.)

LOCATION OF PERFORMANCE: SIMULATOR x PLANT x CONTROL ROOM x

REFERENCES/PROCEDURES NEEDED: None

VALIDATION TIME: CONTROL ROOM: N/A LOCAL: N/A
MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: N/A CONTROL ROOM N/A LOCAL N/A
COMMENTS: _____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY ___ UNSATISFACTORY ___

EXAMINER SIGNATURE: _____ DATE: ___
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

EXAMINER'S KEY

REFERENCES **NOT** ALLOWED

QUESTION:

Upon receiving a Medical Emergency call, what information should the Unit Operator obtain from the caller?

EXPECTED RESPONSE: (

1. Name of caller (30%)
2. Location of the medical emergency(40%)
3. Type of medical emergency(10%)
4. Number of people involved (10%)(
5. Telephone number of caller (10%)
6.

REFERENCE:

EPIP-10, Medical Emergency Procedure, Page 1, Step 3.1.1

CANDIDATE'S HANDOUT

REFERENCES **NOT** ALLOWED

Upon receiving a Medical Emergency call, what information should the Unit Operator obtain from the caller?

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A1.5

TITLE: SECTION A QUESTION

TASK NUMBER: U-000-AD-17

SUBMITTED BY: _____ DATE: ____

VALIDATED BY: _____ DATE: ____

APPROVED: _____ DATE: ____
TRAINING

PLANT CONCURRENCE: _____ DATE: ____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ____ SRO ____ DATE: _____
JPM NUMBER: A1.5

TASK NUMBER: U-000-AD-17

TASK TITLE: SECTION A QUESTION

K/A NUMBER: 2.1.32 K/A RATING: RO 3.4 SRO: 3.8

****

TASK STANDARD: Using references, answer the question as described. (Exact wording is not required.)

LOCATION OF PERFORMANCE: SIMULATOR x PLANT x CONTROL ROOM x

REFERENCES/PROCEDURES NEEDED: 2-OI-78, Fuel Pool Cooling
VALIDATION TIME: CONTROL ROOM: N/A LOCAL: N/A
MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: N/A CONTROL ROOM N/A LOCAL N/A
COMMENTS: _____

Additional comment sheets attached? YES ___ NO ___

RESULTS: SATISFACTORY ___ UNSATISFACTORY ___

EXAMINER SIGNATURE: _____ DATE: ___
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

EXAMINER'S KEY

REFERENCES ALLOWED

QUESTION:

Why is a spent fuel pool temperature of <100 degrees F desired?

EXPECTED RESPONSE: This minimizes the release of soluble activity.

REFERENCE: 2-OI-78, P&L 3.1

CANDIDATE'S HANDOUT

REFERENCES ALLOWED

Why is a spent fuel pool temperature of <100 degrees F desired?

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: A1.8

TITLE: SECTION A QUESTION (SRO ONLY)

TASK NUMBER: S-000-NO-012

SUBMITTED BY: _____ _____ DATE: ____

VALIDATED BY: _____ _____ DATE: ____

APPROVED: _____ _____ DATE: ____
TRAINING

PLANT CONCURRENCE: _____ _____ DATE: ____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO ____ SRO ____ DATE: _____

JPM NUMBER: A1.8

TASK NUMBER: U-000-AD-17 S-000-AD-89

TASK TITLE: SECTION A QUESTION

K/A NUMBER: 2.1.8 K/A RATING: RO 3.8 SRO: 3.6

****

TASK STANDARD: Without references, answer the question as described.

LOCATION OF PERFORMANCE: SIMULATOR x PLANT x CONTROL ROOM x

REFERENCES/PROCEDURES NEEDED:

VALIDATION TIME: CONTROL ROOM: N/A LOCAL: N/A
MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: ____ CONTROL ROOM __ LOCAL __
COMMENTS: _____

Additional comment sheets attached? YES __ NO __

RESULTS: SATISFACTORY ___ UNSATISFACTORY ___

EXAMINER SIGNATURE: _____ DATE: ___
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

EXAMINER'S KEY

REFERENCES ALLOWED

QUESTION

Unit three is approximately one-half the way through an in-progress fuel loading when the refueling bridge malfunctioned requiring 12 hours to repair.

How does the Fuel Handling Supervisor determine what prerequisites must be re-verified prior to resuming fuel handling operations?

EXPECTED RESPONSE (EXACT WORDING NOT REQUIRED)

The prerequisites which must be re-confirmed are designated by note (8) throughout 0-GOI-100-3C.

REFERENCES

0-GOI-100-3C, Notes (3) and (8).

4.0 **PREREQUISITES**

NOTES:

(3) Prior to resuming fuel handling after a significant delay (8 hours or more) prerequisites denoted by (8) in this Section shall be reviewed and verified by the Fuel Handling Supervisor to ensure continued compliance. This review shall be documented by an entry in the Operations narrative log AND on Attachment 3. For surveillances (SIs/SRs) and maintenance instructions, it is sufficient

(8) This procedure may be worked in conjunction with 0-GOI-100-3A and/or 3B. Prerequisites completed in one procedure do not need to be repeated but

only verified using the companion procedure. In this case initial step and denote verified per 0-GOI-100-3A or 3B.

CANDIDATE'S HANDOUT

REFERENCES ALLOWED

QUESTION

Unit three is approximately one-half the way through an in-progress fuel loading when the refueling bridge malfunctioned requiring 12 hours to repair.

How does the Fuel Handling Supervisor determine what prerequisites must be re-verified prior to resuming fuel handling operations?

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 510

TITLE: EVALUATE RECOMBINER PERFORMANCE

TASK NUMBER: U-066-NO-02

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	8/8/02	All	New

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: A2.1

TASK NUMBER: U-066-NO-02

TASK TITLE: EVALUATE RECOMBINER PERFORMANCE IAW 3-OI-66

K/A NUMBER: 2.17 K/A RATING: RO 3.7 SRO: 4.4

****
*

TASK STANDARD: SIMULATE EVALUATING OFF-GAS RECOMBINER PERFORMANCE

LOCATION OF PERFORMANCE: SIMULATOR ___ PLANT ___ CONTROL ROOM X

REFERENCES/PROCEDURES NEEDED:3-OI-66,OFF-GAS SYSTEM,REVISION 0043

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

MAX. TIME ALLOWED: N/A (Completed for Time Critical JPMs only)

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL ___

COMMENTS: _____

Additional comment sheets attached? YES _____ NO ____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

EXAMINER SIGNATURE:_____ DATE: _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. Ensure that you observe electrical safety precautions when working near energized equipment. 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 the desk operator. A startup is in progress on Unit 3 and reactor power has been raised to 99% rated thermal power. The Hydrogen Water Chemistry System is out of service IAW 3-OI-4.

INITIATING CUES: The Shift Operations Supervisor directs you to evaluate Off-Gas Recombiner 3A performance in accordance with 3-OI-66, Section 6.1.

START TIME

6.0 SYSTEM OPERATIONS

6.1 Recombiner Performance Evaluation

NOTE:

1) The production of hydrogen and oxygen in the reactor is dependent upon reactor power level and upon the amount of hydrogen injected by the Hydrogen Water Chemistry System if in service. Since the recombination of hydrogen and oxygen is exothermic, the operating temperature of the recombiner is also dependent upon power level and the status of the HWC System.

2) Following startup, while still at low power, recombiner performance and hydrogen concentration should be closely monitored.

****

Performance Step: Critical___ Not Critical_X_

OBTAIN a current copy of OI-66, Off-Gas System, Section 6.1,Recombiner Performance Evaluation.

Standard:

OBTAINED control room copy of OI-66, Off-Gas System, Section 6.1,Recombiner Performance Evaluation.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical ___

6.1.1 PERFORM a recombiner performance evaluation as follows:

6.1.1.1 DETERMINE the in-service recombiner inlet temperature as indicated on RECOMBINER 3A(3B), INLET TEMP 3-TI-66-75A(B), Panel 3-9-53.

Standard:

DETERMINED RECOMBINER 3A INLET TEMP 3-TI-66-75A, Panel 3-9-53.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

Cue: 3-TI-66-75A, Recombiner 3A Inlet Temperature, indicates 393 degrees Fahrenheit.

****

Performance Step: Critical X Not Critical___

6.1.1.2 DETERMINE the in-service recombiner operating (center) temperature as indicated on RECOMBINER 3A/3B TEMPERATURE recorder, 3-TRS-66-77, Panel 3-9-53.

Standard:

DETERMINED the in-service recombiner operating (center) temperature as indicated on RECOMBINER 3A TEMPERATURE recorder, 3-TRS-66-77, Panel 3-9-53.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

Cue: 3-TR-66-77, Point 2, Recombiner 3A center temperature, is reading 618 degrees Fahrenheit.

****

Performance Step: Critical X Not Critical___

6.1.1.3 CALCULATE the temperature difference (ΔT) between the values obtained in Steps 1 and 2.

Standard:

Calculated Recombiner 3A inlet/center Δt and determined Δt is 225 degrees Fahrenheit

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

****

Performance Step: Critical X Not Critical ___

6.1.1.4 DETERMINE the reactor thermal power (MWt) from process computer.

Standard:

DETERMINED reactor thermal power from the process computer.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

Cue: Reactor thermal power is 3430 MWt.

****

Performance Step: Critical X Not Critical___

6.1.1.5 Using Illustration 1 plot the corresponding point of reactor power in MWT and ΔT.

Standard:

Using illustration 1, DETERMINED Δt corresponding to 3430 MWT is 240.1 degrees Fahrenheit.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

****

Performance Step: Critical X Not Critical___

6.1.1.6 VERIFY point on illustration 1 is above or equal to the appropriate line (HWC in service or HWC out of service)

Standard:

Determines from Illustration 1 that calculated Δt vs MWt plots BELOW the HWC Out of Service (solid) line.

Stops task performance and informs SRO that acceptance criteria is NOT met. (Not Critical)

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

Cue: SRO acknowledges acceptance criteria not met and directs performer to continue in the procedure.

****

Performance Step: Critical___ Not Critical X__

6.1.2 IF the in-service recombiner performance is below the minimum allowable, THEN

PERFORM the following:

6.1.2.1 CHECK Off-Gas Preheater, Recombiner and SJAEs are in operation in accordance with Section 5.0.

Standard:

PROCEEDS to check Off-Gas Preheater, Recombiner and SJAEs are in operation in accordance with Section 5.0.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

Cue: (When performers obtains OI-66, Section 5.0) Another operator will verify proper operation of Off-Gas components.

****

Performance Step: Critical___ Not Critical X__

6.1.2.2 Closely MONITOR the OFFGAS HYDROGEN ANALYZER recorder, 2-H2R-66-96 on Panel 2-9-53.

Standard:

MONITORS the OFFGAS HYDROGEN ANALYZER recorder, 2-H2R-66-96 on Panel 2-9-53.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

Cue: (When checked) Both Off-Gas Hydrogen Analyzers are operable.

Performance Step: Critical___ Not Critical X__

6.1.2.3 IF both hydrogen analyzers are inoperable, THEN

REQUEST Chem Lab to obtain a grab sample to determine hydrogen concentration. REFER TO TRM 3.3.9.

Standard:

Determined Step 6.1.2.3 is N/A.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

****

Performance Step: Critical___ Not Critical X__

6.1.2.4 IF a malfunction of the SJAE is suspected, THEN

REFER TO Section 8.4 and TRANSFER SJAEs.

Cue: Another operator has determined that the operating SJAE has NOT malfunctioned

Standard:

Does NOT transfer SJAEs.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

****

Performance Step: Critical___ Not Critical X__

6.1.3 IF off-gas hydrogen rises above 1%, THEN

REFER TO 2-AOI-66-1.

Cue: Off-Gas hydrogen concentration is 0.24%.

Standard:

Determines off-gas hydrogen has NOT risen above 1%.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

****

Performance Step: Critical___ Not Critical X__

6.1.4 Only IF analysis or hydrogen analyzers show hydrogen concentration is below 4%, THEN

PLACE standby recombiner in operation. REFER TO Section 8.3.

Standard:

Proceeds to PLACE standby recombiner in operation. REFER TO Section 8.3.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

Cue: Another operator will place the standby recombiner into service. This ends the JPM.

****

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_____

Facility: BFN Date of Examination: 12/16/02
Exam Level (circle one): RO Operating Test No.: _____

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. STANDBY GAS TREATMENT JPM 114 . STANDBY GAS TREATMENT TRAIN 'C' DECAY HEAT REMOVAL	D ✓	9
b. OFF GAS JPM 116F PLACING STANDBY STEAM JET AIR EJECTOR IN OPERATION	N,A ✓	9
c. RHR JPM 201 LOSS OF SHUTDOWN COOLING	N,L,A ✓	4
d. ELECTRICAL JPM 84 ENERGIZE A UNIT ½ 4 KV SD BOARD VIA A UNIT 3 DIESEL GENERATOR	D ✓	6
e. RCIC JPM 133F 2-EOI-APP11B ALTERNATE PRESSURE CONTROL, RCIC IN THE TEST MODE	D,A ✓	2
f. MAIN STEAM JPM 35 2-EOI-APPENDIX 8B REOPENING THE MSIVs FOLLOWING A GROUP 1 ISOLATION	D ✓	3
g. CONTROL ROD DRIVE JPM 148F LOSS OF A CRD PUMP	N,A ✓	1
B.2 Facility Walk-Through		
a. EOI/RPS JPM 340 3-EOI APPENDIX 16F AND 16G BYPASSING RHR INJECTION VALVE TIMERS	M ✓	5
b. SSI JPM 205 PERFORM 2/3-SSI-16, ATTACHMENT 2, SECTION 2	N ✓	8
c. EOI/SLC JPM 26 2-EOI APPENDIX 7B, ALTERNATE RPV INJECTION SYSTEM LINEUP - SLC TANK	D,R ✓	2

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

Facility: _____ Date of Examination: 12/16/02
Exam Level (circle one): SRO(U) Operating Test No.: _____

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. RHR JPM-201 LOSS OF SHUTDOWN COOLING	N,L,A ✓	4
b. PRIMARY CONTAINMENT VENTING JPM-51F 2-EOI APPENDIX 12	D,A ✓	9
c. ELECTRICAL JPM 96 PERFORM CONTROL ROOM TRANSFER OF 4KV SHUTDOWN BOARD 'A' POWER SUPPLIES	D ✓	6
d.		
e.		
f.		
g.		

B.2 Facility Walk-Through

a. EOI/HPCI JPM 331 2-EOI APPENDIX 16J BYPASS HPCI INTERLOCKS ✓	D	7
b. EOI/ALTERNATE INJECTION SOURCE JPM-24 2-EOI APPENDIX 7A ALTERNATE INJECTION SYSTEM - CONDENSATE TRANSFER TO CORE SPRAY ✓	D,R	2
c.		

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 133F

TITLE: 2-EOI APPENDIX 11B - ALTERNATE PRESSURE CONTROL - RCIC TEST MODE (FROM STANDBY, TRIP THROTTLE VALVE TRIPPED)

TASK NUMBER: U-000-EM-54

SAFETY FUNCTION: 2

TYPE CODE: D,A

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	12/8/94	1,2,3,4	REVISE TO NEW FORMAT
3	10/22/95	ALL	FORMATTING, TYPOS, UNIT 2 SPECIFIC ITEMS
4	9/5/96	ALL	DELETED PLANT INST., ADDED CRIT. STEP ON TOUCH STAAR, CHANGED ASOS TO US.
5	10/29/96	4, 13	CHANGED CRIT. STEP ON TOUCH STAAR TO NON-CRITICAL.
6	10/28/98	ALL	GENERAL REVISION
7	9/16/02	ALL	GENERAL REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: 133F

TASK NUMBER: U-000-EM-54

TASK TITLE: 2-EOI APPENDIX 11B - ALTERNATE PRESSURE CONTROL - RCIC TEST MODE (FROM STANDBY, TRIP THROTTLE VALVE TRIPPED)

K/A NUMBER: 295025EA1.05 K/A RATING: RO 3.7 SRO: 3.7

****

TASK STANDARD: PERFORM OPERATIONS NECESSARY TO PLACE RCIC IN TEST MODE FROM STANDBY FOR ALTERNATE RPV PRESSURE CONTROL AS DIRECTED BY 2-EOI APPENDIX 11B.

LOCATION OF PERFORMANCE: SIMULATOR X PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 2-EOI-APPENDIX 11B, REV 4

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

****

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. The Unit 2 reactor has scrammed and the turbine bypass valves are not responding properly for pressure control. EOI-1 has been entered and followed to RC/P-11.

INITIATING CUES: The UNIT SUPERVISOR directs you to place RCIC in Alternate RPV Pressure Control as directed by 2-EOI Appendix 11B.

START TIME:_____

****

Performance Step: Critical___ Not Critical_X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required EOI Appendix.

Standard:

IDENTIFIED OR OBTAINED copy of 2-EOI Appendix 11B.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

CAUTION

- Operating RCIC turbine below 2100 rpm may result in unstable system operation and damage.
- Elevated Suppression Chamber pressure may trip the RCIC turbine on high exhaust pressure.
- Operating RCIC Turbine with suction temperatures above 140°F may result in equipment damage.

****
*

****

Performance Step: Critical___ Not Critical_X

1. IF.....Emergency RPV Depressurization is required, THEN...**EXECUTE** EOI Appendix 16A and 16B as necessary to bypass RCIC Low RPV Pressure and Test Mode Isolation Interlocks.

Standard:

DID NOT request Appendix 16A and 16B.

CUE: EMERGENCY DEPRESSURIZATION NOT REQUIRED.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical___ Not Critical_X

2. **IF**.....Suppression Pool level CANNOT be maintained below 7 in.,

   THEN....EXECUTE EOI Appendix 16E concurrently with this procedure to bypass HPCI High Suppression Pool Level Suction Transfer Interlock

Standard:

Did not **REQUEST** EOI Appendix 16E.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

****

****

Performance Step: Critical___ Not Critical_X_

3. IF.....RCIC Turbine is operating and NOT required for RPV level control,
THEN...**ALIGN** RCIC in test mode as follows:

a. **OPEN** 2-FCV-71-38, RCIC PUMP CST TEST VLV.

b. **VERIFY OPEN** 2-FCV-73-36, HPCI/RCIC TEST RETURN VLV.

c. **CLOSE** 2-FCV-71-39, RCIC PUMP INJECTION VALVE.

d. **CONTINUE** in this procedure at Step 5.

Standard:

VERIFIES RCIC Turbine not operating by any of the following:

Speed 0 on 2-SI-71-42A
Flow 0 on 2-FIC-71-36A
2-FCV-71-8 Closed
2-FCV-71-39 Closed
Discharge pressure 0 on 2-PI-71-35A

Satisfactory___ Unsatisfactory__

Comments:_____

_____

4. **IF**.....RCIC is in standby readiness,
THEN...**START** RCIC as follows:

****

Performance Step: Critical___ Not Critical_X

a. **VERIFY CLOSED** 2-FCV-71-39, RCIC PUMP INJECTION VALVE.

Standard:

VERIFIED illuminated GREEN valve position indicating lamp above 2-HS-71-39A.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical_X_ Not Critical__

b. **VERIFY RESET** and **OPEN** 2-FCV-71-9, RCIC TURB TRIP & THROTTLE VALVE RESET.

Standard:

PLACED 2-HS-71-9B in the CLOSE position and **VERIFIED** illuminated GREEN valve position indicating lamp. **PLACED** 2-HS-71-9 in the OPEN position and **VERIFIED** illuminated RED valve position indicating lamp. **VERIFIED** illuminated RED condition indicating lamp 2-ZI-71-9.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical X Not Critical__

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

- 2-FCV-71-38, RCIC PUMP TEST RETURN VLV.
- 2-FCV-71-25, RCIC LUBE OIL CLR COOLING WTR VLV.
- 2-FCV-71-34, RCIC PUMP MINIMUM FLOW VLV.
- 2-FCV-73-36, HPCI/RCIC TEST RETURN VLV.

Standard:

HELD 2-HS-71-38A in the OPEN position until **VERIFIED** illuminated RED valve position indicating lamps above associated control switch.

PLACED 2-HS-71-25A,34A and 36A in the OPEN position and **VERIFIED** illuminated RED valve position indicating lamps above associated control switches.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical___ Not Critical X

d. **PLACE** 2-HS-71-31A, RCIC VACUUM PUMP, handswitch in START.

Standard:

PLACED 2-HS-71-31A in the START position and **VERIFIED** illuminated RED motor breaker position indicating lamp.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical_X_ Not Critical__

e. **OPEN** 2-FCV-71-8, RCIC TURBINE STEAM SUPPLY VLV, to start RCIC Turbine.

Standard:

PLACED 2-HS-71-8 in the OPEN position and **VERIFIED** illuminated RED valve position indicating lamp above associated control switch.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical___ Not Critical_X

f. **VERIFY** RCIC Turbine speed accelerates to above 2100 rpm.

Standard:

VERIFIED speed greater than 2100 rpm on 2-SI-71-42A.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical___ Not Critical_X

5. **VERIFY** proper RCIC minimum flow valve operation as follows:

   a. IF.....RCIC flow is above 120 gpm,
      THEN...**VERIFY CLOSED** 2-FCV-71-34, RCIC PUMP MINIMUM FLOW VALVE.

   b. IF.....BOTH of the following exist:

      - RCIC Initiation signal is not present,
      AND
      - RCIC flow is below 60 gpm,

      THEN...**VERIFY OPEN** 2-FCV-71-34, RCIC PUMP MINIMUM FLOW VALVE.

Standard:

VERIFIED illuminated GREEN valve position indicating lamp above 2-HS-71-34.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical___ Not Critical_X

6. **THROTTLE** 2-FCV-71-38, RCIC PUMP CST TEST VLV, to control RCIC pump discharge pressure at or below 1100 psig.

Standard:

MANIPULATED 2-HS-71-38 to maintain pressure on 2-PI-71-35A at

or below 1100 psig.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical___ Not Critical_X

6. **ADJUST** 2-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller to control RPV pressure.

Standard:

ADJUSTED 2-FIC-71-36A as required to maintain RPV pressure and:

- Maintain RCIC flow 120-600 gpm on 2-FIC-71-36A.
- Maintain RCIC discharge pressure ≤ 1100 psig on 2-PI-71-35A.
- Maintain RCIC Speed > 2100 rpm on 2-SI-71-42A.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

****

Performance Step: Critical___ Not Critical_X

7. **IF**....RCIC injection to the RPV becomes necessary, **THEN**... **ALIGN** RCIC to RPV as follows:

   a. **OPEN** 2-FCV-71-39, RCIC Pump Injection valve.

   b. **CLOSE** 2-FCV-71-38, RCIC Pump Test return valve.

   c. **GO TO** EOI Appendix 5C.

CUE: SRO DOES NOT DIRECT RCIC INJECTION.

Standard:

Does not **INJECT** with RCIC

Satisfactory___ Unsatisfactory__

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

JPM NUMBER: 331

TITLE: 3-EOI APPENDIX 16J - BYPASSING HPCI HIGH RPV WATER LEVEL TRIP INTERLOCKS

TASK NUMBER: U-000-EM-43

SAFETY FUNCTION: 4

TYPE CODE: D

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	8/7/95	ALL	NEW JPM
1	9/6/96	ALL	REFORMAT JPM, ADDED MGT EXPECTATIONS AND CRIT. STEPS ON TOUCH STAAR AND SAFETY, AND DELETED UNDERSTAND AND SIM. INST.
2	10/24/96	4, 9	CHANGED CRIT STEP ON TOUCH STAAR AND SAFETY TO NON-CRIT.
3	11/7/96	7	DELETED "WITH BANANA JACK PLUG" IN STEP 4.
4	10/28/98	ALL	GENERAL REVISION
5	9/9/02	3	REMOVE SS#, CHANGE PROCED REV

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 331

TASK NUMBER: U-000-EM-43

TASK TITLE: BYPASS HPCI HIGH RPV WATER LEVEL TRIP INTERLOCKS IN ACCORDANCE WITH 3-EOI APPENDIX 16J

K/A NUMBER: 295008AA1.04 K/A RATING: RO 3.5 SRO: 3.5

****
*

TASK STANDARD: SIMULATE PERFORMING ACTIONS REQUIRED TO DEFEAT HPCI HIGH RPV WATER LEVEL INTERLOCKS AS DIRECTED BY 3-EOI APPENDIX 16J.

LOCATION OF PERFORMANCE: SIMULATOR ___ PLANT X CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 3-EOI APPENDIX 16J, REV 1

VALIDATION TIME: CONTROL ROOM: 7:00 LOCAL: 4:00

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 shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. 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 reactor has scrammed due to a leak in the drywell. Reactor water level cannot be determined. EOI-1 has been followed to C4-13. The HPCI system, using auxiliary steam, is to be used as an injection source as directed by 3-EOI-Appendix 7J.

INITIATING CUES: The UNIT SUPERVISOR directs you to bypass the HPCI high RPV water level shutdown interlocks as directed by 3-EOI Appendix 16J.

CAUTION: ALL JPM STEPS PERFORMED IN THE PLANT WILL BE <u>SIMULATED</u>. <u>DO</u> <u>NOT OPERATE</u> ANY PLANT EQUIPMENT.

START TIME_____

****

Performance Step: Critical___ Not Critical_X

WHEN REQUESTED BY EXAMINER identify/obtain copy of required EOI Appendix.

Standard:

IDENTIFIED OR OBTAINED copy of 3-EOI Appendix 16J.

SAT___UNSAT___N/A___ COMMENTS:_____

EXAMINER'S NOTE: STEPS ARE TO BE PERFORMED IN SEQUENCE.

****

Performance Step : Critical___ Not Critical_X

1. **REFER TO** Attachment 1 and **OBTAIN** necessary tools and equipment.

Standard:

REFERRED TO Attachment 1 and **SIMULATED OBTAINING** 3-EOI-Appendix 16J package from Unit 3 Auxiliary Instrument Room EOI equipment storage box containing:

1. Screwdriver
2. Insulated Grip Needle-Nose Pliers
3. Roll of Electrical Tape

SAT____UNSAT____N/A____ COMMENTS:_____

CUE: [WHEN SIMULATED] YOU HAVE A COPY OF APPENDIX 16J, A SCREWDRIVER, INSULATED NEEDLE-NOSE PLIERS AND A ROLL OF ELECTRICAL TAPE.

****

Performance Step : Critical___ Not Critical_X

2. **LOCATE** terminal strip AA inside Panel 3-9-39, Bay 1, Rear.

Standard:

INDICATED location of terminal strip AA inside rear of Panel 3-9-39.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical_X_ Not Critical__

3. **LOCATE** black wire attached to terminal AA-65.

Standard:

INDICATED BLACK wire attached to terminal AA-65.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical__

4. **REMOVE** terminal screw at terminal AA-65 WHILE holding the black wire with needle-nose pliers.

Standard:

SIMULATED REMOVING terminal screw at terminal AA-65 while holding black wire with needle-nose pliers.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [WHEN SIMULATED] YOU HAVE REMOVED THE TERMINAL SCREW AT TERMINAL AA-65 AND ARE HOLDING THE BLACK WIRE WITH THE NEEDLE-NOSE PLIERS.

****

Performance Step : Critical X Not Critical__

5. **REMOVE** and **TAPE** lugged end of black wire lifted from terminal AA-65.

Standard:

SIMULATED REMOVING and **TAPING** lugged end of black wire.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [WHEN SIMULATED] YOU HAVE REMOVED AND TAPED THE LUGGED END OF THE BLACK WIRE LIFTED FROM TERMINAL AA-65.

****

Performance Step : Critical___ Not Critical_X

6. **NOTIFY** Unit Operator that HPCI High RPV Water Level Trip is bypassed.

Standard:

SIMULATED NOTIFYING Unit 3 Operator that the HPCI high RPV water level trip is bypassed.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [WHEN SIMULATED] UNIT 3 OPERATOR REPEATS "HPCI HIGH RPV WATER LEVEL TRIP IS BYPASSED IN ACCORDANCE WITH APPENDIX 16J".

****

Performance Step: Critical___ Not Critical _X_

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

Standard:

PERFORMER utilized 3-WAY COMMUNICATION i.e., used phonetic alphabet, received/solicited and acknowledged repeat-backs.

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 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, 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:_____
_____
_____
_

END OF TASK

STOP TIME:_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 340

TITLE: 3-EOI APPENDIX 16F & 16G - BYPASSING RHR SYSTEM I & II INJECTION VALVE TIMERS

TASK NUMBER: U-000-EM-71

SAFETY FUNCTION: 5

TYPE CODE: M*

* THIS JPM USED TO BE TWO JPMS. SINCE IT IS THE TRAINING PRACTICE TO REQUEST BOTH APPENDICES BE PERFORMED WHEN CONTAINMENT COOLING/SPRAY IS PERFORMED IT HAS BEEN CONVERTED TO A SINGLE JPM TO PERFORM THE REQUIRED TASK.

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____

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	9/9/02	ALL	NEW JPM

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: 340

TASK NUMBER: U-000-EM-71

TASK TITLE: BYPASS RHR SYSTEM I & II INJECTION VALVE TIMERS IN ACCORDANCE WITH 3-EOI APPENDIX 16F & 16G

K/A NUMBER: 203000A2.13 K/A RATING: RO 3.2 SRO: 3.3

****
*

TASK STANDARD: PERFORM OPERATIONS NECESSARY TO BYPASS RHR SYSTEM I & II INJECTION VALVE TIMERS AS DIRECTED BY 3-EOI APPENDIX 16F & 16G

LOCATION OF PERFORMANCE: SIMULATOR ___ PLANT X CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 3-EOI APPENDIX 16F, REV 1, 3-EOI APPENDIX 16G, REV 1

VALIDATION TIME: CONTROL ROOM: 10:00 LOCAL: 6:00

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 shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. 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 reactor has scrammed and a small coolant leak exists in the drywell. EOI-2 has been followed to PC/P-10. Appendix 17B, RHR System Operation - Drywell Sprays, is in progress.

INITIATING CUES: The Unit 3 Unit Supervisor directs you to bypass RHR System I and System II injection valve timers as directed by 3-EOI Appendices 16F and 16G.

CAUTION: ALL JPM STEPS PERFORMED IN THE PLANT WILL BE <u>SIMULATED</u>; <u>DO NOT OPERATE</u> ANY PLANT EQUIPMENT.

START TIME_____

EXAMINER'S NOTE: THE TWO EXCEPTIONS TO THE EXACT STEP SEQUENCE ARE 1) EITHER APPENDIX MAY BE PERFORMED FIRST AND 2) THE CANDIDATE MAY RETRIEVE FINGER BOOTS FOR BOTH APPENDICES AT THE SAME TIME.

****

Performance Step: Critical___ Not Critical_X__

WHEN REQUESTED BY EXAMINER identify/obtain copy of required EOI Appendix.

Standard:

IDENTIFIED OR OBTAINED copy of 3-EOI APPENDIX 16F and 16G.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical___ Not Critical_X__

1. **REFER TO** Attachment 1 and **OBTAIN** one relay contact finger boot and small fuse pullers.

Standard:

LOCATED EOI equipment storage box in Unit 3 Aux Instrument Room and **SIMULATED** obtaining boot and fuse puller.

SAT____UNSAT____N/A____ COMMENTS:_____

CUE: [WHEN SIMULATED] YOU HAVE A BOOT AND FUSE PULLER.

****

Performance Step : Critical___ Not Critical_X__

2. **LOCATE** Relay 10A-K35A on Panel 3-9-32, Front.

Standard:

LOCATED Relay 10A-K35A on Panel 3-9-32.

SAT____UNSAT____N/A____ COMMENTS:_____

****

Performance Step: Critical_X_ Not Critical____

3. **REFER TO** Attachment 2 and **INSTALL** boot on Relay 10A-K35A, contact 5-6, using small fuse pullers to pull back contact finger.

Standard:

LOCATED relay 10A-K35A and **SIMULATED** pulling back contact finger 5-6 and installing boot.

SAT____UNSAT____N/A____ COMMENTS:_____

CUE: [WHEN SIMULATED] THE BOOT IS INSTALLED BETWEEN CONTACTS 5 AND 6 ON RELAY 10A-K35A.

****

Performance Step: Critical___ Not Critical X

4. **NOTIFY** Unit Operator that System I RHR Injection Valve timer is bypassed.

Standard:

SIMULATED NOTIFYING Unit 3 Operator that System I RHR Injection Valve timer is bypassed.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [WHEN SIMULATED] UNIT 3 OPERATOR ACKNOWLEDGES RHR SYSTEM I INJECTION VALVE TIMER BYPASSED.

(APP 16G)
****

Performance Step: Critical___ Not Critical X

1. **REFER TO** Attachment 1 and **OBTAIN** one relay contact finger boot and small fuse pullers.

Standard:

LOCATED EOI equipment storage box in Unit 3 Aux Instrument Room and **SIMULATED** obtaining boot.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

CUE: [WHEN SIMULATED] YOU HAVE A BOOT AND FUSE PULLER.

****

Performance Step : Critical_X_ Not Critical___

2. **LOCATE** Relay 10A-K35B on Panel 3-9-33, Front.

Standard:

LOCATED Relay 10A-K35B on Panel 3-9-33.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

3. **REFER TO** Attachment 2 and **INSTALL** boot on Relay 10A-K35B, contact 5-6, using small fuse puller to pull back contact finger.

Standard:

LOCATED relay 10A-K35B and **SIMULATED** pulling back contact finger 5-6 and installing boot.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

CUE: [WHEN SIMULATED] THE BOOT IS INSTALLED BETWEEN CONTACTS 5 AND 6 ON RELAY 10A-K35B.

****

Performance Step: Critical___ Not Critical_X

4. **NOTIFY** Unit Operator that System II RHR Injection Valve timer is bypassed.

Standard:

SIMULATED NOTIFYING Unit 3 Operator that System II RHR Injection Valve timer is bypassed.

Satisfactory___ Unsatisfactory__

Comments:_____

_____

CUE: [WHEN SIMULATED] UNIT 3 OPERATOR ACKNOWLEDGES RHR SYSTEM II INJECTION VALVE TIMER BYPASSED. 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 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, 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 the use of 3-WAY COMMUNICATION during this JPM.

Standard:

PERFORMER utilized 3-WAY COMMUNICATION i.e., used phonetic alphabet, received/solicited and acknowledged repeat-backs.

SAT_____ UNSAT_____ N/A _____ COMMENTS:_____

_____

_____

END OF TASK

STOP TIME:_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 205

TITLE: PERFORM 2/3-SSI-16, ATTACHMENT 2, SECTION 2

TASK NUMBER: U-000-SS-08

SAFETY FUNCTION: 8

TYPE CODE: N,R

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	9/29/02	ALL	NEW

BROWNS FERRY NUCLEAR PLANT
—JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 205

TASK NUMBER: U-000-SS-08

TASK TITLE: PERFORM 2/3-SSI-16, ATTACHMENT 2, SECTION 2

K/A NUMBER: 600000 AA2.05 RATING: RO 2.9 SRO: 3.0

****
*
TASK STANDARD: CORRECTLY SIMULATE ACTIONS REQUIRED TO START UNIT 2 ELECTRIC BOARD ROOM AIR HANDLING UNIT AND BLOCK OPEN DOORS ON IC ELEVATION TO REDUCE HEAT LOAD IN THE EVENT OF A FIRE IN THE CONTROL BUILDING [EXACT STEP SEQUENCE NOT REQUIRED]

LOCATION OF PERFORMANCE: SIMULATOR ____ PLANT X CONTROL ROOM _

REFERENCES/PROCEDURES NEEDED: 2/3-SSI-16, REVISION 0007

VALIDATION TIME: CONTROL ROOM: 18:00 LOCAL: 17:00

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL ___

COMMENTS: _____

Additional comment sheets attached? YES _____ NO ____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

EXAMINER 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 shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. 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 extra operator. A fire has broken out in the control bay on Unit 1 elevation 593. 2/3-SSI-16 has been activated.

INITIATING CUES: The Unit 2 Unit Supervisor has directed you to perform Attachment 2, Section 2.0 of 2/3-SSI-16.

CAUTION: ALL JPM STEPS PERFORMED IN THE PLANT WILL BE <u>SIMULATED</u>; <u>DO NOT OPERATE</u> ANY PLANT EQUIPMENT.

EXAMINER'S NOTE: EXACT STEP SEQUENCE NOT REQUIRED.

2.0 Start Unit 2 Electric Board Room AHU 2A and Open Doors on 1C Elevation to reduce heat load
(60 Min)

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

****

Performance Step: Critical X Not Critical

2.2 PERFORM the following to START ELEC BD RM AHU 2A:

2.2.1 PROCEED to 2-LPNL-925-8613 AND PLACE 2-XSW-031-2320, APPX R ELEC BD RM AHU 2A NORMAL/EMERGENCY switch in EMER.

Standard:

At 2-LPNL-925-8613 (C 4KV SD BD ROOM, EAST WALL) SIMULATES **PLACING** 2-XSW-031-2320, APPX R ELEC BD RM AHU 2A NORMAL/EMERGENCY switch in EMER.

SAT___ UNSAT___ N/A___ COMMENTS:_____

_____

_____

CUE: [WHEN SIMULATED] 2-XSW-031-2320 IS IN EMERGENCY.

****

****

Performance Step: Critical X Not Critical_____

2.2.2 PROCEED to 2-LPNL-925-0539 AND PERFORM the following:

2.2.2.1 PLACE 2-XS-031-2320, ELEC BD RM AHU 2A LOCAL/REMOTE XFER SWITCH in LOCAL.

Standard:

At 2-LPNL-925-0539, (C 4KV SD BD ROOM, EAST WALL) SIMULATED **PLACING** 2-XS-031-2320 in LOCAL.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

CUE: [WHEN SIMULATED] 2-XS-031-2320 IS IN LOCAL.

****
****

Performance Step: Critical X Not Critical_____

2.2.2.2 PLACE 2-HS-031-2320A, ELEC BD RM AHU 2A LOCAL CONTROL SWITCH, in START and RETURN to AUTO.

Standard:

SIMULATED **PLACING** 2-HS-031-2320A in START and **RETURNING** to AUTO.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

CUE: [WHEN SIMULATED] 2-HS-031-2320A IS IN START.
[WHEN SIMULATED] 2-HS-031-2320A IS IN AUTO.

****

Performance Step: Critical X Not Critical_____

2.3 PERFORM the following to ALIGN doors on Control Bay EL. 1C:

2.3.1 BLOCK OPEN door to Battery Board Room No. 3, door 476A.

Standard:

SIMULATED **BLOCKING** OPEN door 476A with wooden wedge obtained from black operations equipment cabinet.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

Cue: [WHEN SIMULATED] DOOR 476A IS BLOCKED OPEN.

****
****

Performance Step: Critical X Not Critical_____

2.3.2 BLOCK OPEN door to Battery Board Room No. 2, door 466A.

Standard:

SIMULATED **BLOCKING** OPEN door 466A with wooden wedge obtained from black operations equipment cabinet.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

CUE: [WHEN SIMULATED] DOOR 466A IS BLOCKED OPEN.

****

****

Performance Step: Critical X Not Critical ____

2.3.3 BLOCK OPEN door to Battery Board Room No. 1, door 462.

Standard:

SMULATED **BLOCKING** OPEN door 462 with wooden wedge obtained from black operations equipment cabinet.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

CUE: [WHEN SIMULATED] DOOR 462 IS BLOCKED OPEN.

****
****

Performance Step: Critical___ Not Critical X

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

Standard:

Using hand-held radio or phone (2269) SIMULATED **NOTIFYING** UNIT 2 US 2/3-SSI-16 ATTACHMENT 2, SECTION 2 COMPLETED.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

CUE: [WHEN SIMULATED] UNDERSTAND 2/3-SSI-16 ATTACHMENT 2, SECTION 2 IS COMPLETE.

****

****

Performance Step: Critical___ Not Critical_X

2.5 PROCEED to Battery Board Room No. 1 in preparation of performing Section 3.0.

Standard:

PROCEEDED to Battery Board Room No. 1.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

TERMINATING CUE: [WHEN WAITING AT BATTERY BOARD ROOM NO.1] THAT WILL BE ALL FOR NOW.

****

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____ COMMENTS:_____

_____

****

Performance Step: Critical____Not Critical__X__

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

Standard:

PERFORMER utilized 3-WAY COMMUNICATION i.e., used phonetic alphabet, received/solicited and acknowledged repeat-backs.

SAT___ UNSAT____ 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, 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:_____

_____

_____

END OF TASK

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 24

TITLE: EOI APPENDIX 7A - ALTERNATE INJECTION SYSTEMS - CONDENSATE TRANSFER TO CS SYSTEM

TASK NUMBER: U-000-EM-36

SAFETY FUNCTION: 2

TYPE CODE: D

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	10/18/94	ALL	GENERAL REVISION
3	11/8/95	ALL	ADDRESS NORMALLY LOCKED VALVES, ADDED NOTE ON PAGE 5
4	10/27/96	4, 8	ADDED NON-CRITICAL STEPS ON TOUCH STAAR AND SAFETY, CHANGED ASOS TO US.
5	9/13/99	ALL	PROCEDURE REVISION, FORMAT DOCUMENT, ADDED 3-WAY COMM.
6	8/12/02	3,4	Removed SS# line, removed statements

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: 24

TASK NUMBER: U-000-EM-36

TASK TITLE: LINE UP ALTERNATE RPV INJECTION SYSTEM - CONDENSATE TRANSFER PUMPS TO RHR AND CS IN ACCORDANCE WITH EOI APPENDIX 7A

K/A NUMBER: 209001G13 K/A RATING: RO 3.7 SRO: 3.7

****
*

TASK STANDARD: LOCATE AND SIMULATE MANUAL OPERATION OF CORE SPRAY SYSTEM VALVES REQUIRED BY 2-EOI APPENDIX 7A

LOCATION OF PERFORMANCE: SIMULATOR ___ PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 2-EOI APPENDIX 7A, REV 8

VALIDATION TIME: CONTROL ROOM: 16:00 LOCAL: 12:00

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 shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. 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 2 reactor has scrammed and several failures have made it difficult to maintain reactor water level. The Unit 1 Operator has CLOSED the condensate head tank outlet valve, 0-LCV-2-177, and STARTED both condensate transfer pumps.

INITIATING CUES: The Unit 2 Operator has directed you to perform Steps 2.a.1), CS System I, and 2.b.1), CS System II, of 2-EOI Appendix 7A, ALTERNATE RPV INJECTION LINEUP - CONDENSATE TRANSFER PUMP TO RHR AND CS.

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-EOI APPENDIX 7A.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

NOTE: All operations performed at Control Room Panel 2-9-3 unless otherwise stated.

1. **NOTIFY** Unit 1 Operator to perform the following:

   a. **CLOSE** 0-LCV-2-177, CNDS HEAD TANK OUTLET, (Panel 1-9-20).

   b. **START** BOTH Condensate Transfer pumps (Panel 1-9-20).

EXAMINER'S NOTE: STEP 1 IS GIVEN IN THE INITIAL CONDITIONS. EXACT STEP SEQUENCE IS NOT REQUIRED FROM THIS POINT ON.

****

Performance Step: Critical X Not Critical____

2. **INJECT** to RHR and/or CS as required using ANY of the following:

   a. CS System I

      1) **DISPATCH** personnel to unlock and open 2-SHV-075-0582A, CS SYSTEM I CNDS FLUSH AND FILL SHUTOFF VALVE, (RB, Platform, West, above El 593 ft, R10-p).

Standard:

LOCATED and **SIMULATED TURNING** 2-SHV-075-0582A handwheel in the COUNTERCLOCKWISE direction.

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:_____

_____

      2) **OPEN** the following valves:

      - 2-FCV-75-23, CORE SPRAY SYS I OUTBD INJECT VALVE
      - 2-FCV-75-25, CORE SPRAY SYS I INBD INJECT VALVE.

****

Performance Step: Critical_X_ Not Critical__

b. CS System II

1) **DISPATCH** personnel to unlock and open 2-SHV-075-0582B, CS SYSTEM II CNDS FLUSH & FILL SHUTOFF VALVE (RB, Platform above El 593 ft at top of stairs, R12-P)

Standard:

LOCATED and **SIMULATED TURNING** 2-75-582B handwheel in the COUNTERCLOCKWISE direction.

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:_____

_____

2) **OPEN** the following valves:

- 2-FCV-75-51, CORE SPRAY SYS II OUTBD INJECT VALVE
- 2-FCV-75-53, CORE SPRAY SYS II INBD INJECT VALVE.

****

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, 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 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, i.e. used phonetic alphabet, received/solicited and acknowledged repeat-backs.

SAT_____ UNSAT_____ N/A _____ COMMENTS:_____

_____

_____

END OF TASK

STOP TIME _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 26

TITLE: 2-EOI APP 7B - ALTERNATE RPV INJECTION SYSTEM LINEUP - SLC

TASK NUMBER: U-000-EM-37

SAFETY FUNCTION: 2

TYPE CODE: D

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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
3	10/18/94	ALL	GENERAL REVISION
4	11/16/95	8,15,ALL	CHANGED CUE TO REFLECT "UNLOCKING", ADDED CUE,CHANGED PAGE NUMBERS
5	11/8/96	4, 17	ADDED NON-CRITICAL STEPS ON TOUCH STAAR AND SAFETY, CHANGED ASOS TO US.
6	9/13/99	ALL	PROCEDURE REVISION, FORMAT DOCUMENT, ADDED 3-WAY COMM.
7	10/25/02	ALL	GENERAL REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 26

TASK NUMBER: U-000-EM-37

TASK TITLE: LINE UP ALTERNATE RPV INJECTION SYSTEM - SLC SYSTEM IN ACCORDANCE WITH EOI APPENDIX 7B

K/A NUMBER: 295031EA1.08 K/A RATING: RO 3.8 SRO: 3.9

****
*

TASK STANDARD: SIMULATE PERFORMING LOCAL COMPONENT MANIPULATIONS REQUIRED TO ALIGN THE STANDBY LIQUID CONTROL (SLC) SYSTEM TEST TANK FOR INJECTION INTO THE RPV

LOCATION OF PERFORMANCE: SIMULATOR ___ PLANT X CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 2-EOI APPENDIX 7B, REV 6

VALIDATION TIME: CONTROL ROOM: _____ LOCAL: 9:00

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 shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. 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 2 reactor has scrammed and due to several malfunctions RPV water level cannot be maintained > +2 inches. SLC is NOT required for reactivity control.

INITIATING CUES: The Unit 2 Operator directs you to align the SLC Test Tank as an RPV injection source as directed by 2-EOI Appendix 7B, ALTERNATE RPV INJECTION SYSTEM LINEUP - SLC SYSTEM beginning at Step 3.0.

START TIME _____

EXAMINER'S NOTE: EXACT STEP SEQUENCE IS REQUIRED.

****

Performance Step: Critical___ Not Critical_X_

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

Standard:

IDENTIFIED OR OBTAINED copy of 2-EOI APPENDIX 7B.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

1. IF.....EOI Appendix 3A is required to be performed,
   THEN...**EXIT** this procedure.

NOTE: SLC Test Tank is preferred source because unborated water may be supplied to the RPV through this injection path.

2. IF.... RPV injection is needed immediately ONLY to prevent or mitigate fuel damage,
   THEN...**CONTINUE** at Step 10 to inject SLC Boron Tank to RPV.

NOTE: Steps 3 through 8 inject demineralized water to the RPV using the SLC Test Tank.

3. **DISPATCH** personnel to Unit 2 SLC pump area to line up SLC Test Tank as follows (RB NE, El 639 ft):

****

Performance Step: Critical___ Not Critical_X_

a. **REFER TO** Attachment 1 and **OBTAIN** a 25-ft section of 3/4-in. rubber hose from EOI Equipment Storage Cabinet (RB, El 621 ft, elevator area).

Standard:

REFERRED to Attachment 1, **LOCATED** required EOI equipment storage box and **SIMULATED OBTAINING** 25 foot section of hose from box.

CUE: YOU HAVE A 25 FOOT SECTION OF 3/4 INCH RUBBER HOSE WITH CHICAGO FILLTING.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

b. **CONNECT** hose to 2-2-1254, DEMIN WTR SERVICE CONN. (wall near SLC pumps), and **ROUTE** into top of SLC Test Tank.

Standard:

LOCATED AND SIMULATED CONNECTING 25 foot hose to 2-2-1254 and **SIMULATED ROUTING** hose to top of SLC test tank.

CUE: THE HOSE IS CONNECTED TO 2-2-1254 AND ROUTED INTO THE TOP OF THE SLC TEST TANK.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical___ Not Critical X

c. **VERIFY OPEN** 2-2-1255, SLC DEMIN WTR SPLY VALVE (on wall next to SLC pumps).

Standard:

LOCATED 2-2-1255 and **VERIFIED** OPEN by **SIMULATING** moving lever counterclockwise to the open position.

CUE: THE OPERATING LEVER FOR 2-2-1255 IS POSITIONED PARALLEL WITH ITS ASSOCIATED DOWNSTREAM PIPING.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical__

d. **UNLOCK** and **OPEN** the following valves:

1) 2-SHV-063-0502, SLC SYSTEM SUCTION DEMIN WATER SHUTOFF VALVE.

Standard:

LOCATED 2-SHV-063-0502 and **SIMULATED UNLOCKING and ROTATING** handwheel in the COUNTERCLOCKWISE direction.

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__

2) 2-SHV-063-0509, 2A SLC PUMP SUCTION DEMIN WATER SHUTOFF VALVE.

Standard:

LOCATED 2-SHV-063-0509 and **SIMULATED UNLOCKING and ROTATING** handwheel in the COUNTERCLOCKWISE direction.

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__

3) 2-SHV-063-0511, 2B SLC PUMP SUCTION DEMIN WATER SHUTOFF VALVE.

Standard:

LOCATED 2-SHV-063-0511 and **SIMULATED UNLOCKING and ROTATING** handwheel in the COUNTERCLOCKWISE direction.

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:_____

_____

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

****

Performance Step: Critical X Not Critical____

e. **OPEN** 2-SHV-063-0532, SLC TEST TANK DEMIN WATER SHUTOFF VALVE.

Standard:

LOCATED and **SIMULATED TURNING** 2-SHV-063-0532 in the COUNTERCLOCKWISE direction.

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__

f. **OPEN** 2-SHV-063-0014, SLC TEST TANK SHUTOFF VALVE.

Standard:

LOCATED and **SIMULATED TURNING** 2-SHV-063-0014 in the COUNTERCLOCKWISE direction.

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__

g. **UNLOCK** and **CLOSE** 2-SHV-063-0500, SLC STORAGE TANK OUTLET SHUTOFF VALVE.

Standard:

SIMULATED UNLOCKING AND TURNING 2-SHV-063-0500 in the CLOCKWISE direction.

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

h. **NOTIFY** Unit Operator that SLC pumps have been aligned to the test tank.

i. **REMAIN** in area for additional steps as directed by the Unit Operator.

Standard:

NOTIFIED Unit Operator SLC pumps aligned to test tank.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: UNIT OPERATOR ACKNOWLEDGES SLC PUMPS ALIGNED TO TEST TANK. [PAUSE] SLC PUMP B IS NOW RUNNING. [PAUSE] THE UNIT OPERATOR DIRECTS YOU TO PERFORM STEP 7 OF APPENDIX 7B.

4. **UNLOCK** and **PLACE** 2-HS-63-6A, SLC PUMP 2A/2B, control switch in START-A or START-B (Panel 9-5).

5. **CHECK** demineralized water is injecting to the RPV by observing the following:

   - Selected pump running, as indicated by red light illuminated above pump control switch.

   - Squib valves fire, as indicated by SQUIB VALVE A and B CONTINUITY blue lights extinguished,

     OR

     SLC SQUIB VALVE CONTINUITY LOST Annunciator in alarm (2-XA-55-55B, Window 20).

   - 2-PI-63-7A, SLC PUMP DISCH PRESS, indicates above RPV pressure.

   - System flow, as indicated by 2-IL-63-11. SLC FLOW, red light illuminated,

     OR

   - SLC INJECTION FLOW TO REACTOR Annunciator in alarm on Panel 9-5 (2-XA-55-5B, Window 14).

6. IF..... Proper system operation <u>CANNOT</u> be verified,
   THEN.... **RETURN** to Step 4 and **START** other SLC pump.

7. **NOTIFY** personnel in SLC area to perform the following:

   NOTE: Opening 2-2-1254, DEMIN WTR SERVICE CONN, provides enough make-up to operate SLC pump continuously.

****

Performance Step: Critical X Not Critical___

a. **OPEN** 2-2-1254, DEMIN WTR SERVICE CONN.

Standard:

LOCATED AND SIMULATED TURNING 2-2-1254 lever in the counterclockwise direction.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [WHEN SIMULATED] THE HANDLE IS PARALLEL WITH THE PIPING.

****

CUE: THE TEST TANK IS NEARLY FULL AND THE LEVEL IS STILL RISING.

Performance Step: Critical___ Not Critical X

b. **THROTTLE** 2-2-1254, DEMIN WTR SERVICE CONN, as necessary to maintain Test Tank level.

Standard:

SIMULATED MANIPULATING 2-2-1254 lever in the CLOSE (CLOCKWISE) direction as required to maintain constant test tank level.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

TERMINATING CUE: THE TEST TANK IS NEARLY FULL AND THE LEVEL IS STEADY. THAT WILL BE ALL FOR NOW.

8. **MONITOR** and **CONTROL** SLC System as necessary to maintain injection

****

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, 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 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, i.e. used phonetic alphabet, received/solicited and acknowledged repeat-backs.

SAT_____ UNSAT_____ N/A _____ COMMENTS:_____

END OF TASK

STOP TIME _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 116F

TITLE: PLACING STANDBY STEAM JET AIR EJECTOR IN OPERATION

TASK NUMBER: U-066-NO-07

SAFETY FUNCTION: 9

02 TYPE CODE: N,A

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	10/10/99	ALL	NEW JPM
1	08/15/02	ALL	DELETED SS#, PAGE 4 DELETED PLANT WORK EXPECTATIONS, TOUCH STAAR, AND 3-WAY COMM. GENERAL REVISION OF PROCEDURE.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 116F

TASK NUMBER: U-066-NO-07

TASK TITLE: PLACE THE STANDBY SJAE 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: 2-OI-66, REV 77

VALIDATION TIME: CONTROL ROOM: 14:00 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 2 is at 100% power. 2A steam jet air ejector is in service in accordance with Section 5.9 of 2-OI-66. 2A steam jet air ejector is to be removed from service for maintenance and 2B steam jet air ejector is to be placed into operation. HWC is shutdown per 2-OI-4. The outside Unit Supervisor and an AUO are standing by at Panel 25-105 in Unit 2 turbine building with a hand-held radio.

INITIATING CUES: _____(NAME)_____, remove 2A steam jet air ejector from service and place 2B steam jet air ejector into operation.

START TIME_____

EXAMINER'S NOTE: EXACT STEP SEQUENCE IS REQUIRED.

****

Performance Step: Critical___ Not Critical_X_

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

Standard:

IDENTIFIED OR OBTAINED copy of 2-OI-66.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

8.4 Placing Standby SJAE in Operation

NOTES:

1. Auto swapping of SJAE is administratively prohibited per GE-SIL-150. See Precautions and Limitations 3.17.
2. Panel 25-105 located in Unit 2 Turbine Bldg. EL 586' T6-C
3 The HWC system is shutdown 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 2-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

8.4.2 VERIFY the following initial conditions have been met:

8.4.2.1 Off-Gas System hydrogen concentration is less than 4% (by volume).

Standard:

VERIFIED hydrogen concentration less than 4% by any of the following methods:

- No high off gas hydrogen alarms on annunciator panel 2-XA-55-53
- Offgas Hydrogen Analyzer recorder 2-H2R-66-96, Panel 2-9-53, indicates less than 4% hydrogen (A & B analyzers)
- H2 Analyzer Conc Hi, 2-IL-66-96A and 2-IL-66-96B, Panel 2-9-53, status indicating amber lamps EXTINGUISHED

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical X

8.4.2.2 IF HWC System is in service, THEN

SHUTDOWN HWC System. REFER TO 2-OI-4. (otherwise N/A)

Standard:

None

SAT____UNSAT____N/A X COMMENTS: Given in initial

conditions.

****

Performance Step : Critical___ Not Critical_X_

8.4.2.3 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_

8.4.3 At Panel 2-9-6, VERIFY OPEN the following valves:

8.4.3.1 SJAE 2B(2A) CNDS INLET VALVE, using 2-HS-2-31A(36A).

8.4.3.2 SJAE 2B(2A) CNDS OUTLET VALVE, using 2-HS-2-35A(41A).

Standard:

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

SAT____UNSAT____N/A____ COMMENTS:_____

****

Performance Step : Critical___ Not Critical X

8.4.4 At Panel 25-105, VERIFY CONDENSATE FROM SJAE B(A) pressure, 2-PI-2-34(40), is greater than 60 psig.

Standard:

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

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [WHEN CALLED] 2-PI-2-34, CONDENSATE FROM SJAE B, INDICATES 88 PSIG.

****

Performance Step : Critical___ Not Critical_X__

8.4.5 At Panel 25-105, VERIFY manual/hand loader output pressure and pressure controller setpoints are adjusted as follows:

8.4.5.1 Setpoint for STEAM TO SJAE B(A) STAGE I & II, 2-PC-1-153(150) set for approximately 225 psig (dial located inside controller housing).

8.4.5.2 Manual/Hand loader for STEAM TO SJAE B(A) STAGE I & II, 2-PC-1-152(150) set for approximately 8 psig.

8.4.5.3 Setpoint for STEAM TO SJAE B(A) STAGE III, 2-PC-1-167(166) set for approximately 225 psig (dial located inside controller housing).

8.4.5.4 Manual/hand loader for STEAM TO SJAE B(A) STAGE III, 2-PC-1-167(166), set for approximately 8 psig.

Standard:

DISPATCH US to perform/verify steps 8.4.5.1 through 8.4.5.4.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [WHEN CALLED], THE SETPOINT FOR STEAM TO SJAE B STAGES I AND II, 2-PC-1-152 IS SET FOR 225 PSIG.

MANUAL HAND LOADER FOR SJAE B STAGE I AND II 2PC-1-152 IS SET AT 8 PSIG.

SETPOINT FOR STEAM TO SJAE B, STAGE III, 2-PC-1-167 IS SET FOR 225 PSIG. (INSIDE CONTROLLER HOUSING)

MANUAL HAND LOADER FOR STEAM TO SJAE B, STAGE III, 2-PC-1-167 IS SET FOR 8 PSIG.

****

Performance Step : Critical____Not Critical__X__

8.4.6 At Panel 25-105, VERIFY both SJAE dilution steam pressure modifiers are adjusted to approximately mid-position (located at the rear of panel).

8.4.6.1 SJAE B(A) STG I & II PRESSURE, 2-XM-1-152(150).

8.4.6.2 SJAE B(A) STAGE III PRESSURE, 2-XM-1-167(166).

Standard:

CONTACTED AUO/OSUS to verify both SJAE B dilution steam pressure modifiers, 2-XM-1-152 and 2-XM-1-167 are in mid-position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [WHEN CALLED], BOTH SJAE DILUTION STEAM PRESSURE MODIFIERS (2-XM-1-152 and 2-XM-1-167) ARE ADJUSTED TO MID-POSITION.

****

Performance Step : Critical____Not Critical_X__

8.4.7 At Panel 2-9-8, VERIFY OPEN both SJAE Inlet Valves using the following:

8.4.7.1 SJAE 2A INLET VALVE, 2-HS-66-11.

8.4.7.2 SJAE 2B INLET VALVE, 2-HS-66-15.

Standard:

VERIFIED/PLACED 2-HS-66-11 and 15 in the OPEN position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical_X_ Not Critical____

8.4.8 At Panel 2-9-7, PLACE the STEAM TO SJAE 2A(2B) handswitch, 2-HS-1-155A(156A), in CLOSE.

Standard:

VERIFIED/PLACED 2-HS-1-155A in CLOSED position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical_X_ Not Critical____

8.4.9 At Panel 2-9-7, PLACE the SJAE 2A(2B) PRESS CONTROLLER handswitch, 2-HS-1-150(152), in CLOSE.

Standard:

VERIFIED/PLACED 2-HS-1-150 in CLOSED position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

Performance Step : Critical_X_ Not Critical____

8.4.10 At Panel 2-9-8, PLACE the SJAE 2A(2B) OG OUTLET VALVE using 2-HS-66-14(18), in CLOSE.

Standard:

VERIFIED/PLACED 2-HS-66-14 in CLOSED position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical____

8.4.11 At Panel 2-9-8, PLACE in OPEN/AUTO the SJAE 2B(2A) OG OUTLET VALVE using, 2-HS-66-18(14).

Standard:

VERIFIED/PLACED 2-HS-66-18 in the OPEN/AUTO position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical____

8.4.12 At Panel 2-9-7, PLACE the SJAE TO SJAE 2B(2A) handswitch, 2-HS-1-156A(155A) in OPEN.

Standard:

PLACED 2-HS-1-156A in OPEN position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

_____

****

Performance Step : Critical X Not Critical____

8.4.13 At Panel 2-9-7, PLACE the STEAM TO SJAE 2B(2A) PRESS CONTROLLER handswitch, 2-HS-1-152(150), in OPEN.

Standard:

PLACED 2-HS-1-152 in the **OPEN** position **AND RECOGNIZED THAT SJAE B DID NOT GO INTO SERVICE.**

SAT____UNSAT____N/A____ COMMENTS:_____

_____

Note:
It may be necessary to return 2-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.

****

Performance Step : Critical X Not Critical____

(PER NOTE) Return 2-HS-152 to CLOSE and then back to OPEN.

Standard:

RETURNED 2-HS-152 to CLOSE and then back to OPEN. RECOGNIZED B SJAE functioning properly.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical____Not Critical_X___

8.4.14 On Panel 25-105, ADJUST manual/hand loaders until dilution steam pressure is indicating approximately 190 to 220 psig on the following indications:

8.4.14.1 STEAM TO SJAE B(A) STAGE I & II, 2-PI-1-152(150).

8.4.14.2 STEAM TO SJAE B(A) STAGE III, 2-PI-1-167(166).

CUE: [WHEN CALLED], INFORM OPERATOR THAT LOCAL STEPS 8.4.14 THROUGH 8.4.19 HAVE BEEN COMPLETE.

Standard:

DISPATCHED Operator to perform steps 8.4.14 through 8.4.19 locally.

SAT____UNSAT____N/A____ COMMENTS:_____
_
_____

****

Performance Step : Critical___ Not Critical X

8.4.20 On Panel 2-9-6, MONITOR hotwell pressure as indicated on HOTWELL TEMP AND PRESS recorder, 2-XR-2-2.

Standard:

VERIFIED stable hotwell pressure and temperature indications on 2-XR-2-2.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical X

8.4.21 After stable SJAE operation has been confirmed, the HWC system may be placed back in service at the direction of the Unit Supervisor, REFER TO 2-OI-4, HWC System (N/A is HWC System is unavailabled).

Standard:

None

SAT____UNSAT____N/A____ COMMENTS:_____

_____

TERMINATING CUE: THE US ADVISES HWC WILL BE RETURNED TO SERVICE AT A LATER TIME. 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 using phonetic alphabet, receiving/requesting and acknowledging repeat-backs.

SAT_____UNSAT_____N/A_____COMMENTS_____
_
_____

_____

END OF TASK

STOP TIME:_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 114

TITLE: STANDBY GAS TREATMENT TRAIN C DECAY HEAT REMOVAL

TASK NUMBER: U-065-NO-13

SAFETY FUNCTION: 9

TYPE CODE: D

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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
1	10/4/94	ALL	GENERAL REVISION
2	10/24/94	2,3,5	PROCEDURE UPDATE
3	5/2/96	2,3	PROCEDURE UPDATE
4	8/8/97	ALL	FORMAT DOCUMENT, ADD NON-CRITICAL STEPS ON TOUCH STAAR, 3-WAY COMM., CHANGE ASOS TO US.
5	10/27/98	ALL	PROCEDURE REVISION
6	10/14/02	ALL	GENERAL REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: 114

TASK NUMBER: U-065-NO-13

TASK TITLE: PERFORM SGT TRAIN C DECAY HEAT REMOVAL

K/A NUMBER: 223001G13 K/A RATING: RO 3.7 SRO: 3.7

****

TASK STANDARD: PERFORM CONTROL ROOM OPERATIONS REQUIRED TO PERFORM STANDBY GAS TREATMENT TRAIN C DECAY HEAT REMOVAL

LOCATION OF PERFORMANCE: SIMULATOR X PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 0-OI-65, REV 41

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: You are an Operator. Standby Gas Treatment Train C has been operated to vent the drywell and has been secured. 2-XA-55-3B, Window 25, SGT TRAIN C FILTER BANK TEMP HIGH, 2-TA-65-63 is in alarm.

INITIATING CUES: _____(NAME)_____, perform Standby Gas Treatment Train C decay heat removal using Standby Gas Treatment Fan C and SGT C decay heat damper as directed by 0-OI-65.

START TIME_____

EXAMINER'S NOTE: EXACT STEP SEQUENCE REQUIRED.

****

Performance Step: Critical___ Not Critical_X

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

Standard:

IDENTIFIED OR OBTAINED copy of 0-OI-65.

*SAT___UNSAT___N/A___ COMMENTS:*_____

8.9 SGT Train C Decay Heat Removal

NOTES:

(1) This section provides methods to remove decay heat from the charcoal filters after flow is terminated through Train C.

(2) The SGT System will be operated from both Panels 1-9-25 and 2-9-25 throughout this section.

(3) Section 8.9.1 and 8.9.2 utilize Fan C for decay heat removal; and Section 8.9.3 utilizes Fan B. These sections are stand alone.

8.9.1 SGT Train C decay heat removal using Fan C and SGT Train C decay heat damper.

****

Performance Step : Critical_X_ Not Critical__

8.9.1.1 PLACE SGTS TRAIN C INLET DAMPER handswitch, 0-HS-65-51A, in the CLOSE position on Panel 2-9-25.

Standard:

PLACED 0-HS-65-51A in the CLOSE position and **VERIFIED** illuminated GREEN damper position indicating lamp above associated hand switch.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X

8.9.1.2 VERIFY OPEN SGTS TRAIN C OUTL DAMPER, using 0-HS-65-67A on Panel 2-9-25.

Standard:

VERIFIED illuminated RED damper position indicating lamp above 0-HS-65-67A.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical__

8.9.1.3 START SGTS TRAIN C FAN, using 0-HS-65-69A/2 on Panel 2-9-25.

Standard:

PLACED 0-HS-65-69A/2 in the START position and **VERIFIED** illuminated RED motor breaker position indicating lamp above associated hand switch.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical__

8.9.1.4 OPEN SGTS TRAIN C DECAY HEAT DAMPER, using 0-HS-65-52A on Panel 1-9-25.

Standard:

CONTACTED Unit 1 Operator and **REQUESTED** SGT TRAIN C DECAY HEAT DAMPER 0-DMP-65-52 OPENED.

SAT____UNSAT____N/A____ COMMENTS: Candidate may state that he/she would log time and bank dp in narrative log.

_____

TERMINATING CUE: [WHEN REQUESTED] REPORT BACK THAT SGT TRAIN C DECAY HEAT DAMPER 0-DMP-65-52A IS OPEN. 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

JPM NUMBER: 96 (SRO ONLY)

TITLE: PERFORM CONTROL ROOM TRANSFER OF 4KV SHUTDOWN BOARD A POWER SUPPLIES

TASK NUMBER: S-57A-NO-01

SAFETY FUCTION: 6

TYPE CODE: D

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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
1	12/8/94	1,2,3,4	REVISE TO NEW FORMAT
2	8/5/96	ALL	PROCEDURE UPGRADE, ADDED CRITICAL STEP ON TOUCH STAAR, AND CHANGED COMM. STD.
3	10/27/96	4, 14	CHANGED CRIT. STEP ON TOUCH STAAR TO NON-CRIT.
4	10/28/99	2,3,4,14	PROCEDURE CHANGE, ADDED 3-WAY COMM. AND CHANGED MGT EXPECT. TO PLANT WORK EXPECT.
5	10/24/01	All	PROCEDURE CHANGE
6	9/1/02	3	PROCEDURE # CHANGE

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: 96

TASK NUMBER: S-57A-NO-01

TASK TITLE: PERFORM CONTROL ROOM TRANSFER OF 4KV SHUTDOWN BOARD 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 SD BOARD A POWER SUPPLY FROM NORMAL TO ALTERNATE POWER SUPPLY

LOCATION OF PERFORMANCE: SIMULATOR X PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 0-OI-57A, REV 84

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 the Unit Supervisor. Units 2 and 3 are at 100% rated power. 4kV Shutdown Bus 1 is to be de-energized and tagged. 4kV Shutdown Board A is to remain energized from 4kV Shutdown Bus 2.

INITIATING CUES: The Shift Manager has directed you to transfer 4kV Shutdown Board A power supply from Shutdown Bus 1 to Shutdown Bus 2 in accordance with 0-OI-57A.

START TIME_____

EXAMINER'S NOTE: EXACT STEP SEQUENCE REQUIRED.

****

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**

8.1 Control Room Transfer of 4kV Shutdown Board A Power Supplies

8.1.1To transfer 4KV SD BD A to the ALT FDR BKR 1716, PERFORM the following:

****

Performance Step: Critical___ Not Critical_X

8.1.1.1 REVIEW all Precautions and Limitations in Section 3.0.

Standard:

REVIEWED Precautions and Limitations in Section 3.0.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

CUE: [IF CANDIDATE ASKS OR BEGINS RESEARCHING] REASEARCH HAS BEEN COMPLETED IN ACCORDANCE WITH P&L 32.19 AND IT HAS BEEN DETERMINED THAT NEITHER UNIT 2 NOR UNIT 3 RECIRCULATION SYSTEM WILL BE AFFECTED BY THE TEMPORARY POWER LOSS DURING THE TRANSFER.

****

Performance Step: Critical___ Not Critical_X

8.1.1.2 NOTIFY Chem-lab prior to transferring(if feeding 480V D/G Aux. Board A)

Standard:

NOTIFIED Chem-lab of 4kV Shutdown Board A power supply transfer.

CUE: [CHEM LAB] "REPEATS: TRANSFERRING POWER SUPPLIES TO 4kV SHUTDOWN BOARD A."

SAT___UNSAT___N/A___ COMMENTS:_____

_____

NOTE:

All procedural steps are performed from Control Room Panel 0-9-23-7.

****

Performance Step: Critical___ Not Critical_X

8.1.1.3 PLACE 0-XS-211-A, 4KV SD BD A VOLTAGE/ BUS SELECT, to 4KV SD BUS 2.

Standard:

PLACED 0-XS-211-A to 4KV SD BUS 2 position.

SAT___UNSAT___N/A___ COMMENTS:_____

****

Performance Step: Critical___ Not Critical_X

8.1.1.4 CHECK 4KV SD BUS 2 voltage is between 3950 and 4400 Volts as indicated on 0-EI-211-A, 4kV SD BD A VOLTS.

Standard:

VERIFIED 0-EI-211-A indicating 3950 to 4400 volts.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical_X_ Not Critical__

8.1.1.5 PLACE 0-25-211-A/24A, 4KV SD BD A BKR 1716 SYNC switch to ON.

Standard:

PLACED 0-25-211-A/24A in the ON position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

NOTE:

The GEN SYNC Breaker is the breaker to be closed onto the board. The SYSTEM SYNC Breaker is the breaker supplying the board prior to the transfer.

****

Performance Step : Critical___ Not Critical_X

8.1.1.6 CHECK GEN SYNC REF VOLTAGE and SYSTEM SYNC REF VOLTAGE is between 116 and 125 volts.

Standard:

VERIFIED 0-EI-82-AB and 0-EI-211-AB indicating between 116 and 125 volts.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X

8.1.1.7 CHECK GEN SYNC FREQUENCY and SYSTEM SYNC FREQUENCY are approximately 60 Hz.

Standard:

VERIFIED 0-SI-81-AB and 0-SI-211-AB indicating approximately 60 Hz.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical X

8.1.1.8 CHECK 0-SCP-82-AB, DG A/B SYNCHROSCOPE, at 12 o'clock position.

Standard:

VERIFIED 0-SCP-82-AB indicating approximately 12 o'clock position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical__

8.1.1.9 Momentarily DEPRESS 0-HS-211-A, 4KV SD BD A AUTO TO MANUAL TRIP pushbutton and CHECK the following:

8.1.1.9.1 0-HS-211-A, 4KV SD BD A AUTO TO MANUAL TRIP, amber light extinguished.

8.1.1.9.2 0-43-211-A, 4KV SD BD A AUTO/LOCKOUT RESET, trips.

Standard:

DEPRESSED 0-HS-211-A 4KV SD BD A AUTO TO MANUAL TRIP pushbutton (CRITICAL), **VERIFIED** TRIP TO MANUAL amber light extinguished (NOT CRITICAL) and 0-43-211-A tripped to the angled position (NOT CRITICAL).

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

CAUTION

The 4kV Shutdown Boards are NORMAL seeking. Therefore, to prevent undesired auto transfer, 0-43-211-A, 4KV SD BD A AUTO/LOCKOUT RESET switch should be left in the TRIPPED position whenever 4KV SD BD A is selected to the alternate source.

****

****

Performance Step : Critical X Not Critical__

8.1.1.10 PLACE and HOLD 0-HS-211-A/24A, 4KV SD BD A ALT FDR BKR 1716, to CLOSE.

Standard:

PLACED and **CONTINUED HOLDING** 0-HS-211-A/24A in the CLOSE position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical x Not Critical__

8.1.1.11 PLACE 0-HS-211-A/3A, 4KV SD BD A NORM FDR BKR 1614, to TRIP.

Standard:

PLACED 0-HS-211-A/3A in the TRIP position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X

8.1.1.12 CHECK CLOSED 4KV SD BD A ALT FDR BKR 1716.

Standard:

VERIFIED illuminated RED breaker position indicating lamp above 0-HS-211-A/24A.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X

8.1.1.13 CHECK OPEN 4KV SD BD A NORM FDR BKR 1614.

Standard:

VERIFIED illuminated GREEN breaker position indicating lamp above 0-HS-211-A/3A.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X

8.1.1.14 RELEASE breakers 1614 and 1716 switches.

Standard:

RELEASED 0-HS-211-A/24A and 0-HS-211-A/3A.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X

8.1.1.15 PLACE 0-XS-211-A, 4KV SD BD A VOLTAGE SELECT switch to 4KV SD BD A.

Standard:

PLACED 0-XS-211-A in the 4KV SD BD A position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X

8.1.1.16 CHECK 4KV SD BD A Voltage is between

3950 and 4400 volts.

Standard:

VERIFIED 0-EI-211-A indicating between 3950 and 4400 volts.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical X

8.1.1.17 PLACE 0-25-211-A/24A, 4KV SD BD A BKR 1716 SYNC, to OFF.

Standard:

PLACED 0-25-211-A/24A in the OFF position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical__X

8.1.1.18 Verify locally 4KV SD BD A ALT FDR BKR 1716 closing spring target indicates charged and the amber breaker spring charged light is on.

Standard:

DISPATCHED AUO to verify breaker 1716 closing spring recharged.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [AFTER DISPATCHED] THE AUO REPORTS THAT BREAKER 1716 CLOSING SPRING TARGET INDICATES CHARGED AND THE AMBER BREAKER SPRING CHARGED LAMP IS ILLUMINATED.

****

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 i.e., used phonetic alphabet, received/solicited and acknowledged repeat-backs.

SAT_____UNSAT_____N/A_____COMMENTS_____

_____

STOP TIME:_____

END OF TASK

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 51F

TITLE: 2-EOI APPENDIX 12 - PRIMARY CONTAINMENT VENTING FROM PRESSURE SUPPRESSION CHAMBER THROUGH FCV-84-20

TASK NUMBER: U-000-EM-61

SAFETY FUNCTION: 9

TYPE CODE: D,A

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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
3	11/28/94	1,2,3,4	REVISE TO NEW FORMAT
4	10/28/95	ALL	GENERAL REVISION
5	10/24/96	4, 15	ADDED NON-CRIT. STEP ON TOUCH STAAR, AND CHANGED ASOS TO US.
6	10/1/97	ALL	FORMAT, CHANGED MGT. EXPECTATIONS TO PLANT WORK EXPECTATIONS AND ADDED 3-WAY COMM.
7	01/04/99	ALL	NEW EOI REVISION
8	10/21/99	ALL	PROCEDURE REVISION
9	9/22/00	ALL	GENERAL REVISION
10	8/13/02	ALL	GENERAL REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 51F

TASK NUMBER: U-000-EM-61

TASK TITLE: VENT PRIMARY CONTAINMENT IN ACCORDANCE WITH 2-EOI APPENDIX 12

K/A NUMBER: 295024EA1.20 K/A RATING: RO 3.5 SRO: 3.6

****
*

TASK STANDARD: PERFORM OPERATIONS NECESSARY TO VENT THE PRESSURE SUPPRESSION CHAMBER AS DIRECTED BY 2-EOI APPENDIX 12.

LOCATION OF PERFORMANCE: SIMULATOR X PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 2-EOI APPENDIX 12, REV. 2

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 reactor has scrammed. A small leak exists in primary containment. EOI-2 has been followed to PC/P-1.

INITIATING CUES: The UNIT SUPERVISOR directs you to vent containment in accordance with 2-EOI Appendix 12.

START TIME_____

EXAMINER'S NOTE: EXACT STEP SEQUENCE IS REQUIRED.

****

Performance Step: Critical___ Not Critical_X__

WHEN REQUESTED BY EXAMINER identify/obtain copy of required EOI Appendix.

Standard:

IDENTIFIED OR OBTAINED copy of 2-EOI Appendix 12.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

CAUTION

Stack release rates exceeding 1.4 x 10^7 μCi/sec, or 0-SI 4.8.B.1.a.1 release fraction above 1.0 will result in ODCM release limits being exceeded.

****

****

Performance Step: Critical___ Not Critical_X_

1. **VERIFY** at least one SGTS train in service.

Standard:

VERIFIED A, B or C SGT Trains in service by illuminated red SGT status indicating lamps on Panel 2-9-20.

SAT___UNSAT___N/A___ COMMENTS:_____

****

Performance Step: Critical___ Not Critical_X_

2. **VERIFY CLOSED** the following valves (Panel 2-9-3 or Panel 2-9-54):

- 2-FCV-64-31, DRYWELL INBOARD ISOLATION VLV,
- 2-FCV-64-29, DRYWELL VENT INBD ISOL VALVE,
- 2-FCV-64-34, SUPPR CHBR INBOARD ISOLATION VLV,
- 2-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE.

Standard:

VERIFIED 2-FCV-64-31, 29, 34, AND 32 are closed by illuminated green status indicating lamps on Panel 2-9-3 or Panel 2-9-54.

SAT___UNSAT___N/A___ COMMENTS:_____

****

Performance Step: Critical___ Not Critical X__

3. IF. . . . While executing this procedure to vent the Suppression Chamber, Suppression Pool water levelcan not be determined to be below 20 ft,
THEN. . . **PERFORM** step 13 to secure the vent path and re-enter this procedure if further venting is required.

Standard:

VERIFIED level < 20 ft on narrow or wide range indicators/recorder on Panel 2-9-3, i.e. 2-LI-64-159A or 2-LI- 64-54A and **CONTINUED** with Step 4.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

****

Performance Step: Critical___ Not Critical X__

4. IF. . . . While executing this procedure the desired vent path is lost or can not be established,
THEN. . . **PERFORM** step 13 to secure the vent path and re-enter this procedure if further venting is required.

Standard:

NONE: Operator read step 4 and continued to step 5.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

****
*

CAUTION

Venting Primary Containment during CAD addition is outside the CAD system FSAR design basis.

****
*

CUE: EOIs ARE THE GOVERNING PROCEDURE

****

Performance Step: Critical___ Not Critical X

5. IF. . . . While executing this procedure, CAD addition per SAMG-2, Step G-4 OR G-9, is to begin,
THEN. . . BEFORE CAD is initiated, **PERFORM** Step 13 to secure the vent path.

NOTE: Venting may be accomplished using EITHER:

- 2-FIC-84-19, PATH B VENT FLOW CONT,

OR

- 2-FIC-84-20, PATH A VENT FLOW CONT.

NOTE: Unless the TSC recommends otherwise, venting the Drywell DIRECTLY should be performed ONLY if the Suppression Chamber can NOT be vented.

Standard:

Operator determines that since EOIs are in effect the SAMG's are not continued to step 6.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

Performance Step: Critical___ Not Critical X

6. IF.....ANY of the following exists:

- Suppression Pool water level can not be determined to be below 20 ft,

OR

- Suppression Chamber can NOT be vented,

OR

- SRO orders DIRECT drywell venting

THEN...**CONTINUE** in this procedure at:

- Step 10 to vent the Drywell through 2-FCV-84-19,

OR

- Step 11 to vent the Drywell through 2-FCV-84-20.

Standard:

VERIFIED level < 20 ft on narrow or wide range indicators/recorder on Panel 2-9-3, i.e. 2-LI-64-159A or 2-LI-64-54A and **CONTINUED** with Step 7.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

Performance Step: Critical___ Not Critical_X__

7. **CONTINUE** in this procedure at:

- Step 8 to vent the Suppression Chamber through 2-FCV-84-19,

OR

- Step 9 to vent the Suppression Chamber through 2-FCV-84-20.

Standard:

CONTINUED in this procedure at Step 8 to vent the Suppression Chamber through 2-FCV-84-19.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

_____

8. **VENT** the Suppression Chamber using 2-FIC-84-19, FLOW CONT, as follows: PATH B

****

Performance Step : Critical_X_ Not Critical_____

a. **PLACE** keylock switch 2-HS-84-35, SUPPR CHBR/DW BYP SELECT, to SUPPR-CHBR position (Panel VENT ISOL 2-9-54).

Standard:

PLACED 2-HS-84-35 in the SUPPR-CHBR position.

SAT____UNSAT____N/A____ COMMENTS:_____

****

Performance Step : Critical___ Not Critical_X_

b. **VERIFY OPEN** 2-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE (Panel 2-9-54).

Standard:

VERIFIED illuminated RED valve position indicating lamp above 2-HS-64-32.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical_X_ Not Critical____

c. **PLACE** 2-FIC-84-19, PATH B VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 2-9-55).

Standard:

PLACED 2-FIC-84-19 in AUTO at 100 scfm.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical_X_ Not Critical____

d. **PLACE** keylock switch 2-HS-84-19, 2-FCV-84-19 CONTROL, in OPEN (Panel 2-9-55).

Standard:

PLACED 2-HS-84-19 in the OPEN position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical_____

e. **VERIFY** 2-FIC-84-19, PATH B VENT FLOW CONT, is indicating approximately 100 scfm.

Standard:

OBSERVED 2-FIC-84-19 and **DETERMINED** flow was **NOT** being developed . DETERMINED THAT PSC COULD NOT BE VENTED VIA 2-FCV-84-19 AND OPERATOR WENT TO **STEP 13 AS DIRECTED BY STEP 4. [FAULT]**

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical_____

13. WHEN . . . .ANY of the following exist:

- Venting is no longer required,

OR

- Pressure in the space being vented approaches zero,

OR

- Directed by SRO,

OR

- Directed by Step 3, 4, or 5,

THEN. . .**SECURE** venting as follows:

****

Performance Step : Critical____Not Critical_X_

a. **VERIFY** the following keylock switches in OFF (Panel 2-9-54):

✐ 2-HS-84-35, SUPPR CHBR/DW VENT ISOL BYP SELECT,
✐ 2-HS-84-36, SUPPR CHBR/DW VENT ISOL BYP SELECT.

Standard:

VERIFIED 2-HS-84-35 and 36, SUPPR CHBR/DW VENT ISOL BYP SELECT in OFF position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

_____

****

Performance Step : Critical____Not Critical_X_

b. **VERIFY** keylock switch 2-HS-84-20, 2-FCV-84-20 ISOLATION BYPASS, in NORMAL (Panel 2-9-55).

Standard:

VERIFIED keylock switch 2-HS-84-20, 2-FCV-84-20 ISOLATION BYPASS, in NORMAL on Panel 2-9-55.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical___

c. **VERIFY** keylock switch 2-HS-84-19, 2-FCV-84-19 CONTROL, in CLOSE (Panel 2-9-55).

Standard:

VERIFIED keylock switch 2-HS-84-19, 2-FCV-84-19 CONTROL, in CLOSE on Panel 2-9-55.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

_____

****

Performance Step : Critical____Not Critical X__

d. **VERIFY CLOSED** the following valves (Panel 2-9-3 or Panel 2-9-54):

✐ 2-FCV-64-31, DRYWELL INBOARD ISOLATION VLV,
✐ 2-FCV-64-29, DRYWELL VENT INBD ISOL VALVE,

✎ 2-FCV-64-34, SUPPR CHBR INBOARD ISOLATION VLV,

✎ 2-FCV-64-32, SUPPR CHBR VENT INBOARD ISOL VLV,

Standard:

VERIFIED CLOSED 2-FCV-64-31, 29, 34, AND 32 by **VERIFYING** position indicating light GREEN on all the listed valves.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical____Not Critical_X_

e. **VERIFY CLOSED** 2-FCV-64-141, DRYWELL DP COMP BYPASS VALVE (Panel 2-9-3).

Standard:

VERIFIED CLOSED 2-FCV-64-141, DRYWELL DP COMP BYPASS VALVE on Panel 2-9-3 by **VERIFYING GREEN** position indicating light on said valve.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

INSTRUCTOR NOTE: STUDENT RE-ENTERS APPENDIX AND PROCEEDS TO VENT THE PSC VIA FCV 84-20 PER STEP 9. RECHECK ALL STEPS UP THROUGH STEP 9 AND PROCEED WITH STEP 9 BELOW.

****

Performance Step : Critical_X_ Not Critical____

9. **VENT** the Suppression Chamber using 2-FIC-84-20, PATH A VENT FLOW CONT, as follows:

a. **VERIFY OPEN** 2-FCV-64-141, DRYWELL DP COMP BYPASS VALVE (Panel 2-9-3).

Standard:

PLACED 2-HS-64-141, Panel 2-9-3, in the OPEN position and **VERIFIED** illuminated RED valve position indicating lamp above associated hand switch.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical_X_ Not Critical ____

b. **PLACE** keylock switch 2-HS-84-36, SUPPR CHBR/DW VENT ISOL BYP SELECT, to SUPPR-CHBR position (Panel 2-9-54).

Standard:

PLACED 2-HS-84-36 in the SUPPR-CHBR position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X_

c. **VERIFY OPEN** 2-FCV-64-34, SUPPR CHBR INBOARD ISOLATION VLV (Panel 2-9-54)

Standard:

VERIFIED illuminated RED valve position indicating lamp above 2-HS-64-34.

SAT____UNSAT____ N/A____ COMMENTS:_____

_____

****

Performance Step: Critical_____ Not Critical_X___

d. **VERIFY** 2-FIC-84-20, PATH A VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 2-9-55).

Standard:

PLACED 2-FIC-84-20 in AUTO at 100 scfm.

SAT____UNSAT____ N/A____ COMMENTS:_____

_____

****

Performance Step: Critical__X_ Not Critical____

e. **PLACE** keylock switch 2-HS-84-20, 2-FCV-84-20 ISOLATION BYPASS, IN BYPASS, (Panel 2-9-55).

Standard:

PLACED 2-HS-84-20 in the BYPASS position.

SAT____UNSAT____ N/A____ COMMENTS:_____

_____

****
*

Performance Step: Critical____Not Critical_X___

f. **VERIFY** 2-FIC-84-20, PATH A VENT FLOW CONT, is indicating approximately 100 scfm.

Standard:

DETERMINED vent flow was stable at 100 scfm as indicated on 2-FIC-84-20 and **continued** with the **next step**—proceeded to step 12 of this procedure.

SAT____UNSAT____ N/A____ COMMENTS:_____

_____

****

Performance Step : Critical X Not Critical____

12. **ADJUST** 2-FIC-84-19, PATH B VENT FLOW CONTR, or 2-FIC-84-20, PATH A VENT FLOW CONT, as applicable, to maintain ALL of the following:

- Stable flow as indicated on controller

AND

- 2-PA-84-21, VENT PRESS TO SGT HIGH, alarm light extinguished,

AND

- Release rates as determined below:

i. IF. .PRIMARY CONTAINMENT FLOODING per C-1, Alternate Level Control, is in progress,
THEN. .**MAINTAIN** release rates below those specifiedin Attachment 2.

CUE: PRIMARY CONTAINMENT FLOODING IS NOT REQUIRED.

ii. IF. . Severe Accident Management Guidelines are being executed,

THEN. .**MAINTAIN** release rates below those specified by the TSC SAM Team.

CUE: EOIs are still in effect.

iii. IF. .Venting for ANY other reason than items i or ii above,
THEN. . **MAINTAIN** release rates below

- Stack release rate of 1.4×10^7 μCi/sec

AND

- 0-SI-4.8.B.1.a.1 release fraction of 1.

Standard:

ADJUSTED 2-FIC-84-20 (as necessary) to obtain maximum indicated flow without 2-PA-84-21 yellow alarm light illuminating. **REQUESTED** release rates from Log AUO.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [WHEN CHECKED] STACK RELEASE RATES ARE 1.0×10^2 μCi/sec AND THE STACK RELEASE FRACTION IS <1.

****

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 i.e., used phonetic alphabet, received/solicited and acknowledged repeatbacks.

SAT_____ UNSAT_____ N/A _____ COMMENTS:_____
_____
_____
___

END OF TASK

STOP TIME:_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 35

TITLE: 2-EOI APPENDIX 8B - REOPENING MSIVs FOLLOWING GROUP I ISOLATION

TASK NUMBER: U-000-EM-46

SAFETY FUNCTION: 3

TYPE CODE: D

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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
3	11/28/94	1,2,3,4	REVISE TO NEW FORMAT
4	9/5/96	ALL	DELETED PLANT INST, ADDED TOUCH STAAR CRIT. STEP, CHANGED ASOS TO US.
5	10/23/96	4,12	CHANGED CRIT. STEP TO NON-CRITICAL ON STAAR.
6	ALL	8/7/97	FORMAT DOCUMENT, ADDED NON-CRIT. STEP ON 3-WAY COMM.
7	9/22/00	ALL	GENERAL REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 35

TASK NUMBER: U-000-EM-46

TASK TITLE: 2-EOI APPENDIX 8B - REOPENING MSIVs FOLLOWING A GROUP I ISOLATION

K/A NUMBER: 223002A4.03 K/A RATING: RO 3.6 SRO: 3.5

****

TASK STANDARD: PERFORM THE CORRECT EQUIPMENT MANIPULATIONS REQUIRED TO EQUALIZE AROUND THE MSIVs AND REOPEN THE MSIVs PER 2-EOI APPENDIX 8B

LOCATION OF PERFORMANCE: SIMULATOR X PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 2-EOI APPENDIX 8B, REV 4

VALIDATION TIME: CONTROL ROOM: 25:00 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 reactor has scrammed and isolated. EOI-1 has been entered and conditions allow the MSIVs to be reopened to establish the main condenser as a heat sink.

INITIATING CUES: The UNIT SUPERVISOR directs you to reopen the MSIVs as directed by 2-EOI-Appendix 8B.

START TIME_____

EXAMINER'S NOTE: EXACT STEP SEQUENCE IS REQUIRED.

****

Performance Step: Critical___ Not Critical_X

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

Standard:

IDENTIFIED OR OBTAINED copy of 2-EOI-APPENDIX 8B.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

Performance Step: Critical_X_Not Critical_____

1. **VERIFY** ALL MSIV control switches in CLOSE position.

Standard:

PLACED all eight MSIVs hand switches in the CLOSE position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical__X__Not Critical____

2. **RESET** PCIS logic (Panel 9-4).

Standard:

PLACED both PCIS reset switches on Panel 9-4 to the left and right position and **VERIFIED** that four RED light above the reset switches were illuminated.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

3. **DEPRESS** the following pushbuttons to trip RFPTs(Panel 9-6):

- 2-HS-3-125, RFPT A MANUAL TURBINE TRIP
- 2-HS-3-151, RFPT B MANUAL TURBINE TRIP
- 2-HS-3-176, RFPT C MANUAL TURBINE TRIP

Standard:

DEPRESSED 2-HS-3-125, 151, 176.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical__X__Not Critical__

4. **VERIFY CLOSED** the following drain valves(Panel 9-3):

NOTE: To prevent auto opening of 2-FCV-1-58, handswitch 2-HS-1-58A must be held in the CLOSE position until main turbine speed decreases to below 1700 RPM.

- 2-FCV-1-58, UPSTREAM MSL DRAIN TO CONDENSER

- 2-FCV-1-59, DOWN STREAM MSL DRAIN TO CONDENSER.

Standard:

VERIFIED illuminated GREEN valve position indicating lights above 2-HS-1-59 [NOT CRITICAL]. **PLACED** 2-HS-1-58 in the CLOSE position [CRITICAL] and **VERIFIED** illuminated GREEN valve position indicating lamp above associated control switch [NOT CRITICAL].

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical_X_ Not Critical__

5. **OPEN** the following outboard MSIVs(Panel 9-3):

- 2-FCV-1-15, MSIV LINE A OUTBOARD

- 2-FCV-1-27, MSIV LINE B OUTBOARD

- 2-FCV-1-38, MSIV LINE C OUTBOARD

- 2-FCV-1-52, MSIV LINE D OUTBOARD

Standard:

PLACED 2-HS-1-15, 27, 38 and 52 in the OPEN position and **VERIFIED** illuminated RED valve position indicating lamps above the associated control switches.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical___ Not Critical_X__

6. **VERIFY** EHC is in HEADER PRESSURE CONTROL with SETPOINT above reactor pressure.

Standard:

DEPRESSED 2-HS-1-16 and/or **VERIFIED** illuminated. VERIFIED SETPOINT as indicated on 2-PI-47-162 indicates greater than reactor pressure.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step: Critical_X_ Not Critical__

7. **OPEN** the following drain valves(Panel 9-3):

- 2-FCV-1-55, MN STM LINE DRAIN INBD ISOLATION VLV
- 2-FCV-1-56, MN STM LINE DRAIN OUTBD ISOLATION VLV
- 2-FCV-1-57, MSIV DOWNSTREAM DRAINS SHUTOFF.

Standard:

PLACED 2-HS-1-55 and 2-HS-1-56 in the OPEN position and **VERIFIED** illuminated RED valve position indicating lamps above the associated control switches. **VERIFIED** illuminated RED valve position indicating lamp above 2-HS-1-57 [NOT CRITICAL].

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

CAUTION

Opening MSIVs when differential pressure is above 50 psid may result in piping system damage.

****

Performance Step: Critical X Not Critical__

8. WHEN...Main steam pressure is within 50 psig of RPV pressure,
THEN...**OPEN** the following inboard MSIVs(Panel 9-3):

- 2-FCV-1-14, MSIV LINE A INBOARD
- 2-FCV-1-26, MSIV LINE B INBOARD
- 2-FCV-1-37, MSIV LINE C INBOARD
- 2-FCV-1-51, MSIV LINE D INBOARD

Standard:

When main steam pressure as indicated by 2-PI-47-99 on Panel 9-7 is within 50 psig of reactor pressure, **PLACED** HS-1-14, 26, 37 and 51 in the AUTO/OPEN position and **VERIFIED** RED valve position indicating lamps above associated hand 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 communications ,ie used phonetic alphabet, received/solicited and acknowledged repeat backs.

SAT_____UNSAT_____N/A_____COMMENTS:_____

_____

_____

END OF TASK

STOP TIME:_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 201

TITLE: LOSS OF SHUTDOWN COOLING

TASK NUMBER: 0-74-AB-01

SAFETY FUNCTION: 4

TYPE CODE: N,L

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	8/8/02	All	New

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: 201

TASK NUMBER: U-074-AB-01

TASK TITLE: RESPOND TO LOSS OF SHUTDOWN COOLING

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

****
*

TASK STANDARD: SUCCESSFULLY RESTORE SHUTDOWN COOLING FOLLOWING LOSS DUE TO INADVERTENT RPS ACTUATION.

LOCATION OF PERFORMANCE: SIMULATOR ___ PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED:2-AOI-74-1, LOSS OF SHUTDOWN COOLING, REVISION 26

VALIDATION TIME: CONTROL ROOM: 19:00 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 _____

EXAMINER SIGNATURE:_____ DATE: _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

****

IN-SIMULATOR: I will explain the initial conditions and state the task to be performed. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

****

INITIAL CONDITIONS: You are a Unit 2 operator. Unit 2 is in Mode 4 for a refueling outage. RHR Loop II using 2B RHR Pump is in shutdown cooling. An inadvertent loss of 2B RPS bus resulted in a partial isolation of RHR shutdown cooling. RPS 2B has been restored. Another operator is assisting with recovery from the loss of 2B RPS. The US has notified the Shift Manager of the problem.

INITIATING CUES: The US directs you to restore shutdown cooling using 2B RHR pump in accordance with 2-AOI-74-1.

START TIME_____

NOTE: UNLESS OTHERWISE NOTED., ALL CONTROLS AND INSTRUMENTATION ARE LOCATED ON PANEL 2-9-3.

3.0 AUTOMATIC ACTIONS

None.

4.0 OPERATOR ACTIONS

4.1 Immediate Actions

None.

4.2 Subsequent Actions

NOTE:

The blanks to the side of steps contained in Section 4.0 Operator Actions are intended for place keeping only. Initials are NOT required. If necessary, place keeping marks may be made directly in the Control Room copy of this instruction. Contact DCRM for a replacement copy when time permits.

****

CAUTION

Reactor vessel stratification may occur until Shutdown Cooling is restored or a Reactor Recirculation Pump is placed in service.

****

EXAMINER'S NOTE: EXACT STEP SEQUENCE IS REQUIRED.

Performance Step: Critical___ Not Critical__X_

4.2.1 IF any EOI entry condition is met, THEN ENTER the appropriate EOI(s). (Otherwise N/A)

Standard:

DETERMINES no EOI entry conditions have been met and N/As step.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

Performance Step: Critical___ Not Critical_X__

4.2.2 NOTIFY the Shift Manager.

Standard:

None. Given in the initiating cue.

SAT___UNSAT___N/A__X__ COMMENTS:_____

_____

****

****

Performance Step: Critical___ Not Critical_X__

4.2.3 IF Refueling is in progress, THEN

NOTIFY the Refueling Floor SRO.

Standard:

Mode 4 given in initial conditions. Not required to notify Refueling Floor SRO immediately.

SAT___UNSAT___N/A_X__ COMMENTS:_____

_____

****

****

Performance Step: Critical___ Not Critical X__

4.2.4 REVIEW EPIP-1, Emergency Plan Classification Logic, for entry conditions.

Standard:

None

SAT___UNSAT___N/A X__ COMMENTS:_____

_____

Cue: The Shift Manager and STA are reviewing the EPIPs.

****

****

Performance Step: Critical___ Not Critical_X__

4.2.5 IF Shutdown Cooling isolates on low RPV water level or high Drywell press (GROUP 2 ISOL) AND RPV water level needs restoring using LPCI, THEN

PERFORM the following before reaching -122 inches RPV water level:

Standard:

Determines water level does NOT need restoring at this time.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step: Critical___ Not Critical__X_

4.2.6 IF Primary Containment Integrity is required, THEN VERIFY RHR system discharge piping pressure is being maintained >TRM 3.5.4 Limits. REFER TO 2-OI-74.

Standard:

DETERMINES Primary Containment NOT required in Mode 4.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

NOTES:

(1) With the Reactor in Cold Shutdown Condition (Mode 4 or Mode 5), reactor coolant stratification may be indicated by one of the following:

- Reactor pressure above 0 psig with any reactor coolant temperature indication reading at or below 212°F.
- Differential temperatures of 50°F or greater between either RX VESSEL BOTTOM HEAD (FLANGE DR LINE) 2-TE-56-29 (8) temperatures and RX VESSEL FW NOZZLE N4B END (N4B INBD)(N4B END)(N4D INBD) 2-TE-56-13(14)(15)(16) temperatures from the REACTOR VESSEL METAL TEMPERATURE recorder, 2-TR-56-4.
- With recirculation pumps and shutdown cooling out of service, a Feedwater sparger temperature of 200°F or greater on any RX VESSEL FW NOZZLE (N4B END (N4B INBD)(N4D END)(N4D INBD) 2-TE-56-13(14)(15)(16) temperatures from the REACTOR VESSEL METAL TEMPERATURE recorder, 2-TR-56-4.

(2) [NER/C] For purposes of thermal stratification monitoring, the bottom head drain line is more representative as long as there is flow in the line. [GE SIL 251 and 430]

****

Performance Step: Critical___ Not Critical X

4.2.7 PLOT heatup/cooldown rate as necessary. REFER TO 2-SR-3.4.9.1(1).

Standard:

SELECTS HUR on SPDS.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

Cue: Another operator is performing 2-SR-3.4.9.1(1).

****

****

Performance Step: Critical___ Not Critical X__

4.2.8 DIRECT the STA to ESTIMATE the following times at least once per shift until a method of decay heat removal is restored:

4.2.8.1 DETERMINE the time since shutdown.

4.2.8.2 .DETERMINE the current RPV heat-up rate from 2-SR-3.4.9.1(1), or, if reactor coolant stratification is suspected, use Illustration 1.If additional information is required to determine the heat-up rates, contact Reactor Engineer

4.2.8.3..DETERMINE the reactor coolant temperature or use the last valid reactor coolant temperature available.

4.2.8.4..ESTIMATE the time for reactor coolant temperature to reach 212°F, using data obtained in Steps 4.2.8.1 through 4.2.8.3.

4.2.8.5 IF the Reactor Vessel head is removed and the cavity is flooded with the fuel pool gates installed, (Otherwise N/A)

THEN ESTIMATE the time for reactor coolant temperature to reach 125°F and 150°F using a plot of the actual heatup rate or Illustration 1.

Standard:

DIRECTS STA to estimate the 'time to boil'.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step: Critical___ Not Critical X__

4.2.9 IF the loss of Shutdown Cooling is due to inadequate RHRSW flow, THEN START the standby RHRSW pump for the appropriate header. REFER TO 0-OI-23. (Otherwise N/A)

Standard:

N/As Step 4.2.9.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
****

Performance Step: Critical X__ Not Critical___

4.2.10. IF the loss of Shutdown Cooling is due to Group 2 PCIS isolation, WHEN conditions which permit resetting Group 2 PCIS isolation are met, THEN (Otherwise N/A)

PERFORM the following:

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

Standard:

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

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step: Critical X Not Critical___

4.2.10.2 Momentarily DEPRESS RHR SYS I(II) SD CLG INBD INJECT ISOL RESET, 2-XS-74-126 and 2-XS-74-132. VERIFY 2-IL-74-126 and 2-IL-74-132 extinguished.

Standard:

Momentarily DEPRESSES RHR SYS II SD CLG INBDINJECT ISOL RESET, 2-XS-74-132. VERIFY 2-IL-74-132 extinguished.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step: Critical___ Not Critical X__

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

PERFORM the following:

Standard:

N/As Step 4.2.11.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
****

Performance Step: Critical__X_ Not Critical___

Subsequent Actions (continued))

4.2.12 IF the Group 2 PCIS Isolation has been reset, THEN

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

4.2.12.1 **CLOSE** RHR SYS I(II) LPCI OUTBD INJECT VALVE, 2-FCV-74-52(66).

Standard:

PLACES 2-HS-74-66 in close until ONLY GREEN valve position indicating lamp is illuminated.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step: Critical____ Not Critical_X_

4.2.12.2 **OPEN** RHR SYS I(II) LPCI INBD INJECT VALVE, 2-FCV-74-53(67).

Standard:

VERIFIES 2-FCV-74-67 ONLY RED valve position indicating lamp illuminated.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****
****

Performance Step: Critical_X__ Not Critical___

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

Standard:

PLACES 2-HS-74- 47 in Open and verified 2-FCV-74-48 ONLY RED valve position indicating lamp is illuminated.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step: Critical X Not Critical___

4.2.12.4 **RESTART** tripped RHR pump(s) RHR PUMP 2A(2C)(2B)(2D) using 2-HS-74-5A(16A)(28A)(39A)

Standard:

PLACES 2-HS-74-28A in Start.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step: Critical X Not Critical ___

4.2.12.5 **THROTTLE** RHR SYS I(II) LPCI OUTBD INJECTION VALVE, 2-FCV-74-52(66), to establish and maintain RHR flow as indicated by 2-FI-74-50(64), RHR SYS I(II) FLOW, as follows:

RHR Pumps in Operation	1	2	
Loop Flow	7,000 to 10,000	14,000 to 20,000	
Loop Flow (1 or more ~~(~~ fuel bundles~~Rx Head Off,~~ removed from core~~Cavity Flooded~~)	6,000 to 6,500	N/A	

Standard:

MANIPULATES 2-HS-74-66 to obtain RHR System II Loop flow between 7,000 and 10,000 GPM.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step: Critical___ Not Critical X__

4.2.12.6 **WHEN** time permits after RHR pump is started, **THEN**

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

Standard:

DISPATCHED personnel to verify RHR Pump 2B breaker closing spring recharged.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

CUE: ANOTHER OPERATOR WILL COMPLETE THE TASK. THIS ENDS THE JPM.

****

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:

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

JPM NUMBER: 148F

TITLE: PERFORM IMMEDIATE OPERATOR ACTIONS FOR CRD PUMP TRIP

TASK NUMBER: U-085-AB-03

SAFETY FUNCTION: 1

TYPE CODE: N,A

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	8/15/02	ALL	NEW

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: 148F

TASK NUMBER: U-085-AB-03

TASK TITLE: RESPOND TO CRD SYSTEM FAILURE

K/A NUMBER: 295022AA1.01 K/A RATING: RO 3.1 SRO: 3.2

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TASK STANDARD: PERFORM IMMEDIATE OPERATOR ACTIONS FOR CRD PUMP 2A TRIP AS DIRECTED BY 2-AOI-85-3.

LOCATION OF PERFORMANCE: SIMULATOR X PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 2-AOI-85-3, REV 20

VALIDATION TIME: CONTROL ROOM: 4:00 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

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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 with no equipment out of service

INITIATING CUES: Respond to the next event. Let me know when you are ready to assume shift.

START TIME_____

INSTRUCTOR CUES: **HAVE CONSOLE OPERATOR TRIP 2A CRD PUMP. (IMF RD01A FOR CRD PUMP 2A)**

4.0 OPERATOR ACTIONS

4.1 Immediate Actions

4.1.1 **IF** operating CRD PUMP has **TRIPPED AND** STANDBY CRD PUMP IS **AVAILABLE, THEN**

PERFORM the following at Panel 2-9-5:

****

Performance Step : Critical X Not Critical____

4.1.1.1 **PLACE** CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, in MAN at minimum setting.

Standard:

PLACED 2-FIC-85-11 in MAN. **TURNED** manual potentiometer until 0 (zero) manual demand signal obtained

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical_X_ Not Critical____

4.1.1.2 **START** associated standby CRD Pump using one of the following:

- CRD PUMP 1B, using 2-HS-85-2A.
- CRD PUMP 2A, using 2-HS-85-1A.

Standard:

PLACED 2-HS-85-2A in the START position. **DETERMINED** 1B CRD Pump failed to start.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical__X__

4.1.2 **IF** operating CRD PUMP has **TRIPPED** AND BACKUP CRD PUMP is **NOT AVAILABLE**, **THEN** (Otherwise N/A)

PERFORM the following at Panel 2-9-5:

4.1.2.1 **PLACE** CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, in MAN at minimum setting.

Standard:

VERIFIED CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, in MAN at minimum setting.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step: Critical X Not Critical___

4.1.2.2 **ATTEMPT** to **RESTART** tripped CRD Pump using one of the following:

- CRD PUMP 1B, using 2-HS-85-2A.
- CRD PUMP 2A, using 2-HS-85-1A.

Standard:

RESTARTED CRD PUMP 2A, using 2-HS-85-1A.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

****

****

Performance Step : Critical X Not Critical ____

4.1.2.3 ADJUST CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, to establish the following conditions:

- CRD CLG WTR HDR DP, 2-PDI-85-18A, approximately 20 psid
- CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, BETWEEN 40 AND 65 GPM.

Standard:

ADJUSTED manual potentiometer on 2-FIC-85-11 until:

- 2-PDI-85-18A indicating ~20 psid
- 2-FIC-85-11 indicating 40 to 65 gpm

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical ___ Not Critical X

4.1.2.4 **BALANCE** CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, **AND** PLACE in AUTO or BALANCE.

Standard:

ADJUSTED 2-FIC-85-11 tape setpoint until red pointer was under green window and then **PLACED** controller in AUTO or BALANCE.

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

JPM NUMBER: 84

TITLE: ENERGIZE A UNIT 1/2 4KV SHUTDOWN BOARD VIA A UNIT 3 DG IN ACCORDANCE WITH 0-AOI-57-1A, ATTACHMENT 7

TASK NUMBER: U-57A-1A-AB-01

SAFETY FUNCTION: 6

TYPE CODE: D

SUBMITTED BY:_____ DATE:_____

VALIDATED BY:_____ DATE:_____

APPROVED: _____ DATE:_____
TRAINING

PLANT CONCURRENCE: _____ DATE:_____
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	10/14/94	ALL	NEW JPM
1	10/14/95	All	Revised procedure
2	10/30/96	ALL	PROCEDURE REVISION, ADDED NON-CRITICAL STEP ON TOUCH STAAR, CHANGED ASOS TO US.
3	11/12/99	2,3,4,6,11	PROCEDURE REVISION, FORMAT, CHANGED MGT. EXPECT. TO PLANT WORK EXPECT., ADDED NON-CRIT. STEP 3-WAY COMM.
4	10/16/02	3,	REMOVE SS#, CHG PROC REV

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASUR

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: 84

TASK NUMBER: U-057A-AB-01

TASK TITLE: RESPOND TO LOSS OF OFFSITE POWER

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

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*

TASK STANDARD: ENERGIZE 4 KV SHUTDOWN BOARD D VIA 3ED DIESEL GENERATOR

LOCATION OF PERFORMANCE: SIMULATOR X PLANT ___ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED: 0-AOI-57-1A, REV 50

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. 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 plant has experienced a loss of off-site power. You have been placed in charge of carrying out the actions of 0-AOI-57-1A, Loss of Offsite Power. All systems have responded as expected except 'D' Diesel Generator failed to auto start and cannot be manually started.

INITIATING CUES: The Unit 2 UNIT SUPERVISOR has directed you to energize 'D' 4kV Shutdown Board via 3D Diesel Generator as directed by 0-AOI-57-1A, Attachment 7.

START TIME_____

EXAMINER'S NOTE: EXACT STEP SEQUENCE REQUIRED.

****

Performance Step: Critical___ Not Critical_X

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

Standard:

IDENTIFIED OR OBTAINED copy of 0-AOI-57-1A, Attachment 7.

SAT___UNSAT___N/A___ COMMENTS:_____

_____

ENERGIZING A UNIT 1/2 4KV SHUTDOWN BOARD VIA A UNIT 3 DG

NOTE:

The following table identifies the normal feeder breaker, alternate feeder breaker, diesel generator output breaker and unit crosstie breaker associated with each 4-KV shutdown board. This table should be referred to as needed when performing the subsequent steps in this subsection.

****

CAUTION

The cross-tie cables for 4160V Shutdown Boards C and 3EC are able to carry full load current for 100 hours without exceeding the 90°C rating of the cable. After the 100 hours, the load must be reduced to 340 amps. This is a once in a Lifetime Limit for the cable. [CALC ED-Q0999-870135]

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Shutdown Board	A	B	C	D	3EA	3EB	3EC	3ED
NORM FDR BKR	1614	1616	1718	1724	1334	1336	1338	1342
ALT FDR BKR	1716	1714	1624	1618	1726	1728	1626	1628
D/G BKR	1818	1822	1812	1816	1838	1842	1832	1836
EMER FDR BKR	1824	1828	1814	1826	1844	1848	1834	1846

****

Performance Step : Critical___ Not Critical_X

1.0 STATION a licensed operator at the diesel generator sections of the 9-23 panels in both the Units 1 & 2 and Unit 3 Control Rooms.

Standard:

CONTACTED U-3 Operator to man Panel 3-9-23.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [SIMULATOR OPERATOR WHEN CONTACTED] OPERATOR STANDING BY AT PANEL 3-9-23.

****

Performance Step : Critical_X_ Not Critical__

2.0 To prevent entering an unanalyzed condition (B and C SBGT feed from the same power supply), TRANSFER Diesel Aux Board B to its alternate power supply prior to energizing D 4KV S/D Bd via 3D Diesel Generator.

Standard:

Momentarily **PLACED** 0-HS-219-BB, 480V DIESEL AUX BD B FDR TRANSFER, in the ALT position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X

3.0 PERFORM the following at Panel 9-23 in the Unit 3 Control Room:

3.1 VERIFY the associated Unit 3 diesel generator has started and tied to its respective 4KV S/D board.

Standard:

VERIFIED from Unit 3 Operator that 3ED diesel generator running and tied to 3ED 4kV shutdown board.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [SIMULATOR OPERATOR] 3ED DIESEL GENERATOR IS RUNNING AND TIED TO 3ED 4KV SHUTDOWN BOARD.

****

Performance Step : Critical___ Not Critical_X

3.2 VERIFY the D/G MODE SELECT switch is in SINGLE UNIT and PULL OUT on the switch.

Standard:

VERIFIED from Unit 3 Operator that diesel generator mode select switch is in SINGLE UNIT position and has **PULLED OUT** on the Mode Switch.

SAT____UNSAT____N/A____ COMMENTS:_____

****

Performance Step : Critical___ Not Critical_X

3.3 VERIFY the SINGLE UNIT light (left red) is ILLUMINATED.

Standard:

VERIFIED from Unit 3 Operator that red SINGLE UNIT above Mode Select Switch illuminated.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [SIMULATOR OPERATOR] THE RED SINGLE UNIT INDICATING LAMP (LEFT RED) ABOVE THE 3ED DG MODE SELECT SWITCH IS ILLUMINATED.

****

Performance Step : Critical_X_ Not Critical__

3.4 CLOSE the CROSSTIE to Units 1/2 Breaker.

Standard:

REQUESTED Unit 3 Operator to CLOSE Breaker 1846.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [SIMULATOR OPERATOR ENTER MRF ED06 AND REPORT] BREAKER 1846 HAS BEEN CLOSED.

4.0 PERFORM the following steps at Panel 9-23 in the Unit 1/2 Control Room:

****

Performance Step : Critical___ Not Critical_X

4.1 VERIFY the Unit 1/2 4KV S/D board to be energized from Unit 3 is DE-ENERGIZED.

Standard:

VERIFIED no feeder breakers closed in to D 4kV Shutdown Board as indicated by voltmeter or illuminated green breaker position indicating lamps for breaker numbers 1724, 1618, 1816, 1826 and/or **VERIFIED** 0-EI-211-D, 4KV SD BD D VOLTS indicating 0 volts.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical_X_ Not Critical__

4.2 CLOSE the EMERG. FDR BREAKER to the de-energized board.

Standard:

PLACED Breaker 1826 control switch in the CLOSE position.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

****

Performance Step : Critical___ Not Critical_X

5.0 MAINTAIN Diesel Generator loading within the limits of Attachment 6.

Standard:

In conjunction with Unit 3 Operator, **VERIFIED** D diesel generator loading within limits of Attachment 6.

SAT____UNSAT____N/A____ COMMENTS:_____

_____

CUE: [SIMULATOR OPERATOR WHEN ASKED] DG 3ED LOADING IS 1800 KW.

****

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 i.e., used phonetic alphabet, received/solicited and acknowledged repeat-backs.

SAT_____UNSAT_____N/A_____COMMENTS_____
_
_____

_____

END OF TASK

STOP TIME_____