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**BROWNS FERRY NUCLEAR PLANT**
**JOB PERFORMANCE MEASURE**

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JPM NUMBER:     606F

TITLE:          EOI APPENDIX-3A - SLC INJECTION

TASK NUMBER:    U-000-EM-73

## SIM "A" UNIT-2

SUBMITTED BY: _____    DATE:_____

VALIDATED BY: _____    DATE:_____

APPROVED BY: _____    DATE:_____
                      TRAINING

PLANT CONCURRENCE: _____    DATE:_____
                      OPERATIONS

\*      Examination JPMs Require Operations Training Manager Approval 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 | 05/12/01 | All | Initial issue |
| 1 | 10/22/98 | All | Re-formatted |
| 2 | 10/03/00 | All | General revision |
| 3 | 09/13/02 | All | Modified failure mode for NRC |
| 4 | 07/08/06 | All | General revision |
| 5 | 06/12/08 | All | General revision & re-format |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR: _____

RO _____    SRO _____                    DATE: _____

JPM NUMBER:     606F

TASK NUMBER:    U-000-EM-73

TASK TITLE:     EOI APPENDIX-3A - SLC INJECTION

K/A NUMBER:     211000A4.02     K/A RATING:    RO _4.2_         SRO _4.2_

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TASK STANDARD: PERFORM OPERATION NECESSARY TO START AN SLC PUMP
               AND INJECT SLC SOLUTION INTO THE RPV AS DIRECTED BY
               2-EOI APPENDIX-3A

PERFORMANCE LOCATION:     SIMULATOR _X_ PLANT __ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED:     2-EOI Appendix-3A, Rev 5

VALIDATION TIME:          SIMULATOR:_  5:00  _     LOCAL: _____

MAX. TIME ALLOWED:     _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:     _____

COMMENTS:     _____
              _____
              _____

ADDITIONAL COMMENT SHEETS ATTACHED?        YES _____ NO _____

RESULTS:        SATISFACTORY _____        UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

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**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.

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**INITIAL CONDITIONS:**    You are an operator on Unit 2.

- The reactor has scrammed and control rods failed to insert.

- 2-EOI-1 has been entered and followed to RC/Q-12.

- Reactor power is >5%.

- RWL has been lowered per EOI C5 and Appendix-4.

- MSIV's are closed.

**INITIATING CUES:**        The Unit Supervisor has directed you to inject SLC per 2-EOI Appendix-3A, SLC Injection.

START TIME _____

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**Simulator Driver: This JPM requires an ATWS > 5% and RWL -50" to -150", and 2-FCV-69-1 open and failed such that it will not Auto Close, 69-2 & 12 open (but will NOT close), and both RWCU pumps still running (but able to be tripped).**

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<u>PERFORMANCE STEP:</u>                   CRITICAL _____   NOT CRITICAL __X__

When requested by examiner identify/obtain copy of required procedure.

<u>STANDARD:</u>

Obtained copy of 2-EOI Appendix-3A.

SAT _____   UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

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<u>PERFORMANCE STEP:</u>                   CRITICAL __X__   NOT CRITICAL _____

1.    **UNLOCK** and **PLACE** 2-HS-63-6A, SLC PUMP 2A/2B, control switch in START-A or START-B position.

<u>STANDARD:</u>

Unlocked and Placed SLC pump control switch in <u>either</u> START-A or START-B position.

SAT _____   UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

2.     **CHECK** SLC System for injection by observing the following:

  •  Selected pump starts, 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,

  •  SLC SQUIB VALVE CONTINUITY LOST Annunciator in alarm on Panel 9-5 (2-XA-55-5B, 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 on Panel 9-5,

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

STANDARD:

Verified selected SLC pump is injecting to RPV by Observing the above parameters.

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

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PERFORMANCE STEP:          CRITICAL _____     NOT CRITICAL __X__

3.     IF .....     Proper system operation CANNOT be verified,
       THEN ...     **RETURN** to Step 1 and **START** other SLC pump.

STANDARD:

N/A - verified proper operation of running pump and continues to step 4.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____


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PERFORMANCE STEP:          CRITICAL __X__     NOT CRITICAL _____

4.     **VERIFY** RWCU isolation by observing the following:

   • RWCU Pumps 2A and 2B tripped
   • 2-FCV-69-1, RWCU INBD SUCT ISOLATION VALVE closed
   • 2-FCV-69-2, RWCU OUTBD SUCT ISOLATION VALVE closed
   • 2-FCV-69-12, RWCU RETURN ISOLATION VALVE closed

STANDARD:

Examinee Recognized the failure of RWCU to isolate and manually Closes 2-FCV-69-1
by taking 2-HS-69-1 to the close direction on panel 9-4 OR trips both RWCU pumps.
(closing 69-1 will trip both pumps) (Attempts but Notices that 69-2 and 69-12 will NOT
close and notifies US) Verified illuminated Green valve position indicating lights above
the 69-1 valve handswitch and Verified RWCU pumps tripped by Observing illuminated
Green breaker position indicating lights above pump handswitches. (Only closing 69-1
OR tripping the pumps is Critical)

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

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PERFORMANCE STEP:　　　　　　　CRITICAL _____　　NOT CRITICAL __X__

5.　　**VERIFY** ADS inhibited.

STANDARD:

Verified 2-XS-1-159A and 2-XS-1-161A, Panel 2-9-3, in the INHIBIT position and Verified Alarm Panel 2-XA-55-3C, Window 18, "ADS LOGIC BUS A INHIBITED and 2-XA-55-3C, Window 31, "ADS LOGIC BUS B INHIBITED", in alarm.

SAT _____　　UNSAT _____　　N/A _____　　COMMENTS:_____

_____

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PERFORMANCE STEP:　　　　　　　CRITICAL _____　　NOT CRITICAL __X__

6.　　**MONITOR** reactor power for downward trend.

STANDARD:

Monitored all available APRMs/IRMs for downward reactor power trend.

SAT _____　　UNSAT _____　　N/A _____　　COMMENTS:_____

_____

_____

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PERFORMANCE STEP:               CRITICAL _____   NOT CRITICAL __X__

7.    **MONITOR** 2-LI-63-1A, SLC STORAGE TANK LEVEL, and **CHECK** that level is dropping approximately 1% per minute.

STANDARD:

Observed 2-LI-63-1A and Verified SLC storage tank level decreasing.

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

| CUE:  Another Operator will secure SLC when necessary. |

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PERFORMANCE STEP:           CRITICAL _____     NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM


STANDARD:

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


SAT _____     UNSAT _____     N/A _____     COMMENTS:_____

_____

_____


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PERFORMANCE STEP:           CRITICAL _____     NOT CRITICAL __X__

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


STANDARD:

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


SAT _____     UNSAT _____     N/A _____     COMMENTS:_____

_____

_____


**END OF TASK**


**STOP TIME:** _____

**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.

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**INITIAL CONDITIONS:**     You are an operator on Unit 2.

- The reactor has scrammed and control rods failed to insert.

- 2-EOI-1 has been entered and followed to RC/Q-12.

- Reactor power is >5%.

- RWL has been lowered per EOI C5 and Appendix-4.

- MSIV's are closed.

**INITIATING CUES:**          The Unit Supervisor has directed you to inject SLC per 2-EOI Appendix-3A, SLC Injection.

| BROWNS FERRY NUCLEAR PLANT |
| JOB PERFORMANCE MEASURE |

JPM NUMBER:     328F

TITLE:     EOI APPENDIX-3A - SLC INJECTION

TASK NUMBER:     U-000-EM-73

# SIM "A" UNIT-3

SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____     DATE:_____
                              TRAINING

PLANT CONCURRENCE: _____     DATE:_____
                              OPERATIONS

\*     Examination JPMs Require Operations Training Manager Approval 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 | 08/17/08 | All | Initial issue |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____    SRO _____                    DATE:_____

JPM NUMBER:    328F

TASK NUMBER:    U-000-EM-73

TASK TITLE:    EOI APPENDIX-3A - SLC INJECTION

K/A NUMBER:    211000A4.02    K/A RATING:    RO __4.2__    SRO __4.2__

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TASK STANDARD: PERFORM OPERATION NECESSARY TO START AN SLC PUMP
AND INJECT SLC SOLUTION INTO THE RPV AS DIRECTED BY
3-EOI APPENDIX-3A

PERFORMANCE LOCATION:                    SIMULATOR __X__

REFERENCES/PROCEDURES NEEDED:    3-EOI Appendix-3A, Rev 1

VALIDATION TIME:    SIMULATOR:___5:00___    LOCAL:_____

MAX. TIME ALLOWED:    _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:    _____

COMMENTS:    _____
             _____
             _____

ADDITIONAL COMMENT SHEETS ATTACHED?        YES _____ NO _____

RESULTS:    SATISFACTORY _____        UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

> **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.

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**INITIAL CONDITIONS:**     You are an operator on Unit 3.

- The reactor has scrammed and control rods failed to insert.

- 3-EOI-1 has been entered and followed to RC/Q-12.

- Reactor power is > 5%.

- Suppression pool temperature is 105°F and rising.

**INITIATING CUES:**          The Unit Supervisor has directed you to inject SLC per 3-EOI Appendix-3A, SLC Injection.

START TIME _____

| Simulator Driver:  This JPM requires an ATWS > 5% and Torus temp ~ 105°F, and 3-FCV-69-1 failed such that it will not Auto Close. |
|---|

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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

When requested by examiner identify/obtain copy of required procedure.

STANDARD:

Obtained copy of 3-EOI Appendix-3A.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL ___X__    NOT CRITICAL _____

1.    **UNLOCK** and **PLACE** 3-HS-63-6A, SLC PUMP 3A/3B, control switch in START PUMP 3A or START PUMP 3B position.

STANDARD:

Unlocked and Placed SLC pump control switch in either START-A or START-B position.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

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PERFORMANCE STEP:              CRITICAL  _____   NOT CRITICAL  __X__

2.      **CHECK** SLC System for injection by observing the following:

- Selected pump starts, 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,

- SLC SQUIB VALVE CONTINUITY LOST Annunciator in alarm on Panel 3-9-5 (3-XA-55-5B, Window 20).

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

- System flow, as indicated by 3-IL-63-11, SLC FLOW, red light illuminated on Panel 3-9-5,

- SLC INJECTION FLOW TO REACTOR Annunciator in alarm on Panel 3-9-5 (3-XA-55-5B, Window 14).

STANDARD:

Verified selected SLC pump is injecting to RPV by Observing the above parameters.

SAT  _____      UNSAT  _____    N/A  _____         COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

3.    IF .....        Proper system operation CANNOT be verified,
      THEN ...    **RETURN** to Step 1 and **START** other SLC pump.

STANDARD:

N/A - verified proper operation of running pump and continues to step 4.

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL __X__    NOT CRITICAL _____

4.    **VERIFY** RWCU isolation by observing the following:

- RWCU Pumps 3A and 3B tripped
- 3-FCV-69-1, RWCU INBD SUCT ISOLATION VALVE closed
- 3-FCV-69-2, RWCU OUTBD SUCT ISOLATION VALVE closed
- 3-FCV-69-12, RWCU RETURN ISOLATION VALVE closed

STANDARD:

Examinee Recognized the failure of 3-FCV-69-1 to isolate and manually Closes 3-FCV-69-1 by taking 3-HS-69-1 to the close direction on panel 9-4. Verified illuminated Green valve position indicating lights above the (other) respective valve handswitches and Verified RWCU pumps tripped by Observing illuminated Green breaker position indicating lights above pump handswitches. (Only closing 69-1 is Critical)

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

5.     **VERIFY** ADS inhibited.

STANDARD:

Verified 3-XS-1-159A and 3-XS-1-161A, Panel 3-9-3, in the INHIBIT position and
Verified Alarm Panel 3-XA-55-3C, Window 18, "ADS LOGIC BUS A INHIBITED and
3-XA-55-3C, Window 31, "ADS LOGIC BUS B INHIBITED", in alarm.

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

6.     **MONITOR** reactor power for downward trend.

STANDARD:

Monitored all available APRMs/IRMs for downward reactor power trend.

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                CRITICAL _____   NOT CRITICAL ___X__

7.    **MONITOR** 3-LI-63-1A, SLC STORAGE TANK LEVEL, and **CHECK** that level is dropping approximately 1% per minute.

STANDARD:

Observed 3-LI-63-1A and Verified SLC storage tank level decreasing.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____   NOT CRITICAL ___X__

8.    WHEN ... EITHER of the following exists:

• SLC tank level drops to 0%,

        **OR**

• As directed by SRO,

THEN ... **STOP** SLC Pump 3A or 3B.

STANDARD:

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

| CUE:  That completes this task. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____     NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM

STANDARD:

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

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                CRITICAL _____     NOT CRITICAL __X__

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

STANDARD:

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

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

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**END OF TASK**

**STOP TIME:** _____

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|---|
| **BROWNS FERRY NUCLEAR PLANT**<br>**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.

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**INITIAL CONDITIONS:**    You are an operator on Unit 3.

- The reactor has scrammed and control rods failed to insert.

- 3-EOI-1 has been entered and followed to RC/Q-12.

- Reactor power is > 5%.

- Suppression pool temperature is 105°F and rising.

**INITIATING CUES:**        The Unit Supervisor has directed you to inject SLC per 3-EOI Appendix-3A, SLC Injection.

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

JPM NUMBER:     14F

TITLE:     2-EOI APPENDIX-5A - INJECTION SYSTEMS LINEUP –
CONDENSATE/FEEDWATER, HP HTRs ISOLATED.

TASK NUMBER:     U-000-EM-29

# SIM "B" UNIT-2

SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____     DATE:_____
                                TRAINING

PLANT CONCURRENCE: _____     DATE:_____
                                OPERATIONS

\*     Examination JPMs Require Operations Training Manager Approval 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 | 10/23/98 | All | Initial issue |
| 1 | 10/23/01 | 3,4 | Procedure revision, format, setpoint change |
| 2 | 08/14/03 | All | Procedure revision, editorial, add setup cue |
| 3 | 08/24/06 | 3 | Procedure revision |
| 4 | 06/01/07 | All | General revision |
| 5 | 06/12/08 | All | General revision & re-format |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____    SRO _____                      DATE:_____

JPM NUMBER:      14F

TASK NUMBER:      U-000-EM-29

TASK TITLE:      2-EOI APPENDIX-5A - INJECTION SYSTEMS LINEUP –
CONDENSATE/FEEDWATER, HP HTRs ISOLATED.

K/A NUMBER:      295031EA1.08      K/A RATING:    RO _3.8_              SRO _3.9_

*********************************************************************************************

TASK STANDARD: PERFORM CONTROL ROOM ACTIONS REQUIRED TO
ESTABLISH THE CONDENSATE/FEEDWATER SYSTEM AS AN
RPV INJECTION SYSTEM IAW 2-EOI APPENDIX-5A

PERFORMANCE  LOCATION:     SIMULATOR _X_ PLANT __ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED:     2-EOI Appendix-5A, Rev 8

VALIDATION TIME:              SIMULATOR:___11:00___        LOCAL:_____

MAX. TIME ALLOWED:      _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:      _____

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. The reactor has scrammed due to a trip of all Reactor Feedwater pumps and EOI-1 has been followed through RC/L-3.

**INITIATING CUES:** The problem that caused the trip of the RFP's has been corrected and the Unit Supervisor has directed you to restore and maintain RPV water level +2" to +51" as directed by 2-EOI Appendix-5A, INJECTION SYSTEMS LINEUP - CONDENSATE/FEEDWATER.

START TIME _____

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┌─────────────────────────────────────────────────────────────────────────────┐
│ Simulator Driver:  This JPM requires all RFPs tripped with all HP heaters isolated. │
└─────────────────────────────────────────────────────────────────────────────┘
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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

When requested by examiner identify/obtain copy of required procedure.

STANDARD:

Obtained copy of 2-EOI Appendix-5A.

SAT _____    UNSAT _____  N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

1.    **VERIFY** Condensate System in service, supplying suction to RFPs.

STANDARD:

Verified condensate system in service by observation of valve alignment, condensate
and condensate booster pump operation and RFP alignment.

SAT _____    UNSAT _____  N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL \_\_X\_\_

2.    **VERIFY OPEN** MSIVs, supplying steam to RFPTs.

STANDARD:

Verified MSIVs open by illuminated RED valve position indicating lamps on Panel 2-9-3
(vertical panel or benchboard).

SAT _____       UNSAT _____    N/A _____       COMMENTS:_____

_____

_____
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL \_\_X\_\_

3.    **VERIFY** Hotwell Pressure below -7 in. Hg.

STANDARD:

Verified Hotwell Pressure below -7 inches Hg. as indicated on 2-XR-2-2, Panel 2-9-6 or
ICS computer.

SAT _____       UNSAT _____    N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:               CRITICAL _____     NOT CRITICAL ___X___

4.    **VERIFY CLOSED** 2-FCV-1-121(129)(137), RFPT 2A(2B)(2C) LP STEAM
      SUPPLY VALVE.

| **Examiner Note: In the interest of time, Candidate is not required to wait at this step until valves fully close. (Prompt, if necessary)** |
| --- |

STANDARD:

Verified illuminated RED valve position indicating lamps above 2-HS-1-121, (129), or (137) on Panel 2-9-6 is lit for RFPT 2A, B, and C and take actions to close valve(s).

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

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PERFORMANCE STEP:               CRITICAL _____     NOT CRITICAL ___X___

5.    **VERIFY OPEN** 2-FCV-1-125(133)(141), RFPT 2A(2B)(2C) HP STEAM SUPPLY
      VALVE.

STANDARD:

Verified illuminated RED valve position indicating lamp above 2-HS-1-125, (133), or (141).

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL    X    NOT CRITICAL  _____

6.    **DEPRESS** 2-HS-46-8A(9A)(10A), RFPT 2A(2B)(2C) SPEED CONT
      RAISE/LOWER, and **VERIFY** amber light is illuminated.

STANDARD:

Depressed 2-HS-46-8A, (9A), or (10A) for selected RFPT Speed Cont Raise/Lower and
Verified amber light illuminated.

SAT  _____      UNSAT  _____      N/A  _____            COMMENTS:_____

_____

_____


\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  _____    NOT CRITICAL    X

7.    **VERIFY** a Main Oil Pump is running for RFPT to be started.

STANDARD:

Verified a Main Oil Pump is running for the selected RFPT by observing a RED
indicating light above handswitch.

SAT  _____      UNSAT  _____      N/A  _____            COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL _____        NOT CRITICAL \_\_\_X\_\_

8.     **VERIFY** for EACH of the following pushbuttons, the green light is illuminated and the red light is extinguished:

   • 2-HS-3-208A, RX WTR LVL CH A HI RFPT/MT TRIP RESET
   • 2-HS-3-208B, RX WTR LVL CH B HI RFPT/MT TRIP RESET

STANDARD:

Verified GREEN light illuminated and RED light extinguished on 2-HS-3-208A & 208B.

SAT _____        UNSAT _____    N/A _____            COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL \_\_\_X\_\_    NOT CRITICAL _____

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

   • 2-FCV-3-75, HP HTR 2A1 FW OUTLET ISOL VLV
   • 2-FCV-3-76, HP HTR 2B1 FW OUTLET ISOL VLV
   • 2-FCV-3-77, HP HTR 2C1 FW OUTLET ISOL VLV

| Examiner Note:  Inlet valve not fully open before the outlet valve is fully opened will cause the outlet valve to close. |
| --- |

STANDARD:

Recognizes HP heater inlet and outlet valves closed and Opens a minimum of one set of the HP Heater FW Isolation Valves (inlet and outlet, 3-38 & 3-75, or 3-31 & 3-76, or 3-24 & 3-77).

SAT _____        UNSAT _____    N/A _____            COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL ___X___   NOT CRITICAL _____

10.    **DEPRESS** 2-HS-3-124A(150A)(175A), RFPT 2A(2B)(2C) TRIP RESET, and **CHECK** the following:

- Blue light extinguished.

- HP Stop Valve OPEN as indicated by red light above the following, as applicable:

   o  2-HS-3-108, RFPT 2A HP STOP VLV TEST
   o  2-HS-3-134, RFPT 2B HP STOP VLV TEST
   o  2-HS-3-159, RFPT 2C HP STOP VLV TEST

- LP Stop Valve OPEN as indicated by red light above the following, as applicable:

   o  2-HS-3-107, RFPT 2A LP STOP VLV TEST
   o  2-HS-3-133, RFPT 2B LP STOP VLV TEST
   o  2-HS-3-158, RFPT 2C LP STOP VLV TEST

STANDARD:

Depressed  TRIP RESET PB 3-124A, (150A), or (175A) for the selected pump, and Checked the BLUE light extinguished, HP Stop Valve Open as indicated by RED light above HS for the selected pump,  and the LP Stop Valve Open as indicated by the RED light above HS for the selected pump.

SAT _____     UNSAT _____     N/A _____     COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X___

11.    **VERIFY OPEN** 2-FCV-3-20(13)(6), RFP 2A(2B)(2C) MIN FLOW VALVE.

STANDARD:

Verified illuminated RED valve position indicating light for minimum flow valve 3-20, (13), or (6)above HS for selected pump.

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL ___X___    NOT CRITICAL _____

12.    **PLACE** 2-HS-46-112A(138A)(163A), RFPT 2A(2B)(2C) START/LOCAL ENABLE, in START.

STANDARD:

Placed Start/Local Enable switch for the selected pump 46-112A, (138A), or (163A) in START.

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL  _____   NOT CRITICAL  __X__

13.    **CHECK** RFPT 2A(2B)(2C) speed increases to approximately 600 rpm.

STANDARD:

Checked RFPT Speed accelerated to approximately 600 rpm.

SAT  _____       UNSAT  _____    N/A  _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  _____   NOT CRITICAL  __X__

14.    **VERIFY OPEN** 2-FCV-3-19(12)(5), RFP 2A(2B)(2C) DISCHARGE VALVE.

STANDARD:

Verified illuminated RED valve position indicating light above discharge valve for the selected pump, 3-19, (12), or (5).

SAT  _____       UNSAT  _____    N/A  _____        COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL __ X __    NOT CRITICAL _____

15.    **RAISE** RFPT 2A(2B)(2C) speed UNTIL RFP discharge pressure is approximately equal to RPV pressure using ANY of the following methods on Panel 2-9-5:

- Using individual 2-HS-46-8A(9A)(10A), RFPT 2A(2B)(2C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR,

**OR**

- Using individual 2-SIC-46-8(9)(10), RFPT 2A(2B)(2C) SPEED CONTROL PDS in MANUAL,

**OR**

- Using 2-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL with individual 2-SIC-46-8(9)(10), RFPT 2A(2B)(2C) SPEED CONTROL PDS in AUTO

STANDARD:

Raised selected RFPT speed Until RFP discharge pressure was approximately equal to RPV pressure utilizing one of the methods above on Panel 2-9-5.

SAT _____    UNSAT _____    N/A _____         COMMENTS:_____

_____

_____

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PERFORMANCE STEP:               CRITICAL   __X__   NOT CRITICAL  _____

16.     **SLOWLY RAISE** speed of RFPT UNTIL RFW flow to the RPV is indicated using ANY of the following methods on Panel 2-9-5:

- Using individual 2-HS-46-8A(9A)(10A), RFPT 2A(2B)(2C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR,

**OR**

- Using individual 2-SIC-46-8(9)(10), RFPT 2A(2B)(2C) SPEED CONTROL PDS in MANUAL,

**OR**

- Using 2-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL with individual 2-SIC-46-8(9)(10), RFPT 2A(2B)(2C) SPEED CONTROL PDS in AUTO

STANDARD:

Slowly raised speed of selected RFPT Until RFW flow to the RPV is indicated utilizing one of the above methods.

SAT  _____     UNSAT  _____     N/A _____          COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

17.    **ADJUST** RFPT speed as necessary to control injection using ANY of the
       following methods on Panel 2-9-5:

- Using individual 2-HS-46-8A(9A)(10A), RFPT 2A(2B)(2C) SPEED CONT
  RAISE/LOWER switch in MANUAL GOVERNOR,

**OR**

- Using individual 2-SIC-46-8(9)(10), RFPT 2A(2B)(2C) SPEED CONTROL PDS in
  MANUAL,

**OR**

- Using 2-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL with
  individual 2-SIC-46-8(9)(10), RFPT 2A(2B)(2C) SPEED CONTROL PDS in
  AUTO

STANDARD:

Adjusted speed of selected RFPT as required utilizing one of the above methods.

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

Examiner Note:  [When RX water level is rising and Candidate demonstrates
control of a RFP] [Candidate doesn't necessarily have to recover water level +2 to
+51 inches- it is sufficient that Examiner is satisfied that level is recovering and is
assured Candidate has control of the RFP]

CUE:  That completes this task.

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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM


STANDARD:

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


SAT _____       UNSAT _____    N/A _____        COMMENTS:_____

_____

_____


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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

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


STANDARD:

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


SAT _____       UNSAT _____    N/A _____        COMMENTS:_____

_____

_____


**END OF TASK**


**STOP TIME:** _____

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**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.

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**INITIAL CONDITIONS:**   You are a Unit 2 Operator. The reactor has scrammed due to a trip of all Reactor Feedwater pumps and EOI-1 has been followed through RC/L-3.

**INITIATING CUES:**   The problem that caused the trip of the RFP's has been corrected and the Unit Supervisor has directed you to restore and maintain RPV water level +2" to +51" as directed by 2-EOI Appendix-5A, INJECTION SYSTEMS LINEUP - CONDENSATE/FEEDWATER.

JPM NUMBER:     55F

TITLE:     2-EOI APPENDIX-13 - EMERGENCY VENTING PRIMARY CONTAINMENT

TASK NUMBER:     U-000-EM-63

# SIM "C" UNIT-2

SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____     DATE:_____
                              TRAINING

PLANT CONCURRENCE: _____     DATE:_____
                              OPERATIONS

*     Examination JPMs Require Operations Training Manager Approval 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 | 11/19/08 | All | Initial Issue |
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**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

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OPERATOR:_____

RO _____     SRO _____                    DATE:_____

JPM NUMBER:     55F

TASK NUMBER:     U-000-EM-63

TASK TITLE:     2-EOI APPENDIX-13 - EMERGENCY VENTING PRIMARY
CONTAINMENT

K/A NUMBER:     295024EA1.14     K/A RATING:     RO  3.4     SRO  3.5

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TASK STANDARD: PERFORM CONTROL ROOM OPERATIONS REQUIRED TO
EMERGENCY VENTILATE PRIMARY CONTAINMENT

PERFORMANCE  LOCATION:     SIMULATOR X PLANT __ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED:     2-EOI Appendix-13, Rev 6

VALIDATION TIME:          SIMULATOR:_____     LOCAL:_____

MAX. TIME ALLOWED:     _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:     _____

COMMENTS:     _____
              _____
              _____

ADDITIONAL COMMENT SHEETS ATTACHED?          YES _____ NO _____

RESULTS:     SATISFACTORY _____          UNSATISFACTORY _____

EXAMINER SIGNATURE:_____DATE:_____

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**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.

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**INITIAL CONDITIONS:** You are an Operator. A large leak inside primary containment has developed on Unit 2. The reactor scrammed and several control rods are still not fully inserted to 00 and primary containment pressure is approaching 55 psig and rising. The US is performing EOI-2 at PC/P-15.

**INITIATING CUES:** The Unit Supervisor directs you to emergency vent primary containment as directed by 2-EOI Appendix-13.

START TIME _____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____    NOT CRITICAL __X__

When requested by examiner identify/obtain copy of required procedure.

STANDARD:

Obtained copy of 2-EOI Appendix-13.

SAT _____     UNSAT _____   N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____    NOT CRITICAL __X__

1.     **NOTIFY** Shift Manager / SED of the following:

    • Emergency Venting of Primary Containment is in progress.
    • Off-Gas Release Rate Limits will be exceeded.

| CUE:  [Shift Manager/SED acknowledges]  Emergency Primary Containment venting is in progress and Off-Gas release rate limits will be exceeded. |
| --- |

STANDARD:

Notified Shift Manager/SED by voice contact with examiner.

SAT _____     UNSAT _____   N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL \_\_\_\_\_    NOT CRITICAL \_\_X\_\_

2.     **VENT** the Suppression Chamber as follows (Panel 9-3):

     a.     IF ................EITHER of the following exists:

               • Suppression Pool water level CANNOT be determined to be below 20 ft,
                                     **OR**
               • Suppression Chamber CANNOT be vented,

               THEN..........**CONTINUE** in this procedure at Step 3.

STANDARD:

Verified Suppression Pool Level below 20 ft using 2-LI-64-159A, SUPPR POOL
WATER LEVEL and/or ICS.

SAT \_\_\_\_\_     UNSAT \_\_\_\_\_    N/A \_\_\_\_\_     COMMENTS:_____

_____

_____

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PERFORMANCE STEP:          CRITICAL \_\_\_\_\_    NOT CRITICAL \_\_X\_\_

     b.     **PLACE** keylock switch 2-HS-64-222B, HARDENED SUPPR CHBR
               VENT OUTBD PERMISSIVE, in PERM.

STANDARD:

Placed 2-HS-64-222B in the PERM position.

SAT \_\_\_\_\_     UNSAT \_\_\_\_\_    N/A \_\_\_\_\_     COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

  c.    **CHECK** blue indicating light above 2-HS-64-222B, HARDENED SUPPR CHBR VENT OUTBD PERMISSIVE, illuminated.

STANDARD:

Verified BLUE indicating lamp above 2-HS-64-222B Illuminated.

SAT _____    UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

  d.    **OPEN** 2-FCV-64-222, HARDENED SUPPR CHBR VENT OUTBD ISOL VLV.

STANDARD:

Placed 2-HS-64-222A in the OPEN position and Verified illuminated RED valve position indicating lamp above associated hand switch.

SAT _____    UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>                    CRITICAL \_\_\_\_\_    NOT CRITICAL \_\_X\_\_

   e.    **PLACE** keylock switch 2-HS-64-221B, HARDENED SUPPR CHBR VENT INBD PERMISSIVE, in PERM.

<u>STANDARD:</u>

Placed 2-HS-64-221B in the PERM position.

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>                    CRITICAL \_\_\_\_\_    NOT CRITICAL \_\_X\_\_

   f.    **CHECK** blue indicating light above 2-HS-64-221B, HARDENED SUPPR CHBR VENT INBD PERMISSIVE, illuminated.

<u>STANDARD:</u>

Verified BLUE indicating lamp above 2-HS-64-221B Illuminated.

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:              CRITICAL _____    NOT CRITICAL __X__

    g.    **OPEN** 2-FCV-64-221, HARDENED SUPPR CHBR VENT INBD ISOL VLV.

STANDARD:

Placed 2-HS-64-221A in the OPEN position and recognized 2-FCV-64-221 failed to open and goes to step 3.0.

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:              CRITICAL _____    NOT CRITICAL __X__

3.    IF..............Suppression Chamber vent path is NOT available,
       THEN.......**VENT** the Drywell as follows:

    a.    **NOTIFY** Shift Manager / SED that Secondary Containment integrity failure is possible.

STANDARD:

Notifies Shift Manager that Secondary Containment integrity failure is possible.

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:              CRITICAL _____  NOT CRITICAL __X__

      b.      **NOTIFY** Radiation Protection that Reactor Building is being evacuated due to imminent failure of Primary Containment vent ducts.

STANDARD:

Notifies Radiation Protection that Reactor Building is being evacuated due to imminent failure of Primary Containment vent ducts.

SAT _____       UNSAT _____    N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:              CRITICAL _____  NOT CRITICAL __X__

      c.      **EVACUATE** ALL Reactor Buildings using P.A. System.

STANDARD:

Evacuates all Reactor Buildings.

SAT _____       UNSAT _____    N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____     NOT CRITICAL __X__

    d.      **START** ALL available SGTS trains.

STANDARD:

Verifies all 3 trains of SBGT are in service.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____     NOT CRITICAL __X__

    e.      **VERIFY CLOSED** 2-FCV-64-36, DW/SUPPR CHBR VENT TO SGT
        (Panel 9-3).

STANDARD:

Verifies 2-FCV-64-36 is closed by illuminated green light above handswitch.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>          CRITICAL   __X__   NOT CRITICAL _____

      f.      **VERIFY OPEN** the following dampers (Panel 9-25):

- 2-FCO-64-40, REACTOR ZONE EXH TO SGTS
- 2-FCO-64-41, REACTOR ZONE EXH TO SGTS

<u>STANDARD:</u>

Goes to panel 9-25 and Opens 2-FCO-64-40 and 41.

SAT _____     UNSAT _____     N/A _____     COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>          CRITICAL _____     NOT CRITICAL __X__

      g.      **VERIFY CLOSED** 2-FCV-64-29, DRYWELL VENT INBD ISOL VALVE
            (Panel 9-3 or Panel 9-54).

<u>STANDARD:</u>

Verifies 2-FCV-64-29 is closed by illuminated green light above handswitch.

SAT _____     UNSAT _____     N/A _____     COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____     NOT CRITICAL ___X__

      h.    **DISPATCH** personnel to Unit 2 Auxiliary Instrument Room to perform the following:

          1)    **REFER TO** Attachment 1 and **OBTAIN** one 12-in. banana jack jumper from EOI Equipment Storage Box
          2)    **LOCATE** terminal strip DD in Panel 9-43, Front
          3)    **JUMPER** DD-76 to DD-77 (Panel 9-43)
          4)    **NOTIFY** Unit Operator that jumper for 2-FCV-64-30, DRYWELL VENT OUTBD ISOLATION VLV, is in place.

STANDARD:

Directs AUO or Outside US to perform step 3. h.

SAT _____     UNSAT _____     N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____     NOT CRITICAL ___X__

      i.    **VERIFY OPEN** 2-FCV-64-30, DRYWELL VENT OUTBD ISOLATION VLV (Panel 9-3)

STANDARD:

Verifies 2-FCV-64-30 is Open by illuminated red light above handswitch.

SAT _____     UNSAT _____     N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:           CRITICAL   __X__   NOT CRITICAL   _____

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

STANDARD:

Places keylock 2-HS-64-36 to Open (Critical) and Verifies illuminated red light above
handswitch (Not Critical).

SAT _____      UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:           CRITICAL _____     NOT CRITICAL   __X__

     k.     **VERIFY OPEN** 2-FCV-64-29, DRYWELL VENT INBD ISOL VALVE
           (Panel 9-54).

STANDARD:

Verifies 2-FCV-64-29 is Open by illuminated red light above handswitch.

SAT _____      UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                     CRITICAL _____    NOT CRITICAL __X__

   l.     **CHECK** Drywell and Suppression Chamber pressure lowering.

STANDARD:

Verifies Drywell and Suppression Chamber pressure lowering. (have simulator driver
lower leak, if necessary)

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                     CRITICAL _____    NOT CRITICAL __X__

   m.     **MAINTAIN** Primary Containment pressure below 55 psig using 2-FCV-64-
          29, DRYWELL VENT INBD ISOL VALVE, as directed by SRO.

STANDARD:

N/A.

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

CUE:  [When Drywell Pressure lowering] That completes this task.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>　　　　　　CRITICAL  _____　　NOT CRITICAL  __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM


<u>STANDARD:</u>

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


SAT  _____　　　UNSAT  _____　　N/A  _____　　　COMMENTS:_____

_____

_____


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<u>PERFORMANCE STEP:</u>　　　　　　CRITICAL  _____　　NOT CRITICAL  __X__

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


<u>STANDARD:</u>

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


SAT  _____　　　UNSAT  _____　　N/A  _____　　　COMMENTS:_____

_____

_____


**END OF TASK**


**STOP TIME:** _____

## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

********************************************************************************************

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

********************************************************************************************

**INITIAL CONDITIONS:**     You are an Operator. A large leak inside primary containment has developed on Unit 2. The reactor scrammed and several control rods are still not fully inserted to 00 and primary containment pressure is approaching 55 psig and rising. The US is performing EOI-2 at PC/P-15.

**INITIATING CUES:**     The Unit Supervisor directs you to emergency vent primary containment as directed by 2-EOI Appendix-13.

JPM NUMBER:      201F

TITLE:      LOSS OF SHUTDOWN COOLING

TASK NUMBER:    0-74-AB-01

# SIM "D" UNIT-2

SUBMITTED BY:    _____        DATE:_____

VALIDATED BY:    _____        DATE:_____

APPROVED BY:    _____        DATE:_____
                              TRAINING

PLANT CONCURRENCE: _____    DATE:_____
                              OPERATIONS

\*      Examination JPMs Require Operations Training Manager Approval 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 | 08/13/03 | All | Initial issue |
| 1 | 03/28/06 | All | Procedure revision |
| 2 | 06/29/08 | All | General revision & re-format |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____          SRO _____                      DATE:_____

JPM NUMBER:      201F

TASK NUMBER:     0-74-AB-01

TASK TITLE:      LOSS OF SHUTDOWN COOLING

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

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

PERFORMANCE LOCATION:      SIMULATOR X PLANT __ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED:      2-AOI-74-1, Rev 32

VALIDATION TIME:          SIMULATOR:    25:00       LOCAL:_____

MAX. TIME ALLOWED:     _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:     _____

COMMENTS:           _____
                    _____
                    _____

ADDITIONAL COMMENT SHEETS ATTACHED?          YES _____ NO _____

RESULTS:      SATISFACTORY _____          UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

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┌─────────────────────────────────────────────────────────────┐
│                 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 in Mode 3 (Rx temp > 212°F) heading towards cold conditions for a refueling outage.

- RHR Loop II using 2B RHR Pump was in shutdown cooling and Unit 3 is carrying 1350 gpm RHRSW flow for "B" RHRSW Header.

- An inadvertent loss of 2B RPS bus resulted in a partial isolation of RHR shutdown cooling.

- RPS 2B has been restored on the alternate supply.

- Another operator is assisting with recovery from the loss of 2B RPS.

- The Unit Supervisor has notified the Shift Manager of the problem.


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

START TIME _____

| |
|---|
| **Simulator Driver:  This JPM requires start at IC 21 – Verify Rx coolant temp > 212°F with a loss of RPS B & xfer to alt (mrf rp04 b), everything reset except Group 2 PCIS and a trip on 2B RHR pump (imf rh01b).** |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

When requested by examiner identify/obtain copy of required procedure.

STANDARD:

Obtained copy of 2-AOI-74-1.

SAT _____       UNSAT _____    N/A _____       COMMENTS:_____

_____

_____

| CAUTIONS |
|---|
| 1) Reactor vessel stratification may occur until Shutdown Cooling is restored or a reactor Recirculation Pump is placed in service.<br><br>2) Loss of Shutdown Cooling during the first 24 hours is most critical due to massive decay heat and limitations on the RHRSW Piping. If Shutdown Cooling is lost during the first 24 hours post reactor shutdown, priorities are required to be placed on the recovery of shutdown cooling in an expeditious manner [BFN PER 02-003140-000]. |

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

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PERFORMANCE STEP:                CRITICAL _____      NOT CRITICAL ___X__

**4.2    Subsequent Actions**

[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__

[2]    **NOTIFY** the Shift Manager.

STANDARD:

N/A – given in the initial conditions.

SAT _____      UNSAT _____      N/A _____      COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____    NOT CRITICAL __X__

    [3]     **IF** Refueling is in progress, **THEN**

        **NOTIFY** the Refueling Floor SRO. (Otherwise N/A)

STANDARD:

N/A - Mode 3 given in initial conditions. Not required to notify Refueling Floor SRO.

SAT _____        UNSAT _____   N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____    NOT CRITICAL __X__

    [4]     **REVIEW** EPIP-1, Emergency Plan Classification Logic, for entry
        conditions.

| CUE:  The Shift Manager and STA are reviewing the EPIP's. |
| --- |

STANDARD:

N/A.

SAT _____        UNSAT _____   N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:               CRITICAL _____     NOT CRITICAL __X__

[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** (Otherwise N/A)

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

[5.1] **PERFORM.....**

[5.2] **DEPRESS......**

[5.3] **IF.................**

STANDARD:

Determines water level does NOT need restoring, N/A's all section 4.2[5] and continues to step 4.2[6]

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:            CRITICAL _____     NOT CRITICAL ___X__

[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. (Otherwise N/A)

STANDARD:

Determines Primary Containment IS required in Mode 3 and Verifies pressure is ≥ 35 psig on 2-PI-74-65 for Loop II RHR. (2-OI-74r137 P&L 3.1.I or verifies pressure above mark on 2-PI-74-65).

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:<br><br>&bull; Reactor pressure above 0 psig with any reactor coolant temperature indication reading at or below 212°F.<br><br>&bull; 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.<br><br>&bull; 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.<br><br>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__

[7]     **PLOT** heatup/cooldown rate as necessary.
        **REFER TO** 2-SR-3.4.9.1(1).

| CUE:  Another Operator is performing 2-SR-3.4.9.1(1). |
| --- |

STANDARD:

Checks step off and continues to step 4.2[8]

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                 CRITICAL _____   NOT CRITICAL ___X__

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

[8.1]   **DETERMINE** the time since shutdown.

[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, **THEN**

**CONTACT** Reactor Engineer.

[8.3]   **DETERMINE** the reactor coolant temperature or use the last valid reactor coolant temperature available.

[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].

[8.5]   **IF** the Reactor Vessel head is removed and the cavity is flooded with the fuel pool gates installed, **THEN**  (Otherwise N/A)

**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.

---

CUE:  [As STA – state]  I will perform 2-AOI-74-1 step [8] at least once per shift.

---

STANDARD:

Directs STA to estimate the heat up rate and check for stratification at least once per shift.

SAT _____      UNSAT _____   N/A _____      COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

[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] since there is no loss of RHRSW.

SAT _____      UNSAT _____    N/A _____      COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL ___X__    NOT CRITICAL _____

[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:

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

STANDARD:

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

SAT _____      UNSAT _____    N/A _____      COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL    X    NOT CRITICAL _____

> [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 INBD INJECT ISOL RESET, 2-XS-74-132
(Critical). Verify 2-IL-74-132 extinguished (Not critical). Depresses RHR SYS I SD CLG
INBD INJECT ISOL RESET, 2-XS-74-126 (Not critical) and Verify 2-IL-74-126
extinguished (Not critical).

SAT _____     UNSAT _____     N/A _____     COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

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

**PERFORM** the following:

[11.1] **VERIFY....**

[11.2] **OBTAIN...**

[11.3] **DEFEAT...**

[11.4] **IF............**

STANDARD:

N/As all Step 4.2[11], the PCIS signal should have reset above.

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

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PERFORMANCE STEP:                    CRITICAL __ X __   NOT CRITICAL _____

[12]   **IF** the Group 2 PCIS Isolation has been reset, **THEN**
**RETURN** the affected loop of RHR to Shutdown Cooling as follows.

[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:_____

_____

_____

---

**NOTE**

2-POI-74-2 aligns the RHR system to prevent SDC isolations during modes 4 and 5 operations. For Step 4.2[12.2], it accomplishes this by opening RHR SYS I(II) LPCI INBD INJECT VALVE, 2-FCV-74-53(67) and opening its associated breaker. If an isolation is received the valve will **NOT** close because the breaker is open. Therefore, to restore Shutdown Cooling, it is **NOT** necessary to manipulate this already open valve.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL    X    NOT CRITICAL  _____

[12.2] **OPEN** RHR SYS I(II) LPCI INBD INJECT VALVE, 2-FCV-74-53(67)
(**IF** the valve is aligned per 2-POI-74-2 (valve open with its breaker
open), **THEN**

N/A this step).

STANDARD:

Opens 2-FCV-74-67 (Critical) and verifies only RED valve position indicating lamp
illuminated (Not Critical).

SAT _____      UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  _____    NOT CRITICAL   X

[12.3] **VERIFY** RHR SYSTEM I(II) MIN FLOW INHIBIT switch,
2-HS-74-148(149) in INHIBIT

STANDARD:

Verifies 2-HS-74-149 is in INHIBIT.

SAT _____      UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  \_\_\_\_\_    NOT CRITICAL  \_\_X\_\_

[12.4] **VERIFY CLOSED** RHR SYSTEM I(II) MIN FLOW VALVE,
2-FCV-74-7(30).

STANDARD:

Verifies 2-FCV-74-30 is CLOSED.

SAT  \_\_\_\_\_      UNSAT  \_\_\_\_\_    N/A \_\_\_\_\_       COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL  \_\_\_\_\_    NOT CRITICAL  \_\_X\_\_

[12.5] **VERIFY CLOSED** RHR PUMP 2A(2B) and 2C(2D) SUPPR POOL
SUCT VLVs, 2-FCV-74-1(24) and 2-FCV- 74-12(35).

STANDARD:

Verifies 2-FCV-74-24 and 2-FCV-74-35 are CLOSED.

SAT  \_\_\_\_\_      UNSAT  \_\_\_\_\_    N/A \_\_\_\_\_       COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                    CRITICAL  _____      NOT CRITICAL  __X__

[12.6] **VERIFY OPEN** RHR PUMP 2A(2B) and 2C(2D) SD COOLING
SUCT VLVs, 2-FCV-74-2(25) and 2-FCV-74-13(36).

STANDARD:

Verifies 2-FCV-74-25 and 2-FCV-74-36 are OPEN.

SAT  _____      UNSAT  _____      N/A  _____          COMMENTS:_____

_____

_____

| NOTE |
|---|
| 2-POI-74-2 aligns the RHR system to prevent SDC isolations during modes 4 and 5 operations. For Step 4.2[12.7], it accomplishes this by opening either RHR SHUTDOWN COOLING SUCT OUTBD VLV, 2-FCV-74-47 or INBD ISOL VLV, 2-FCV-74-48 and opening the associated breaker. If an isolation is received the valve will **NOT** close because the breaker is open. Therefore, to restore Shutdown Cooling, it is **NOT** necessary to manipulate this already open valve. The other valve will still have power and if closed, is required to be reopened. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL   __X__   NOT CRITICAL  _____

[12.7] **OPEN** RHR SHUTDOWN COOLING SUCT OUTBD and INBD ISOL VLVs, 2-FCV-74-47 and 2-FCV-74-48 (If either valve is aligned per 2-POI-74-2 (valve open with its breaker open), this step will be N/A for that valve. The other valve will still need to be opened to restore a suction path).

STANDARD:

Places 2-HS-74-47 in Open (Critical) and Verified 2-FCV-74-47 only RED valve position indicating lamp is illuminated (Not Critical) and Verified 2-FCV-74-48 only RED valve position indicating lamp is illuminated (Not Critical) (2-POI-74-2 is not in effect since not currently in Mode 4 or 5).

SAT _____      UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL   __X__   NOT CRITICAL  _____

[12.8] **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 (2B RHR Pump) in Start and Recognizes Failure to start.

SAT _____      UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL \_\_X\_\_

Notify US of pump failure to start.

**CUE:  [As US – acknowledge report. If necessary, ask]  What do you recommend? [If answer is "Start 2D RHR pump", then repeat]  Start 2D RHR pump.**

STANDARD:

Notifies US. (He/she should recommend starting 2D RHR pump)

SAT _____        UNSAT _____   N/A _____         COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL \_\_X\_\_   NOT CRITICAL _____

Start 2D RHR pump.

STANDARD:

Places 2-HS-74-39A (2D RHR Pump) in Start (Critical) and Verifies only RED light illuminated above handswitch (Not Critical).

SAT _____        UNSAT _____   N/A _____         COMMENTS:_____

_____

_____

**********************************************************************************
PERFORMANCE STEP:                    CRITICAL __X__   NOT CRITICAL _____

[12.9] **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 removed from core) | 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 on 2-FI-74-64.

SAT _____   UNSAT _____   N/A _____   COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL \_\_\_\_\_    NOT CRITICAL \_\_X\_\_

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

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

CUE:  [As AUO, report]  The breaker target indicates charged and the amber breaker spring charged light is illuminated.  Maintenance is investigating 2B RHR pump.

STANDARD:

Dispatched personnel to Verify RHR Pump 2D breaker closing spring recharged and investigate 2B RHR pump failure.

SAT \_\_\_\_\_      UNSAT \_\_\_\_\_    N/A \_\_\_\_\_         COMMENTS:_____

_____

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PERFORMANCE STEP:                    CRITICAL \_\_\_\_\_    NOT CRITICAL \_\_X\_\_

[12.11] **SLOWLY THROTTLE** RHR HX 2A(2C)(2B)(2D) RHRSW OUTLET VALVE, 2-FCV-23-34(40)(46)(52), to obtain desired cooldown rate.

STANDARD:

Using 2-HS-23-52A and co-ordinating with Unit 3, reduces D2 RHRSW pump cooling flow to ~900 gpm as indicated on 2-FI-23-54 (while Unit 3 picks up minimum flow) and using 2-HS-23-46A raises B2 RHRSW pump dilution flow to ~4000 gpm (while Unit 3 lowers their flow to 0 gpm) as indicated on 2-FI-23-48.

SAT \_\_\_\_\_      UNSAT \_\_\_\_\_    N/A \_\_\_\_\_         COMMENTS:_____

_____

_____

CUE:  That completes this task.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:               CRITICAL _____     NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM


STANDARD:

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


SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____


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PERFORMANCE STEP:               CRITICAL _____     NOT CRITICAL __X__

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


STANDARD:

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


SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____


**END OF TASK**


**STOP TIME:** _____

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**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 in Mode 3 (Rx temp > 212°F) heading towards cold conditions for a refueling outage.

- RHR Loop II using 2B RHR Pump was in shutdown cooling and Unit 3 is carrying 1350 gpm RHRSW flow for "B" RHRSW Header.

- An inadvertent loss of 2B RPS bus resulted in a partial isolation of RHR shutdown cooling.

- RPS 2B has been restored on the alternate supply.

- Another operator is assisting with recovery from the loss of 2B RPS.

- The Unit Supervisor has notified the Shift Manager of the problem.

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

**BROWNS FERRY NUCLEAR PLANT**
**JOB PERFORMANCE MEASURE**

JPM NUMBER:     401F

TITLE:          LOSS OF SHUTDOWN COOLING

TASK NUMBER:    0-74-AB-01

# SIM "D" UNIT-3

SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____     DATE:_____
                         TRAINING

PLANT CONCURRENCE: _____     DATE:_____
                         OPERATIONS

*     Examination JPMs Require Operations Training Manager Approval 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 | 12/29/07 | All | Initial issue |
| 1 | 08/16/08 | All | General revision & re-format |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____         SRO _____                    DATE:_____

JPM NUMBER:     401F

TASK NUMBER:    0-74-AB-01

TASK TITLE:     LOSS OF SHUTDOWN COOLING

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

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

PERFORMANCE  LOCATION:                         SIMULATOR __X___

REFERENCES/PROCEDURES NEEDED:     3-AOI-74-1, Rev 16

VALIDATION TIME:          SIMULATOR:__25:00___     LOCAL:_____

MAX. TIME ALLOWED:     _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:    _____

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 3 operator.

- Unit 3 is in Mode 3 (Rx temp >212 $^O$F) heading towards cold conditions for a
  refueling outage.

- RHR Loop II using 3B RHR Pump was in shutdown cooling and Unit 2 is carrying
  1350 gpm RHRSW flow for "B" RHRSW Header.

- An inadvertent loss of 3B RPS bus resulted in a partial isolation of RHR shutdown
  cooling.

- RPS 3B has been restored on the alternate supply.

- Another operator is assisting with recovery from the loss of 3B RPS.

- The US has notified the Shift Manager of the problem.

**INITIATING CUES:**          The US directs you to restore shutdown
                              cooling using 3B RHR pump in accordance
                              with 3-AOI-74-1.

START TIME _____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____     NOT CRITICAL __X__

When requested by examiner identify/obtain copy of required procedure.

STANDARD:

Obtained a copy of 3-AOI-74-1.

SAT _____      UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

**3.0   AUTOMATIC ACTIONS**
None

**4.0   OPERATOR ACTIONS**

**4.1   Immediate Actions**
None

**4.2   Subsequent Actions**

| CAUTIONS |
|---|
| 1) Reactor vessel stratification may occur until Shutdown Cooling is restored or a Reactor Recirculation Pump is placed in service. |
| 2) Loss of Shutdown Cooling during the first 24 hours is most critical due to massive decay heat and limitations on the RHRSW Piping. If Shutdown Cooling is lost during the first 24 hours post reactor shutdown, priorities shall be placed on the recovery of shutdown cooling in an expeditious manner [BFN PER 02-003140-000]. |

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

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL \_\_X\_\_

    [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\_\_

    [2]     **NOTIFY** the Shift Manager.

STANDARD:

N/A - Given in the initial conditions.

SAT _____       UNSAT _____    N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  _____     NOT CRITICAL  __X__

    [3]      **IF** Refueling is in progress, **THEN**

        **NOTIFY** the Refueling Floor SRO. (Otherwise **N/A**)

STANDARD:

Mode 3 given in initial conditions. Not required to notify Refueling Floor SRO.

SAT  _____       UNSAT  _____     N/A _____          COMMENTS:_____

_____

_____


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PERFORMANCE STEP:                    CRITICAL  _____     NOT CRITICAL  __X__

    [4]      **REVIEW** EPIP-1, Emergency Plan Classification Logic, for entry
        conditions. (Otherwise **N/A**)

| CUE:  The Shift Manager and STA are reviewing the EPIPs. |
| --- |

STANDARD:

N/A

SAT  _____       UNSAT  _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  _____      NOT CRITICAL  ___X__

    [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** (Otherwise N/A)

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

           [5.1]   Verify Closed....

           [5.2]   Depress....

           [5.3]   If the RHR....

STANDARD:

Determines water level does NOT need restoring, N/A's all section 4.2[5] and continues to step 4.2[6]

SAT  _____       UNSAT  _____      N/A _____         COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

[6]     **IF** Primary Containment Integrity is required, **THEN** (Otherwise **N/A**)

**VERIFY** RHR system discharge piping pressure is being maintained
> TRM 3.5.4 Limits. **REFER TO** 3-OI-74.

STANDARD:

Determines Primary Containment IS required in Mode 3 and Verifies pressure is
≥ 35 psig on 3-PI-74-65 for Loop II RHR. (3-OI-74r83 P&L 3.1.M).

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:<br>• Reactor pressure above 0 psig with any reactor coolant temperature indication reading at or below 212°F.<br>• Differential temperatures of 50°F or greater between either RX VESSEL BOTTOM HEAD (FLANGE DR LINE) 3-TE-56-29 (8) temperatures and RX VESSEL FW NOZZLE N4B END (N4B INBD)(N4B END)(N4D INBD) 3-TE-56-13(14)(15)(16) temperatures from the REACTOR VESSEL METAL TEMPERATURE recorder, 3-TR-56-4.<br>• 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) 3-TE-56-13(14)(15)(16) temperatures from the REACTOR VESSEL METAL TEMPERATURE recorder, 3-TR-56-4.<br>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] |

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PERFORMANCE STEP:                    CRITICAL _____     NOT CRITICAL __X__

[7]      **PLOT** heatup/cooldown rate as necessary. **REFER TO** 3-SR-3.4.9.1(1).

| CUE:  Another Operator is performing 3-SR-3.4.9.1(1). |
| --- |

STANDARD:

Checks step off and continues to step 4.2[8] (since another Operator is performing the SR), Candidate may select HUR on SPDS.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____    NOT CRITICAL ___X__

[8]     **REQUEST** the SRO to **ESTIMATE** the following times at least once per shift until a method of decay heat removal is restored:

[8.1]   **DETERMINE** the time since shutdown.

[8.2]   **DETERMINE** the current RPV heat-up rate from 3-SR-3.4.9.1(1), or, if reactor coolant stratification is suspected, use Illustration 1.

[8.2.1] **IF** additional information is required to determine the heat-up rates, **THEN**

**NOTIFY** Reactor Engineer.

[8.3]   **DETERMINE** the reactor coolant temperature or use the last valid reactor coolant temperature available.

[8.4]   **IF** the Reactor Vessel head is removed and the cavity is flooded with the fuel pool gates installed, **THEN** (Otherwise **N/A**)

**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.

[8.5]   **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].

---

**CUE:  [As STA (SRO) – state]  I will perform 3-AOI-74-1 step [8] at least once per shift.**

---

STANDARD:

Requests SRO to estimate the heat up rate and check for stratification at least once per shift.

SAT _____     UNSAT _____     N/A _____     COMMENTS:_____

_____

_____

*********************************************************************************************

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

[9]    **IF** the loss of Shutdown Cooling is due to inadequate RHRSW flow,
       **THEN** (Otherwise **N/A**)

       **START** the standby RHRSW pump for the appropriate header. **REFER
       TO** 0-OI-23.

STANDARD:

N/As Step 4.2[9] since there is no loss of RHRSW.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

*********************************************************************************************

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

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

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

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

STANDARD:

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

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL   __X__   NOT CRITICAL  _____

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

STANDARD:

Momentarily Depresses RHR SYS II SD CLG INBD INJECT ISOL RESET, 3-XS-74-132 (Critical). VERIFY 3-IL-74-132 extinguished (Not critical). Depresses RHR SYS I SD CLG INBD INJECT ISOL RESET, 3-XS-74-126 (Not critical) and verify 3-IL-74-126 extinguished (Not critical).

SAT _____    UNSAT _____   N/A _____        COMMENTS:_____

_____

_____


\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL  _____      NOT CRITICAL   __X__

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

**PERFORM** the following:

[11.1] Verify....

[11.2] Obtain....

[11.3] Defeat....

[11.4] If conditions....

STANDARD:

N/As all Step 4.2[11], the PCIS signal should have reset above.

SAT _____    UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL    X    NOT CRITICAL _____

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

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

        [12.1] **CLOSE** RHR SYS I(II) LPCI OUTBD INJECT VALVE,
             3-FCV-74-52(66).

STANDARD:

Closes 3-HS-74-66 (Critical) and verifies ONLY GREEN valve position indicating lamp is illuminated (Not Critical).

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL    X    NOT CRITICAL _____

    [12.2] **OPEN** RHR SYS I(II) LPCI INBD INJECT VALVE, 3-FCV-74-53(67).

STANDARD:

Opens 3-FCV-74-67 (Critical) and verifies ONLY RED valve position indicating lamp illuminated (Not Critical).

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

> [12.3] **VERIFY** RHR SYSTEM I(II) MIN FLOW INHIBIT switch,
> 3-HS-74-148(149) in INHIBIT

STANDARD:

Verifies 3-HS-74-149 in INHIBIT.

SAT _____    UNSAT _____    N/A _____         COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

> [12.4] **VERIFY CLOSED** RHR SYSTEM I(II) MIN FLOW VALVE,
> 3-FCV-74-7(30).

STANDARD:

Verifies 3-FCV-74-30 is closed.

SAT _____    UNSAT _____    N/A _____         COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL \_\_\_\_\_    NOT CRITICAL \_\_X\_\_

[12.5] **VERIFY CLOSED** RHR PUMP 3A(3B) and 3C(3D) SUPPR POOL
SUCT VLVs, 3-FCV-74-1(24) and 3-FCV-74-12(35).

STANDARD:

Verifies 3-FCV-74-24 & 35 are closed.

SAT _____      UNSAT _____    N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL \_\_\_\_\_    NOT CRITICAL \_\_X\_\_

[12.6] **VERIFY OPEN** RHR PUMP 3A(3B) and 3C(3D) SD COOLING
SUCT VLVs, 3-FCV-74-2(25) and 3-FCV-74-13(36).

STANDARD:

Verifies 3-FCV-74-25 & 36 are open.

SAT _____      UNSAT _____    N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  __X__  NOT CRITICAL  _____

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

STANDARD:

Places 3-HS-74-47 in Open (Critical)and verified 3-FCV-74-48 ONLY RED valve
position indicating lamp is illuminated (Not Critical)

SAT  _____       UNSAT  _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  __X__  NOT CRITICAL  _____

[12.8] **RESTART** RHR PUMP 3A(3C)(3B)(3D) using 3-HS-74-5A ,
(16A), (28A), (39A).

STANDARD:

Places 3-HS-74-28A (3B RHR Pump) in Start and Recognizes Failure To Start.

SAT  _____       UNSAT  _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:              CRITICAL _____   NOT CRITICAL __X__

Notify US of pump failure to start.

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

STANDARD:

Notifies US.

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:              CRITICAL __X__   NOT CRITICAL _____

Start 3D RHR pump.

STANDARD:

PLACES 3-HS-74-39a for 3D RHR Pump in START (Critical) and verifies it starts by red light above handswitch (Not Critical).

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL ___X___    NOT CRITICAL _____

[12.9] **THROTTLE** RHR SYS I(II) LPCI OUTBD INJECT VALVE,
3-FCV-74-52(66), to establish and maintain RHR flow as indicated
by 3-FI-74-50(64), RHR SYS I(II) FLOW, as follows:

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

STANDARD:

Manipulates 3-HS-74-66 to obtain RHR System II Loop flow between 7,000 and 10,000 gpm on 3-FI-74-64.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

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

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

STANDARD:

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

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

[12.11] **SLOWLY THROTTLE** RHR HX 3A(3C)(3B)(3D) RHRSW OUTLET VALVE, 3-FCV-23-34(40)(46)(52), to obtain desired cooldown rate.

STANDARD:

Using 3-HS-23-52A and co-ordinating with Unit 2, reduces D2 RHRSW pump cooling flow to ~900 gpm as indicated on 3-FI-23-54 (while Unit 2 picks up minimum flow) and using 3-HS-23-46A raises B2 RHRSW pump dilution flow to ~4000 gpm (while Unit 2 lowers their flow to 0 gpm) as indicated on 3-FI-23-48.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

CUE:  That completes this task.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL  \_\_\_\_\_      NOT CRITICAL  \_\_X\_\_

PERFORMER demonstrated the use of SELF CHECKING during this JPM

STANDARD:

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

SAT  \_\_\_\_\_        UNSAT  \_\_\_\_\_      N/A  \_\_\_\_\_          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL  \_\_\_\_\_      NOT CRITICAL  \_\_X\_\_

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

STANDARD:

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

SAT  \_\_\_\_\_        UNSAT  \_\_\_\_\_      N/A  \_\_\_\_\_          COMMENTS:_____

_____

_____

**END OF TASK**

**STOP TIME:** _____

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│                                                             │
│              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.

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**INITIAL CONDITIONS:**      You are a Unit 3 operator.

- Unit 3 is in Mode 3 (Rx temp >212 $^\circ$F) heading towards cold conditions for a refueling outage.

- RHR Loop II using 3B RHR Pump was in shutdown cooling and Unit 2 is carrying 1350 gpm RHRSW flow for "B" RHRSW Header.

- An inadvertent loss of 3B RPS bus resulted in a partial isolation of RHR shutdown cooling.

- RPS 3B has been restored on the alternate supply.

- Another operator is assisting with recovery from the loss of 3B RPS.

- The US has notified the Shift Manager of the problem.

**INITIATING CUES:**          The US directs you to restore shutdown cooling using 3B RHR pump in accordance with 3-AOI-74-1.

**BROWNS FERRY NUCLEAR PLANT**
**JOB PERFORMANCE MEASURE**

REVISION LOG

| Revision Number | Effective Date | Pages Affected | Description Of Revision |
|---|---|---|---|
| 0 | 11/09/07 | All | Initial issue |
| 1 | 08/28/08 | All | General revision & re-format |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR:_____

RO  _____  SRO  _____  DATE:_____

JPM NUMBER:  376

TASK NUMBER:  U-000-EM-64

TASK TITLE:  3-EOI APPENDIX-14B - CAD OPERATION TO THE DRYWELL

K/A NUMBER:  223001A4.04  K/A RATING:  RO__3.5__  SRO__3.6__

*******************************************************************************************

TASK STANDARD: PERFORM MANIPULATIONS AS DIRECTED BY
3-EOI APPENDIX-14B REQUIRED TO ADMIT NITROGEN TO
THE DRYWELL WITH THE CAD SYSTEM

PERFORMANCE  LOCATION:  SIMULATOR __X___

REFERENCES/PROCEDURES NEEDED:  3-EOI Appendix-14B, Rev 4

VALIDATION TIME:  SIMULATOR:___5:00___  LOCAL:_____

MAX. TIME ALLOWED:  _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:  _____

COMMENTS:  _____
_____
_____

ADDITIONAL COMMENT SHEETS ATTACHED?  YES _____ NO _____

RESULTS:  SATISFACTORY _____  UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

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**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.

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**INITIAL CONDITIONS:**    You are an Operator.

- A LOCA has led to fuel failure and a rising level of hydrogen concentration in the Unit 3 Drywell.

- EOI-2 has been exited and SAMG-2 entered.


**INITIATING CUES:**      The Unit Supervisor has directed you to align CAD System A to the drywell as directed by SAMG-2 step G-4 using 3-EOI Appendix-14B.

START TIME _____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____   NOT CRITICAL __X__

When requested by examiner identify/obtain copy of required procedure.

STANDARD:

Obtained copy of 3-EOI Appendix-14B.

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

| NOTE |
|------|
| CAD may be initiated using either CAD TRAIN A (Division I) or CAD TRAIN B (Division II). Equipment identifiers for CAD Train B are in parentheses in the steps below. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____   NOT CRITICAL __X__

1.    **VERIFY** containment hydrogen/oxygen analyzer sample pumps in service.

STANDARD:

Verified Sample Pumps in service by observing illuminated RED status lamps above 3-HS-76-59 and 49 on Panels 3-9-54 and 55.

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____     NOT CRITICAL ___X__

2.     **MONITOR** Drywell and Suppression Chamber Hydrogen and Oxygen
       concentrations with H2/O2 CONCENTRATION recorders 3-XR-76-110A or
       3-XR-76-110B (Panel 9-54 or 9-55).

STANDARD:

Located  3-XR-76-110A and 3-XR-76-110B and read off approximate indications.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____


\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____     NOT CRITICAL ___X__

3.     IF..............     Drywell or Suppression Chamber hydrogen or oxygen analyzers
                            are or become inoperable,

       THEN.......     **NOTIFY** Chem Lab to sample Drywell and Suppression Chamber
                            for hydrogen and oxygen using CI-644.

STANDARD:

Acknowledged  the above step and continued.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                   CRITICAL _____   NOT CRITICAL __X__

4.     **NOTIFY** STA to record post-LOCA containment parameters on Attachment 1
        of this procedure every 4 hours as required by FSAR.

| CUE:  [STA Repeats] Recording Post-LOCA data on Attachment 1 every 4 hours. |
| --- |

STANDARD:

Simulated Notifying STA by phone or voice to perform Attachment 1 of this procedure
every four (4) hours.

SAT _____       UNSAT _____     N/A _____        COMMENTS:_____

_____

_____

**CAUTION**

CAD operation with Primary Containment pressure above 30 psig may result in Containment failure.

The following are outside the CAD system FSAR design basis:
- Venting Primary Containment during CAD addition.
- Adding CAD to Drywell and Suppression Chamber at same time.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>       CRITICAL _____ NOT CRITICAL __X__

5. IF..............  While executing this procedure for CAD addition per SAMG-2, Step G-4 or G-9,
- Primary Containment Pressure approaches 30 psig,
  **OR**
- Primary Containment is to be vented,

THEN.......  BEFORE:
- Primary Containment Pressure reaches 30 psig,
  **OR**
- Primary Containment venting begins,

**PERFORM** Step 7 to **STOP** CAD addition to the Primary Containment.

| CUE:  Primary Containment is not to be vented at this time. |
| --- |

<u>STANDARD:</u>

Verified Primary Containment < 30 psig and acknowledges primary containment not to be vented at this time.

SAT _____   UNSAT _____   N/A _____   COMMENTS:_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

6.      **PLACE** CAD System in service as follows:

a.      IF .............    CAD addition is required per SAMG-2, Step G-4 or G-9,

        THEN.......    **VERIFY** all Primary Containment venting is stopped AND
                       Primary Containment Pressure is below 30 psig.

STANDARD:

Verified Primary Containment < 30 psig and acknowledges primary containment not
being vented.

SAT _____     UNSAT _____   N/A _____     COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL __X__   NOT CRITICAL _____

b.      **OPEN** 0-FCV-84-5(16), CAD SYSTEM A(B) N2 SHUTOFF VALVE, on
        Panel 3-9-54(55).

STANDARD:

Placed 0-HS-84-5A in the OPEN position (Critical) and verified illuminated RED valve
position indicating lamp (Not Critical).

SAT _____     UNSAT _____   N/A _____     COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL \_\_\_\_\_    NOT CRITICAL \_\_\_X\_\_

    c.    IF ............    CAD addition to Suppression Chamber is required,

          THEN.......    **CONTINUE** in this procedure at Step 6.e.

STANDARD:

Recognizes that Cad addition to the Suppression Chamber is not required (from Initial Conditions and Initiating Cues) and continues at step d.

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL \_\_\_X\_\_    NOT CRITICAL _____

    d.    **INITIATE** CAD to Drywell as follows:

        1)    **PLACE** 3-HS-84-8A/B(8C/D), SUPPR CHBR/DW CAD 3A(3B) SPLY SEL, handswitch on Panel 3-9-54(55), in DRYWELL.

        2)    **CONTINUE** in this procedure at Step 6.f.

STANDARD:

Placed 3-HS-84-8A/B in the DRYWELL position (Critical) and continues at step 6f (Not Critical).

SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____     NOT CRITICAL \_\_\_X\_\_

f.     **CHECK** CAD operating properly as follows on Panel 3-9-54(55):

- 0-FI-84-7/3(18/3), CAD A(B) N2 SYSTEM FLOW, indicates between 90 and 100 scfm.
- 0-TI-84-27/3(28/3), VAPOR A(B) OUTLET TEMP, indicates approximately 20 degrees below outside air temperature.
- 0-PI-84-6/3(17/3), VAPOR A(B) OUTLET PRESS, indicates below 150 psig.

| CUE: Outside air temperature is approximately 75°F. |
|---|

STANDARD:

Located 0-FI-84-7/3, 0-TI-84-27/3, and 0-PI-84-6/3 (on side of Unit 3 Panel) and Verified acceptable indications.

SAT _____          UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL  _____    NOT CRITICAL   \_\_X\_\_

7.      WHEN......    Directed by SRO or by Step 5,
        THEN.......   **STOP** CAD addition to the Drywell or Suppression Chamber as
                      follows:

   a.      **PLACE** 3-HS-84-8A/B(8C/D), SUPPR CHBR/DW CAD 3A(3B) SPLY SEL
           handswitch on Panel 3-9-54(55), in OFF.

   b.      **VERIFY** 0-FI-84-7/3(18/3), CAD LINE A(B) N2 FLOW, indicates 0 scfm on
           Panel 3-9-54(55).

   c......  IF ......      CAD is NOT being used to supply Drywell Control Air,

           THEN...        **CLOSE** 0-FCV-84-5(16), CAD SYSTEM A(B) N2 SHUTOFF,
                          on Panel 3-9-54(55).

| CUE:  [Unit Supervisor directs] CAD addition will be continued. |
|---|

STANDARD:

N/A

SAT  _____      UNSAT  _____    N/A _____      COMMENTS:_____

_____

_____

| CUE:  That completes this task. |
|---|

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM

STANDARD:

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

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

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PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

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

STANDARD:

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

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

**END OF TASK**

**STOP TIME:** _____

| 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.
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**INITIAL CONDITIONS:**     You are an Operator.

- A LOCA has led to fuel failure and a rising level of hydrogen concentration in the Unit 3 Drywell.

- EOI-2 has been exited and SAMG-2 entered.

**INITIATING CUES:**     The Unit Supervisor has directed you to align CAD System A to the drywell as directed by SAMG-2 step G-4 using 3-EOI Appendix-14B.

## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

JPM NUMBER:     385F

TITLE:     DIESEL GENERATOR LOW LOW OIL PRESSURE

TASK NUMBER:     U-082-AL-04

## SIM "F" UNIT-3

SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____     DATE:_____
                          TRAINING

PLANT CONCURRENCE: _____     DATE:_____
                          OPERATIONS

\*     Examination JPMs Require Operations Training Manager Approval 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 | 12/22/07 | All | Initial issue |
| 1 | 08/28/08 | All | General revision & re-format |
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| BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE |

OPERATOR:_____

RO  _____        SRO  _____                              DATE:_____

JPM NUMBER:      385F

TASK NUMBER:    U-082-AL-04

TASK TITLE:       DIESEL GENERATOR LOW LOW OIL PRESSURE

K/A NUMBER:      264000K4.01        K/A RATING:    RO _3.5_          SRO _3.7_

*********************************************************************************************

TASK STANDARD: SHUTDOWN DG WHEN LOW LOW OIL PRESSURE LIGHT IS
                        ILLUMINATED ON PANEL 9-23 IN THE MCR

PERFORMANCE  LOCATION:                            SIMULATOR __X__

REFERENCES/PROCEDURES NEEDED:      3-SR-3.8.1.1(3A), Rev 34,
                                                    3-ARP-9-23A, Rev 10

VALIDATION TIME:          SIMULATOR:_____      LOCAL: _____

MAX. TIME ALLOWED:      _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:      _____

COMMENTS:           _____**A copy of 3-SR-3.8.1.1(3A) marked-up to step 7.8[1] is**_____
                        **required to provide to the student.**_____
                        _____

ADDITIONAL COMMENT SHEETS ATTACHED?           YES _____ NO _____

RESULTS:       SATISFACTORY _____        UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

## 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 an extra operator.

- The (3A) Diesel Generator Monthly test 3-SR-3.8.1.1(3A) is in progress for
  December.

- The DG has been rolled and AUO is stationed at the DG with a stopwatch.

- All other support personnel are also standing by at the DG.


**INITIATING CUES:**        You are at step 7.8[1] of 3-SR-3.8.1.1(3A) ready to start the
                            DG, The AUO is standing by waiting on your mark to start
                            his/her stopwatch locally.

START TIME _____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

When requested by examiner identify/obtain copy of required procedure.

| Examiner Note:  When Student locates SR in the book, give him/her the marked-up copy of the SR signed off up to step 7.8[1]. |
| --- |

STANDARD:

Obtained copy of 3-SR-3.8.1.1(3A).

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

## NOTES

1) The Fast Start Section 7.8, should be performed during the first scheduled runs for the months of June and December or directed by the Shift Manager. Upon the Shift Manager's direction, Fast Starts of the Diesel Generator may be performed as required. It is desired to perform the fast starts as scheduled, but as conditions warrant, fast starts may be performed to facilitate maintenance activities.

2) The Operator in Diesel Generator Room 3A should begin timing on mark from the Operator at Panel 3-9-23 when Diesel Generator 3A Control Switch is taken to the start position and stop timing when engine speed reaches 900 RPM as indicated on the engine RPM meter on the Diesel Engine Control Cabinet.

3) The first Operator at Panel 3-9-23 should begin timing on mark from the second Operator at Panel 3-9-23 when Diesel Generator 3A Control Switch is taken to the start position and should stop timing when frequency at Panel 3-9-23 reads greater than 58.8 Hz.

4) The second Operator at Panel 3-9-23 should begin timing when Diesel Generator 3A Control Switch is taken to the start position and stop timing when Generator Voltage reaches greater than 3940 V as indicated on the Diesel Generator Voltmeter located on Panel 3-9-23.

5) Diesel Generator 3A Operating Data is obtained from Data Acquisition Unit connected in accordance with 0-TI-298.

   Data Acquisition is normally performed during the months of June and December. Data Acquisition may be required as a result of maintenance, testing, or surveillance not performed as scheduled during the required months.

6) Electrical Maintenance is required to record Generator Turbo Charger (NO LOAD) vibration readings in accordance with 0-TI-230 at 900 rpm.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

**7.8    Fast Start of Diesel Generator (continued)**

[1]    **REVIEW** the notes on the previous page.

STANDARD:

Reviews notes on previous page.

SAT _____      UNSAT _____    N/A _____            COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

[2]    **VERIFY** the following Diesel Generator Rm Exhaust Fans are not
Running:

• DIESEL GENERATOR RM 3A EXHAUST FAN A
• DIESEL GENERATOR RM 3A EXHAUST FAN B

**CUE:  [When asked, AUO reports]  A & B exhaust fans are NOT running.**

STANDARD:

Verifies exhaust fans are not running.

SAT _____      UNSAT _____    N/A _____            COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>                          CRITICAL  __X__  NOT CRITICAL  _____

    [3]    **PLACE** DG 3A BKR 1838 SYNC SWITCH, 3-25-211-3EA/9A to the ON position.

<u>STANDARD:</u>

Places DG 3A BKR 1838 SYNC, 3-25-211-3EA/9A to the ON position.

SAT  _____     UNSAT  _____    N/A _____          COMMENTS:_____

_____

_____

| **NOTE** |
| --- |
| Steps 7.8[4] and 7.8[5] are time critical and are to be completed without delay and may be signed off after the completion of Step 7.8[5]. |

| **Examiner Notes:  Start of Critical Steps.  The Examiner will simulate being the second Operator and simulate timing from the Control switch taken to Start and when voltage reaches greater than 3940 V (Time Shall be less than 10 seconds). Either the Simulator driver or the Examiner can simulate being the AUO locally at the Diesel and simulate timing from the diesel start till the engine speed reaches 900 rpm (once again – the time Shall be less than 10 seconds).** |
| --- |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL   __X__   NOT CRITICAL  _____

[4]    **SIMULTANEOUSLY PERFORM** the following:

• **START** the Diesel Generator using DG 3A CONTROL, 3-HS-82-3A/1A,
                              AND
• **START** the stopwatches.

STANDARD:

Places DG 3A CONTROL 3-HS-82-3A/1A to START and STARTS the stop watch
Simultaneously while communicating with the second Operator and the AUO locally so
they can start their stopwatch(s).

SAT  _____      UNSAT  _____    N/A _____      COMMENTS:_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                      CRITICAL   __X__   NOT CRITICAL   _____

[5]     **STOP** the stopwatches at the following conditions:

- **STOP** the Control Room frequency stopwatch when DG frequency reaches greater than 58.8 Hz.

- **STOP** the Control Room voltage stopwatch when voltage reaches greater than 3940 V.

- **STOP** the DG Room stopwatch when engine speed reaches at least 900 RPM on DIESEL GENERATOR 3A TACHOMETER, 3-SI-082-0003A.

CUE:  THE TIME IS 7.44 SEC (FOR THE PARAMETER TIMED at panel 9-23)

CUE:  THE TIME IS 8.2 SEC (FOR THE LOCAL SPEED).

STANDARD:

Operator stops the stop watch when parameter is reached, < 10 sec.

SAT  _____        UNSAT  _____        N/A  _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                              CRITICAL _____     NOT CRITICAL ___X__

   [6]    **RECORD** the elapsed time from all three stopwatches.

          First Control Room stopwatch (frequency) (less than or equal to 10 sec) sec_____

          Second Control Room stopwatch (voltage) (less than or equal to 10 sec) sec_____

          DG Room stopwatch (speed) (less than or equal to 10 sec)        sec_____

STANDARD:

Operator records the times from all 3 stopwatches.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____


\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                              CRITICAL __X__     NOT CRITICAL _____

   [7]    **CHECK** that the times recorded from the voltage stopwatch and the
          frequency stopwatch meets the criteria specified in Step 6.0A.1.

STANDARD:

Verifies voltage and frequency times meet the (AC).

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

| Examiner note:  ALARM on 9-23A win 4 DG A LUBE OIL ABNORMAL will alarm and LOW LOW OIL PRESSURE LIGHT for 3A DG will illuminate, the operator should respond per the ARP, Operator should verify oil pressure at the DG from the AUO, BUT is not required. |
|---|

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

**RESPONDS** to the Alarm 9-23A WIN 4 (DIESEL GEN 3A LUBE OIL ABNORMAL) and notices the AMBER LIGHT (LOW LOW OIL PRESSURE)

STANDARD:

Responds per the ARP and Verifies the AMBER LIGHT is lit.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

| CUE:  IF asked, as AUO at Diesel, lube oil pressure is 5 psig on the local gauge on DG control panel and no oil visible on dipstick. No visible leakage and all pumps running as expected. |

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

PERFORMANCE STEP:                    CRITICAL ___X__    NOT CRITICAL _____

**SHUTS DOWN** the DG with the Emergency Stop Pushbutton per the ARP.

STANDARD:

Shuts Down the DG with the Emergency Stop Pushbutton.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

| CUE:  That completes this task. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>          CRITICAL _____    NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM


<u>STANDARD:</u>

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


SAT _____       UNSAT _____   N/A _____        COMMENTS:_____

_____

_____


\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>          CRITICAL _____    NOT CRITICAL __X__

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


<u>STANDARD:</u>

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


SAT _____       UNSAT _____   N/A _____        COMMENTS:_____

_____

_____


**END OF TASK**


**STOP TIME:** _____

## 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.

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**INITIAL CONDITIONS:**     You are an extra operator.

- The (3A) Diesel Generator Monthly test 3-SR-3.8.1.1(3A) is in progress for December.

- The DG has been rolled and AUO is stationed at the DG with a stopwatch.

- All other support personnel are also standing by at the DG.


**INITIATING CUES:**     You are at step 7.8[1] of 3-SR-3.8.1.1(3A) ready to start the DG, The AUO is standing by waiting on your mark to start his/her stopwatch locally.

## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

JPM NUMBER:       329F

TITLE:       RESPOND TO A RBCCW PUMP DISCH. HDR PRESSURE LOW ALARM

TASK NUMBER:       U-070-AL03

# SIM "G" UNIT-3

SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____     DATE:_____
                              TRAINING

PLANT CONCURRENCE: _____     DATE:_____
                              OPERATIONS

\*       Examination JPMs Require Operations Training Manager Approval 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 | 08/12/08 | All | Initial issue |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____        SRO _____                    DATE:_____

JPM NUMBER:      329F

TASK NUMBER:    U-070-AL03

TASK TITLE:        RESPOND TO A RBCCW PUMP DISCH. HDR PRESSURE LOW
                   ALARM

K/A NUMBER:      226001A4.12      K/A RATING:    RO  3.8          SRO  3.8

*******************************************************************************************

TASK STANDARD: RESPOND TO A RBCCW PUMP DISCH.HDR  PRESS LOW
               ALARM PER THE ARP.

PERFORMANCE  LOCATION:                          SIMULATOR __X___

REFERENCES/PROCEDURES NEEDED:      3-ARP-9C Window 12, Rev 30
                                   3-AOI-70-1, Rev 14
                                   3-Oi-70, Rev 37

VALIDATION TIME:          SIMULATOR:_____        LOCAL: _____

MAX. TIME ALLOWED:      _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:     _____

COMMENTS:           _____
                    _____
                    _____

ADDITIONAL COMMENT SHEETS ATTACHED?          YES _____ NO _____

RESULTS:       SATISFACTORY _____          UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

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**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.

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**INITIAL CONDITIONS:**     You are an Operator.

- Unit 3 is Operating at 100 % power.

- Nothing is out of service.

**INITIATING CUES:**     Respond to the next Event.

START TIME _____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>                    CRITICAL _____    NOT CRITICAL ___X__

RECEIVES ALARM (RBCCW PUMP DISCH HDR PRESS LOW).

<u>STANDARD:</u>

Refers to the ARP FOR 3-XA-55-4C WIN 12.

SAT _____    UNSAT _____  N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>                    CRITICAL ___X__    NOT CRITICAL _____

A.    **VERIFY** 3-FCV-70-48 CLOSING/CLOSED.

<u>STANDARD:</u>

Verifies 3-FCV-70-48 is NOT CLOSING/CLOSED and CLOSES 3-FCV-70-48.

SAT _____    UNSAT _____  N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____        NOT CRITICAL \_\_X\_\_

B.      **VERIFY** RBCCW pumps A and B in service.

STANDARD:

Verifies  RBCCW pumps A and B in service.   (" A "  pump is uncoupled, Candidate  will not know until AUO is sent into the field).

SAT _____        UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____        NOT CRITICAL \_\_X\_\_

C.      **VERIFY** RBCCW surge tank low level alarm is reset.

STANDARD:

Verifies  RBCCW surge tank low level alarm is reset.

SAT _____        UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL \_\_\_\_\_     NOT CRITICAL  \_\_X\_\_

D.     **DISPATCH** personnel to check the following:

- •       RBCCW surge tank level locally.

- •       RBCCW pumps for proper operation.

STANDARD:

Dispatches  personnel to check the RBCCW surge tank level locally and RBCCW
pumps for proper operation.

SAT _____        UNSAT _____     N/A _____            COMMENTS:_____

_____

_____

**CUE:  When AUO is dispatched, AUO Reports the 3A RBCCW pump is running
uncoupled.  [If the 3A pump does not secure, have the Candidate hold the pump
handswitch to trip 1 to 2 sec].**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  \_\_X\_\_   NOT CRITICAL  _____

Operator Secures 3A RBCCW pump after AUO calls in from the field that the pump is
uncoupled.

STANDARD:

Secures 3A RBCCW pump.

SAT _____        UNSAT _____     N/A _____            COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____        NOT CRITICAL ___X__

E.    **REFER TO** 3-AOI-70-1 for RBCCW System failure and 3-OI-70, for starting spare pump.

STANDARD:

References 3-AOI-70-1 and 3-OI-70.

SAT _____      UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____        NOT CRITICAL ___X__

**3-AOI-70-1**

**4.1    Immediate Actions**

[1]    **IF** RBCCW Pump(s) has tripped, **THEN**
         **ATTEMPT** to restart tripped pump(s).

[2]    **IF** RBCCW Pump(s) cannot be restarted, **THEN:** (Otherwise N/A)
         **SHUT DOWN** RWCU System Pumps. (Reference TRM 3.4.1)

STANDARD:

Candidate should shutdown RWCU pumps (If system has not already isolated).

SAT _____      UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

**4.2    Subsequent Actions**

[1]    **IF** Reactor is at power AND Drywell Cooling cannot be immediately restored, **THEN**

**PERFORM** the following (otherwise **N/A**):
[1.1]    …   - [1.4]    …

STANDARD:

All of section 1, [1.1] – [1.4] should be N/A. Drywell Cooling is Not affected.

SAT _____        UNSAT _____      N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

[2]    **IF** any EOI entry condition is met, **THEN:** (Otherwise N/A)

**ENTER** appropriate EOI(s)

| CUE:  The Unit Supervisor and Shift Manager are addressing EOI's. |
|---|

STANDARD:

N/A.

SAT _____        UNSAT _____      N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

[3]     **IF** unable to restart a tripped pump, **THEN**

**PLACE** Spare RBCCW Pump in service. **REFER TO** 3-OI-70.
(Otherwise **N/A**)

**CUE:  [As Unit 1 Operator, Place Spare RBCCW pump in service to Unit 3 and
Report]  The Spare RBCCW pump is in service to Unit 3.**

STANDARD:

Refers to 3-OI-70 and Contacts Unit 1 Operator to place the spare RBCCW pump in
service to Unit 3.

SAT _____        UNSAT _____    N/A _____            COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL ___X__    NOT CRITICAL _____

[4]     **IF** RBCCW flow was restored to two pump operation by placing the Spare
RBCCW pump in service in the preceding step, **THEN** (Otherwise **N/A**)

**PERFORM** the following:

[4.1]   **REOPEN** RBCCW SECTIONALIZING VLV, 3-HS-70-48A.

STANDARD:

Reopens  RBCCW Sectionalizing vlv, 3-HS-70-48A. after the Spare RBCCW pump is
placed  I/S.

SAT _____        UNSAT _____    N/A _____            COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL ___X__

[4.2]   **RESTORE** the RWCU system to operation. (**REFER TO** 3-OI-69).

| CUE:  Another Operator will Restore the RWCU system. |
|---|

STANDARD:

N/A.

SAT _____      UNSAT _____      N/A _____         COMMENTS:_____

_____

_____

| CUE:  That completes this task. |
|---|

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____      NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM

STANDARD:

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

SAT _____        UNSAT _____      N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____      NOT CRITICAL __X__

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

STANDARD:

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

SAT _____        UNSAT _____      N/A _____        COMMENTS:_____

_____

_____

**END OF TASK**

**STOP TIME:** _____

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**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.

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**INITIAL CONDITIONS:**    You are an Operator.

- Unit 3 is Operating at 100 % power.

- Nothing is out of service.

**INITIATING CUES:**        Respond to the next Event.

## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

JPM NUMBER:     333

TITLE:          3-EOI APPENDIX 8B - REOPENING MSIVs FOLLOWING GROUP
                I ISOLATION

TASK NUMBER:    U-000-EM-46

# SIM "H" UNIT-3

SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____      DATE:_____
                        TRAINING

PLANT CONCURRENCE: _____       DATE:_____
                        OPERATIONS

\*    Examination JPMs Require Operations Training Manager Approval 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 | 07/20/08 | All | Initial issue |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____ SRO _____ DATE:_____

JPM NUMBER: 333

TASK NUMBER: U-000-EM-46

TASK TITLE: 3-EOI APPENDIX 8B - REOPENING MSIVs FOLLOWING 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 3-EOI APPENDIX-8B

PERFORMANCE LOCATION: SIMULATOR _X_ PLANT ___ CONTROL ROOM ___

REFERENCES/PROCEDURES NEEDED: 3-EOI Appendix-8B, Rev 2

VALIDATION TIME: SIMULATOR:___25:00___ LOCAL:_____

MAX. TIME ALLOWED: _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME: _____

COMMENTS: _____
_____
_____

ADDITIONAL COMMENT SHEETS ATTACHED? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

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│                                                             │
│              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 3 Operator.

- Unit 3 reactor has scrammed and isolated.

- HPCI is in service for RPV pressure control.

- "B" SJAE, and "A" OFF GAS PREHEATER are in service from AUX BOILER steam.

- Venting Primary containment per APP-12.

- EOI-1 and EOI-2 have 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 3-EOI Appendix-8B.

START TIME _____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  _____    NOT CRITICAL  __X__

When requested by examiner identify/obtain copy of required procedure.

STANDARD:

Obtained copy of 3-EOI Appendix-8B.

SAT  _____    UNSAT  _____   N/A  _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL  _____    NOT CRITICAL  __X__

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

STANDARD:

Verified 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 (Critical) and Verified that four RED light above the reset switches were illuminated (Not Critical).

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____    NOT CRITICAL __X__

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

- 3-HS-3-125, RFPT 3A TRIP

- 3-HS-3-151, RFPT 3B TRIP

- 3-HS-3-176, RFPT 3C TRIP

STANDARD:

Depressed 3-HS-3-125, 151, 176, or verified all 3 RFP's tripped.

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

NOTE: To prevent auto opening of 3-FCV-1-58, handswitch 3-HS-1-58A must be held in the CLOSE position until main turbine speed decreases to below 1700 RPM.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL   __X__   NOT CRITICAL  _____

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

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

- 3-FCV-1-59, DOWNSTREAM MSL DRAIN TO CONDENSER

STANDARD:

Verified illuminated GREEN valve position indicating lights above 3-HS-1-59 (Not Critical). Placed 3-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):

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

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

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

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

STANDARD:

Placed 3-HS-1-15, 27, 38 and 52 in the OPEN position (Critical) and Verified illuminated RED valve position indicating lamps above the associated control switches (Not Critical).

SAT _____      UNSAT _____    N/A _____         COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL __X__    NOT CRITICAL _____

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

STANDARD:

Depressed 3-HS-1-16 and/or Verified illuminated. Adjusts Setpoint as indicated on 3-PI-47-162 such that it 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):

- 3-FCV-1-55, MN STM LINE DRAIN INBD ISOLATION VLV

- 3-FCV-1-56, MN STM LINE DRAIN OUTBD ISOLATION VLV

- 3-FCV-1-57, MSIV DOWNSTREAM DRAINS SHUTOFF

STANDARD:

Placed 3-HS-1-55 and 3-HS-1-56 in the OPEN position (Critical) and Verified illuminated RED valve position indicating lamps above the associated control switches (Not Critical). Verified illuminated RED valve position indicating lamp above 3-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):

   • 3-FCV-1-14, MSIV LINE A INBOARD

   • 3-FCV-1-26, MSIV LINE B INBOARD

   • 3-FCV-1-37, MSIV LINE C INBOARD

   • 3-FCV-1-51, MSIV LINE D INBOARD

CUE: [During the time header pressure is rising. Have the individual to show what
he/she is looking for to open the MSIV's. ON Panel 9-7 they should be looking at
steam header pressure (3-PI-47-99) and RPV pressure (3-PI-3-54, 61, 207, or 207A, or
from EHC workstation on overview screen) to be W/I 50 psid of each other. When
you are satisfied, REPORT] RPV pressure and header pressure are within 35 PSID.

STANDARD:

When main steam pressure as indicated by 3-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 (Critical)
and Verified RED valve position indicating lamps above associated hand switches (Non
Critical).

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

CUE: That completes this task.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____    NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM


STANDARD:

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


SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                CRITICAL _____    NOT CRITICAL __X__

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


STANDARD:

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


SAT _____        UNSAT _____    N/A _____        COMMENTS:_____

_____

_____


**END OF TASK**


**STOP TIME:** _____

## 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 3 Operator.

- Unit 3 reactor has scrammed and isolated.

- HPCI is in service for RPV pressure control.

- "B" SJAE, and "A" OFF GAS PREHEATER are in service from AUX BOILER steam.

- Venting Primary containment per APP-12.

- EOI-1 and EOI-2 have 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 3-EOI Appendix-8B.

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**


JPM NUMBER:     335

TITLE:     START RCIC FROM OUTSIDE CONTROL ROOM

TASK NUMBER:     U-000-AB-05


Provide a copy of 3-AOI-100-2, Attachment 3.


**IN-PLANT "A"**


SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____     DATE:_____
                          TRAINING


PLANT CONCURRENCE: _____     DATE:_____
                          OPERATIONS

\*     Examination JPMs Require Operations Training Manager Approval 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 | 10/08/96 | All | Initial issue |
| 1 | 11/04/97 | All | Procedure revision, added 3-way comm.. |
| 2 | 10/28/98 | All | General revision |
| 3 | 11/12/99 | 2,6-16 | Procedure revision |
| 4 | 08/13/03 | All | re-format, mark critical steps consistently |
| 5 | 08/18/07 | All | Procedure revision |
| 6 | 06/07/08 | All | General revision & re-format |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____     SRO _____                    DATE:_____

JPM NUMBER:     335

TASK NUMBER:    U-000-AB-05

TASK TITLE:     START RCIC FROM OUTSIDE CONTROL ROOM

K/A NUMBER:     295016AA1.07     K/A RATING:    RO _4.2_          SRO _4.3_

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TASK STANDARD: SIMULATE PERFORMING OPERATIONS NECESSARY TO
               ALIGN RCIC FROM OUTSIDE CONTROL ROOM AS DIRECTED
               BY 3-AOI-100-2.

PERFORMANCE  LOCATION:     SIMULATOR ___ PLANT _X_ CONTROL ROOM ___

REFERENCES/PROCEDURES NEEDED:     3-AOI-100-2, Rev 17

VALIDATION TIME:     CONTROL ROOM: _____     LOCAL: ___12:00___

MAX. TIME ALLOWED:     _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:     _____

COMMENTS:     _____
              _____
              _____

ADDITIONAL COMMENT SHEETS ATTACHED?          YES _____ NO _____

RESULTS:     SATISFACTORY _____          UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

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

**INITIAL CONDITIONS:**     Unit 3 Control Room has been abandoned due to toxic gas in the Control Room.

- Pressure control has been established at the backup control panel 3-25-32.

- The RCIC system is being aligned for injection to the RPV.

- You are an operator assigned to the reactor building and you are in radio contact with the operators at the backup control panel.

**INITIATING CUES:**     The Unit Operator directs you to perform Attachment 3, Part A, of 3-AOI-100-2.

# CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

START TIME _____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>     CRITICAL _____     NOT CRITICAL __X__

When requested by examiner, identify/obtain copy of required procedure.

| **Examiner Note: Applicant has demonstrated obtaining procedures on the simulator, therefore, just hand him/her the procedure.** |
|---|

<u>STANDARD:</u>

Identified or obtained copy of 3-AOI-100-2, Attachment 3.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

| NOTE |
| --- |
| PAX phone Ext. 2336 is located at Column R-18, P-line. |

---

Reactor Bldg. - RCIC Backup Control Panel 3-LPNL-925-0031 El 621'

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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL ___X___    NOT CRITICAL _____

3-XS-071-0036B RCIC SYSTEM FLOW TRANSFER                    EMERG_____

3-XS-071-0045 RCIC TURB BRG OIL TEMP HIGH XFR               EMERG_____

3-XS-071-0023 RCIC OIL CLR OUTLET OIL TEMP HIGH            EMERG_____

**CONTINUE** Part A of this Attachment.

| CUE: [As each switch is simulated] The switch is in Emergency. |
| --- |

STANDARD:

At Panel 3-LPNL-925-0031, Simulated placing 3-XS-071-0036B, 3-XS-071-0045 and 3-XS-071-0023 in EMERG.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

---

---

| CAUTION |
|---|
| Failure to place control switch for each component in desired position prior to transferring to emergency may result in inadvertent actuation of the component. |

| NOTE |
|---|
| PAX phone Ext. 2326 is located at Column R-16, R-line between West-side HCUs. |

*********************************************************************************

PERFORMANCE STEP:        CRITICAL _____    NOT CRITICAL ___X___

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

| 1E | 3-BKR-071-0029 | RCIC TURB BAROMETRIC CNDR CNDS PUMP BREAKER | |
|---|---|---|---|
| | 3-XS-071-0029 | RCIC BAROMETRIC CNDR CNDS PUMP EMER TRANS SWITCH | EMERG____ |
| | 3-HS-071-0029C | RCIC VAC TANK CNDS PUMP EMER HAND SWITCH | START____ |

| CUE: [As each switch is simulated] |
|---|
| 3-XS-071-0029 is in Emergency |
| 3-HS-071-0029C is in Start |

STANDARD:

At 250v DC RMOV bd 3C, compartment 1E, Simulated placing 3-XS-071-0029 in the EMERG position and 3-HS-071-0029C in the START position.

SAT _____    UNSAT _____   N/A _____    COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                   CRITICAL _____     NOT CRITICAL   X\_\_

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

| 3B | 3-BKR-071-0037 | RCIC PUMP DISCH VALVE BREAKER (GE-13-20) | |
|---|---|---|---|
| | 3-XS-071-0037 | RCIC PUMP DISCH VALVE EMER TRANS SWITCH | EMERG\_\_\_\_ |
| | 3-HS-071-0037C | RCIC PUMP DISCH VALVE EMER HAND SWITCH | OPEN\_\_\_\_\_ |

**CUE: [As each switch is simulated]**
**3-XS-071-0037 is in Emergency**
**3-HS-071-0037C is in Open**

STANDARD:

At 250v DC RMOV bd 3C, compartment 3B, Simulated placing 3-XS-071-0037 in the EMERG position and 3-HS-071-0037C in the OPEN position.

SAT _____     UNSAT _____  N/A _____     COMMENTS:_____

---

---

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL    X    NOT CRITICAL _____

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

| 3D | 3-BKR-071-0039 | RCIC PUMP INJECTION VALVE BREAKER (GE-13-21) | |
|----|----------------|-----------------------------------------------|---|
| | 3-XS-071-0039 | RCIC PUMP INJECTION VALVE EMER TRANS SWITCH | EMERG____ |
| | 3-HS-071-0039C | RCIC PUMP INJECTION VALVE EMER HAND SWITCH | OPEN_____ |

CUE: [As each switch is simulated]
3-XS-071-0039 is in Emergency
3-HS-071-0039C is in Open

STANDARD:

At 250v DC RMOV bd 3C, compartment 3D, Simulated placing 3-XS-071-0039 in the EMERG position and 3-HS-071-0039C in the OPEN position.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

---

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL ___X__    NOT CRITICAL _____

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

4B    3-BKR-071-0008    RCIC TURBINE STM
                        SUPPLY VALVE BREAKER (GE-13-131)

      3-XS-071-0008     RCIC TURBINE STM
                        SUPPLY VALVE EMER TRANS SWITCH        EMERG____

      3-HS-071-0008C    RCIC TURBINE STM
                        SUPPLY VALVE EMER HAND SWITCH         NOR_____

| CUE: [As each switch is simulated] |
| 3-XS-071-0008 is in Emergency |
| 3-HS-071-0008C is in Normal |

STANDARD:

At 250v DC RMOV bd 3C, compartment 4B, Simulated placing 3-XS-071-0008 in the
EMERG position and 3-HS-071-0008C in the NOR position.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

---

---

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____    NOT CRITICAL \_\_X\_\_

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

| 6D | 3-BKR-071-0019 | RCIC CST 3 SUCT VALVE BREAKER (GE-13-18) | |
|----|----|----|----|
| | 3-XS-071-0019 | RCIC CST 3 SUCT VALVE EMER TRANS SWITCH | EMERG\_\_\_\_ |
| | 3-HS-071-0019C | RCIC CST 3 SUCT VALVE EMER HAND SWITCH | OPEN_____ |

> **CUE: [As each switch is simulated]**
> **3-XS-071-0019 is in Emergency**
> **3-HS-071-0019C is in Open**

STANDARD:

At 250v DC RMOV bd 3C, compartment 6D, Simulated placing 3-XS-071-0019 in the EMERG position and 3-HS-071-0019C in the OPEN position.

SAT _____    UNSAT _____  N/A _____    COMMENTS:_____

---

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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

<u>PERFORMANCE STEP:</u>          CRITICAL _____     NOT CRITICAL \_\_X\_\_

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

| 7B | 3-BKR-071-0038 | RCIC PUMP TEST VALVE BREAKER (GE-13-30) | |
| | 3-XS-071-0038 | RCIC PUMP TEST VALVE EMER TRANS SWITCH | EMERGENCY\_\_\_\_ |
| | 3-HS-071-0038C | RCIC PUMP TEST VALVE EMER HAND SWITCH | CLOSE_____ |

> **CUE: [As each switch is simulated]**
> **3-XS-071-0038 is in Emergency**
> **3-HS-071-0038C is in Close**

<u>STANDARD:</u>

At 250v DC RMOV bd 3C, compartment 7B, Simulated placing 3-XS-071-0038 in the EMERGENCY position and 3-HS-071-0038C in the CLOSE position.

SAT _____     UNSAT _____    N/A _____          COMMENTS:_____

---

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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:            CRITICAL _____    NOT CRITICAL ___X__

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

7D    3-BKR-071-0018    RCIC SUPPR POOL
                        OUTBD SUCT VALVE
                        BREAKER (GE-13-39)

      3-XS-071-0018     RCIC SUPPR POOL
                        OUTBD SUCT EMER
                        TRANS SWITCH                    EMERGENCY_____

      3-HS-071-0018C    RCIC SUPPR POOL
                        OUTBD SUCT VALVE
                        EMER HAND SWITCH                CLOSE_____

| CUE: [As each switch is simulated] |
| 3-XS-071-0018 is in Emergency |
| 3-HS-071-0018C is in Close |

STANDARD:

At 250v DC RMOV bd 3C, compartment 7D, Simulated placing 3-XS-071-0018 in the
EMERGENCY position and 3-HS-071-0018C in the CLOSE position.

SAT _____    UNSAT _____    N/A _____    COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____     NOT CRITICAL __X__

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

8B      3-BKR-071-0017      RCIC SUPPR POOL
                            INBD SUCT VALVE
                            BREAKER (GE-13-41)

        3-XS-071-0017       RCIC SUPPR POOL
                            INBD SUCT EMER
                            TRANS SWITCH                    EMERGENCY_____

        3-HS-071-0017C      RCIC SUPPR POOL
                            INBD SUCT VALVE
                            EMER HAND SWITCH                CLOSE_____

| CUE: [As each switch is simulated] |
| :--- |
| 3-XS-071-0017 is in Emergency |
| 3-HS-071-0017C is in Close |

STANDARD:

At 250v DC RMOV bd 3C, compartment 8B, Simulated placing 3-XS-071-0017 in the
EMERGENCY position and 3-HS-071-0017C in the CLOSE position.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL    __X__    NOT CRITICAL  _____

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

8D    3-BKR-071-0025    RCIC LUBE OIL COOLING
                        WATER VALVE BREAKER (GE-13-18)

      3-XS-071-0025    RCIC LUBE OIL CLR COOLING
                        WATER VALVE EMER TRANS
                        SWITCH                              EMERGENCY____

      3-HS-071-0025C   RCIC LUBE OIL CLR COOLING
                        WATER VALVE EMER HAND
                        SWITCH                              OPEN      _____

| CUE: [As each switch is simulated] |
| 3-XS-071-0025 is in Emergency |
| 3-HS-071-0025C is in Open |

STANDARD:

At 250v DC RMOV bd 3C, compartment 8D, Simulated placing 3-XS-071-0025 in the
EMERG position and 3-HS-071-0025C in the OPEN position.

SAT  _____    UNSAT  _____    N/A  _____        COMMENTS:_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:            CRITICAL _____   NOT CRITICAL __X__

---

Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'

---

10E   3-BKR-071-0031      RCIC TURB BAROMETRIC CNDR
                          VAC PUMP BREAKER

      3-XS-071-0031       RCIC BAROMETRIC
                          CNDR VAC PUMP
                          EMER TRANS SWITCH              EMERGENCY_____

      3-HS-071-0031C      RCIC BAROMETRIC
                          CNDR VAC PUMP
                          EMER HAND SWITCH              START      _____

| CUE: [As each switch is simulated] |
| :--- |
| 3-XS-071-0031 is in Emergency |
| 3-HS-071-0031C is in Start |

STANDARD:

At 250v DC RMOV bd 3C, compartment 10E, Simulated placing 3-XS-071-0031 in the EMERG position and 3-HS-071-0031C in the START position.

SAT _____   UNSAT _____   N/A _____      COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:            CRITICAL _____    NOT CRITICAL __X__

**NOTIFY** UO at Panel 3-25-32 upon completion of Part A.

| CUE:  [When Simulated notifying UO at 25-32, repeat] Attachment 3 Part A is complete. |
| --- |

STANDARD:

Simulated notifying UO of completion of Attachment 3, Part A, using radio or PAX phone Ext. 2326 at R-16, R-Line (Between west side HCU's).

SAT _____      UNSAT _____     N/A _____         COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:            CRITICAL _____    NOT CRITICAL __X__

**STOP** here until directed to perform Part B.

STANDARD:

N/A

SAT _____      UNSAT _____     N/A _____         COMMENTS:_____

_____

_____

| CUE:  That completes this task. |
| --- |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____     NOT CRITICAL __X__

PERFORMER complied with all safety rules and regulations

STANDARD:

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

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

SAT _____       UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____     NOT CRITICAL __X__

PERFORMER demonstrated proper radiological practices AS REQUIRED

STANDARD:

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

SAT _____       UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____     NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM

STANDARD:

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

SAT _____      UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____     NOT CRITICAL __X__

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

STANDARD:

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

SAT _____      UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

**END OF TASK**

**STOP TIME:** _____

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┌─────────────────────────────────────────────────────┐
│                                                       │
│             BROWNS FERRY NUCLEAR PLANT                │
│             JOB PERFORMANCE MEASURE                   │
│                                                       │
└─────────────────────────────────────────────────────┘
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*******************************************************************************************
**IN-PLANT:** I will explain the initial conditions and state the task to be performed. <u>ALL STEPS WILL BE SIMULATED</u>. Do <u>NOT</u> operate any plant equipment. SELF CHECKING may be carried out to the point of touching a label. If it becomes necessary to physically touch a control switch, use a non-conductive pointing device. Observe ALL plant radiological and safety precautions. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's correct" (or That's incorrect", if applicable). When you have completed your assigned task, you will say, "My task is complete" and I will acknowledge that your task is complete.
*******************************************************************************************

**INITIAL CONDITIONS:**     Unit 3 Control Room has been abandoned due to toxic gas in the Control Room.

- Pressure control has been established at the backup control panel 3-25-32.

- The RCIC system is being aligned for injection to the RPV.

- You are an operator assigned to the reactor building and you are in radio contact with the operators at the backup control panel.

**INITIATING CUES:**     The Unit Operator directs you to perform Attachment 3, Part A, of 3-AOI-100-2.

# CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

## Attachment 3
### (Page 1 of 9)
### Unit 3 RB AUO Panel Checklist

Date _____

| NOTE |
| --- |
| PAX phone Ext. 2336 is located at Column R-18, P-line. |

## 1.0    PART A

| Switch/<br>Breaker Number | Component Description | Required<br>Position | Initials |
| --- | --- | --- | --- |
| **Reactor Bldg. - RCIC Backup Control Panel 3-LPNL-925-0031 EI 621'** | | | |
| 3-XS-071-0036B | RCIC SYSTEM FLOW TRANSFER | EMERG | _____ |
| 3-XS-071-0045 | RCIC TURB BRG OIL TEMP HIGH XFR | EMERG | _____ |
| 3-XS-071-0023 | RCIC OIL CLR OUTLET OIL TEMP HIGH | EMERG | _____ |
| | **CONTINUE** Part A of this Attachment. | | _____ |

**Attachment 3**
**(Page 2 of 9)**
**Unit 3 RB AUO Panel Checklist**

Date _____

**1.0    PART A (continued)**

---

| CAUTION |
|---|
| Failure to place control switch for each component in desired position prior to transferring to emergency may result in inadvertent actuation of the component. |

---

| NOTE |
|---|
| PAX phone Ext. 2326 is located at Column R-16, R-line between West-side HCUs. |

---

| Switch/<br>Breaker<br>Number | Component<br>Description | | Required<br>Position | Initials |
|---|---|---|---|---|
| **Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'** | | | | |
| 1E | 3-BKR-071-0029 | RCIC TURB BAROMETRIC CNDR CNDS PUMP BREAKER | | |
| | 3-XS-071-0029 | RCIC BAROMETRIC CNDR CNDS PUMP EMER TRANS SWITCH | EMERG | _____ |
| | 3-HS-071-0029C | RCIC VAC TANK CNDS PUMP EMER HAND SWITCH | START | _____ |
| 3B | 3-BKR-071-0037 | RCIC PUMP DISCH VALVE BREAKER (GE-13-20) | | |
| | 3-XS-071-0037 | RCIC PUMP DISCH VALVE EMER TRANS SWITCH | EMERG | _____ |
| | 3-HS-071-0037C | RCIC PUMP DISCH VALVE EMER HAND SWITCH | OPEN | _____ |

## Attachment 3
### (Page 3 of 9)
### Unit 3 RB AUO Panel Checklist

Date _____

## 1.0    PART A (continued)

| Switch/<br>Breaker<br>Number | Component<br>Description | | Required<br>Position | Initials |
|---|---|---|---|---|
| **Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'** | | | | |
| 3D | 3-BKR-071-0039 | RCIC PUMP INJECTION VALVE BREAKER (GE-13-21) | | |
| | 3-XS-071-0039 | RCIC PUMP INJECTION VALVE EMER TRANS SWITCH | EMERG | _____ |
| | 3-HS-071-0039C | RCIC PUMP INJECTION VALVE EMER HAND SWITCH | OPEN | _____ |
| 4B | 3-BKR-071-0008 | RCIC TURBINE STM SUPPLY VALVE BREAKER (GE-13-131) | | |
| | 3-XS-071-0008 | RCIC TURB STM SUPPLY EMER TRANS SWITCH | EMERG | _____ |
| | 3-HS-071-0008C | RCIC TURB STM SUPPLY VALVE EMER HAND SWITCH | NOR | _____ |
| 6D | 3-BKR-071-0019 | RCIC CST 3 SUCT VALVE BREAKER (GE-13-18) | | |
| | 3-XS-071-0019 | RCIC CST 3 SUCT VALVE EMER TRANS SWITCH | EMERGENCY | _____ |
| | 3-HS-071-0019C | RCIC CST 3 SUCT VALVE EMER HAND SWITCH | OPEN | _____ |

## Attachment 3
## (Page 4 of 9)
## Unit 3 RB AUO Panel Checklist

Date _____

## 1.0    PART A (continued)

| Switch/<br>Breaker<br>Number | Component<br>Description | | Required<br>Position | Initials |
|---|---|---|---|---|
| | | **Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'** | | |
| 7B | 3-BKR-071-0038 | RCIC PUMP TEST<br>VALVE BREAKER<br>(GE-13-30) | | |
| | 3-XS-071-0038 | RCIC PUMP TEST<br>VALVE EMER TRANS<br>SWITCH | EMERGENCY | _____ |
| | 3-HS-071-0038C | RCIC PUMP TEST<br>VALVE EMER HAND<br>SWITCH | CLOSE | _____ |
| 7D | 3-BKR-071-0018 | RCIC SUPPR POOL<br>OUTBD SUCT VALVE<br>BREAKER (GE-13-39) | | |
| | 3-XS-071-0018 | RCIC SUPP POOL<br>OUTBD SUCT EMER<br>TRANS SWITCH | EMERGENCY | _____ |
| | 3-HS-071-0018C | RCIC SUPPR POOL<br>OUTBD SUCT VALVE<br>EMER HAND SWITCH | CLOSE | _____ |
| 8B | 3-BKR-071-0017 | RCIC SUPPR POOL INBD<br>SUCT VALVE BREAKER<br>(GE-13-41) | | |
| | 3-XS-071-0017 | RCIC SUPP POOL INBD<br>SUCT EMER TRANS<br>SWITCH | EMERGENCY | _____ |
| | 3-HS-071-0017C | RCIC SUPPR POOL INBD<br>SUCT VALVE EMER<br>HAND SWITCH | CLOSE | _____ |

**Attachment 3**
**(Page 5 of 9)**
**Unit 3 RB AUO Panel Checklist**

Date _____

## 1.0    PART A (continued)

| Switch/<br>Breaker<br>Number | Component<br>Description | | Required<br>Position | Initials |
|---|---|---|---|---|
| | **Reactor Bldg. - 250V DC Reactor MOV Board 3C - El 565'** | | | |
| 8D | 3-BKR-071-0025 | RCIC LUBE OIL COOLING WATER VALVE BREAKER (GE-13-132) | | |
| | 3-XS-071-0025 | RCIC LUBE OIL CLR COOLING WATER VALVE EMER TRANS SWITCH | EMERGENCY | _____ |
| | 3-HS-071-0025C | RCIC LUBE OIL CLR COOLING WATER VALVE EMER HAND SWITCH | OPEN | _____ |
| 10E | 3-BKR-071-0031 | RCIC TURB BAROMETRIC CNDR VAC PUMP BREAKER | | |
| | 3-XS-071-0031 | RCIC BAROMETRIC CNDR VAC PUMP EMER TRANS SWITCH | EMERGENCY | _____ |
| | 3-HS-071-0031C | RCIC BAROMETRIC CNDR VAC PUMP EMER HAND SWITCH | START | _____ |

**NOTIFY** UO at Panel 3-25-32 upon completion of Part A.                                                           _____

**STOP** here until directed to perform Part B.                                                           _____

| BROWNS FERRY NUCLEAR PLANT<br>JOB PERFORMANCE MEASURE |
|---|

JPM NUMBER:     99

TITLE:          EOI APPENDIX 16H - BYPASSING RCIC HIGH RPV WATER
                LEVEL SHUTDOWN INTERLOCKS

TASK NUMBER:    U-000-EM-42

Provide a copy of 2-EOI Appendix-16H

# IN-PLANT "B"

SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____     DATE:_____
                         TRAINING

PLANT CONCURRENCE: _____     DATE:_____
                         OPERATIONS

\*     Examination JPMs Require Operations Training Manager Approval 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 | 12/08/94 | 1,2,3,4 | Revise to new format |
| 2 | 11/09/95 | All | Procedure revision |
| 3 | 11/23/99 | 2,3,4,8 | Added plant work expectations Safety, Touch STAAR, and 3-Way Comm. |
| 4 | 05/17/06 | All | Procedure revision |
| 5 | 05/31/08 | All | General revision & re-format |
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## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

OPERATOR:_____

RO _____    SRO _____                    DATE:_____

JPM NUMBER:    99

TASK NUMBER:   U-000-EM-42

TASK TITLE:    EOI APPENDIX 16H - BYPASSING RCIC HIGH RPV WATER
               LEVEL SHUTDOWN INTERLOCKS

K/A NUMBER:    217000A4.03    K/A RATING:   RO _3.4_        SRO _3.3_

************************************************************************************************

TASK STANDARD: SIMULATE PERFORMING ACTIONS REQUIRED TO DEFEAT
               RCIC HIGH RPV LEVEL SHUTDOWN INTERLOCKS AS
               DIRECTED BY EOI APPENDIX 16H.

PERFORMANCE LOCATION:    SIMULATOR __ PLANT _X_ CONTROL ROOM __

REFERENCES/PROCEDURES NEEDED:    2-EOI Appendix-16H, Rev 5

VALIDATION TIME:    CONTROL ROOM: __5:00__    LOCAL: __2:00__

MAX. TIME ALLOWED:    _____ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:    _____

COMMENTS:    _____
             _____
             _____

ADDITIONAL COMMENT SHEETS ATTACHED?        YES _____ NO _____

RESULTS:    SATISFACTORY _____        UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

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┌─────────────────────────────────────────────────────────────────┐
│                  BROWNS FERRY NUCLEAR PLANT                        │
│                  JOB PERFORMANCE MEASURE                           │
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**IN-PLANT:** I will explain the initial conditions and state the task to be performed. <u>ALL STEPS WILL BE SIMULATED</u>. Do <u>NOT</u> operate any plant equipment. SELF CHECKING may be carried out to the point of touching a label. If it becomes necessary to physically touch a control switch, use a non-conductive pointing device.  Observe ALL plant radiological and safety precautions.  I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's correct" (or That's incorrect", if applicable). When you have completed your assigned task, you will say, "My task is complete" and I will acknowledge that your task is complete.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**INITIAL CONDITIONS:**     You are an Operator.

- Unit 2 reactor has scrammed due to a leak in the drywell.

- Reactor water level cannot be determined.

- EOI-1 has been followed to C4-6.

- The RCIC system, using auxiliary steam, is to be used as an injection source as directed by Appendix 7H.

- You have a hand-held radio with you.

**INITIATING CUES:**     The UNIT SUPERVISOR directs you to bypass the RCIC high RPV water level shutdown interlocks as directed by 2-EOI Appendix 16H.


# CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

START TIME _____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL _____   NOT CRITICAL __X__

When requested by examiner, identify/obtain copy of required procedure.

| Examiner Note:  Applicant has demonstrated obtaining procedures on the simulator, therefore, just hand him/her the procedure, however, Verify that applicant locates the EOI Equipment Storage Box (At 250v RMOV bd 2C) |
| --- |

STANDARD:

Identified or obtained copy of 2-EOI Appendix-16H.

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

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PERFORMANCE STEP:          CRITICAL __X__   NOT CRITICAL _____

1.    **PLACE** 2-XS-071-0008, RCIC TURB STM SUPPLY EMER TRANS SWITCH, to EMERG position (250V RMOV Board 2C, Compartment 4B).

| CUE:  [When correctly simulated] 2-XS-71-8 is in the emergency position. |
| --- |

STANDARD:

Located and Simulated placing 2-XS-071-0008 in the EMERG position.

SAT _____     UNSAT _____   N/A _____        COMMENTS:_____

_____

_____

| CUE: [On hand-held radio] The Unit 2 Operator directs you to open 2-FCV-71-8. |
|---|

*************************************************************************************************

PERFORMANCE STEP:               CRITICAL __ X __   NOT CRITICAL _____

2.      WHEN ...      Requested by Unit Operator,

        THEN ...      **OPEN** 2-FCV-71-8, RCIC TURB STM SUPPLY VALVE
                      (250V RMOV Board 2C, Compartment 4B).

| CUE: [When correctly simulated] The green valve position indicating lamp for 2-FCV-71-8 is extinguished and the red valve position indicating lamp is illuminated. |
|---|

STANDARD:

At Compartment 4, 250V DC RMOV Board 2C. Simulated placing 2-HS-71-8C in the OPEN position.

SAT _____      UNSAT _____   N/A _____      COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

3.     WHEN ...     2-FCV-71-8, RCIC TURB STM SUPPLY VALVE, is open,

       THEN ...     **NOTIFY** Unit Operator.

| CUE:  [When simulated] Unit Operator acknowledges 2-FCV-71-8 is open. |
| --- |

STANDARD:

Simulated notifying Unit 2 Operator using hand-held radio.

SAT _____     UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

| CUE:  That completes this task. |
| --- |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

PERFORMER complied with all safety rules and regulations

STANDARD:

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

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

SAT _____      UNSAT _____    N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____    NOT CRITICAL __X__

PERFORMER demonstrated proper radiological practices AS REQUIRED

STANDARD:

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

SAT _____      UNSAT _____    N/A _____          COMMENTS:_____

_____

_____

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<u>PERFORMANCE STEP:</u>                    CRITICAL  \_\_\_\_\_     NOT CRITICAL   \_\_X\_\_

PERFORMER demonstrated the use of SELF CHECKING during this JPM


<u>STANDARD:</u>

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


SAT  \_\_\_\_\_        UNSAT  \_\_\_\_\_     N/A  \_\_\_\_\_        COMMENTS:_____

_____

_____


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<u>PERFORMANCE STEP:</u>                    CRITICAL  \_\_\_\_\_     NOT CRITICAL   \_\_X\_\_

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


<u>STANDARD:</u>

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


SAT  \_\_\_\_\_        UNSAT  \_\_\_\_\_     N/A  \_\_\_\_\_        COMMENTS:_____

_____

_____


**END OF TASK**


**STOP TIME:** _____

| BROWNS FERRY NUCLEAR PLANT<br>JOB PERFORMANCE MEASURE |
|---|

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

**INITIAL CONDITIONS:**    You are an Operator.

- Unit 2 reactor has scrammed due to a leak in the drywell.

- Reactor water level cannot be determined.

- EOI-1 has been followed to C4-6.

- The RCIC system, using auxiliary steam, is to be used as an injection source as directed by Appendix 7H.

- You have a hand-held radio with you.

**INITIATING CUES:**    The UNIT SUPERVISOR directs you to bypass the RCIC high RPV water level shutdown interlocks as directed by 2-EOI Appendix 16H.

# CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

# EOI PROGRAM MANUAL SECTION IX

# 2-EOI APPENDIX-16H

# BYPASSSING RCIC HIGH RPV WATER LEVEL SHUTDOWN INTERLOCKS

# REVISION 5

PREPARED BY:  M. Morrow                          PHONE:   3708

RESPONSIBLE ORGANIZATION:  Operations

APPROVED BY:  A. S. Bhatnagar

EFFECTIVE DATE:  10/26/00

# LEVEL OF USE:   REFERENCE USE

VALIDATION DATE:  05/09/92

QUALITY-RELATED

# HISTORY OF REVISION/REVIEW
## 2-EOI APPENDIX-16H

| REV. NO. | DATE: | REVISED PAGES | REASON FOR CURRENT REVISION |
|---|---|---|---|
| 0 | 6/15/92 | ALL | New procedure. Necessary to support implementation of Revision 4 EPGs into BFNP EOIs. |
| 1 | 7/10/92 | ALL | Incorporated Writer's Guide discrepancies, typos, and plant nomenclature discrepancies |
| 2 | 4/21/93 | ALL | Converted from WordPerfect 5.1 to Pagemaker 4.0 to better support desktop publishing capabilities. |
| 3 | | | Changed Location for procedure performance from control room to reactor building. Changed location information regarding valve operation for clarity. |
| 3 | 12/28/93 | 1 | Revised nomenclature and UNID to reflect new system labels. |
| 4 | 8/3/95 | 1 | Revised valve nomenclature and UNID to reflect new system labels. |
| 5 | 10/26/00 | All | Converted to MS-Word. |

## 2-EOI APPENDIX-16H

## BYPASSSING RCIC HIGH RPV WATER LEVEL
## SHUTDOWN INTERLOCKS

LOCATION:   Unit 2 Reactor Building, 250V RMOV Board 2C

ATTACHMENTS:   None

( ✓ )

1.   **PLACE** 2-XS-071-0008, RCIC TURB STM SUPPLY EMER TRANS SWITCH,
     to EMERG position (250V RMOV Board 2C, Compartment 4B).          ____

2.   WHEN ... Requested by Unit Operator,
     THEN ... **OPEN** 2-FCV-71-8, RCIC TURB STM SUPPLY VALVE
             (250V RMOV Board 2C, Compartment 4B).          ____

3.   WHEN ... 2-FCV-71-8, RCIC TURB STM SUPPLY VALVE, is open,
     THEN ... **NOTIFY** Unit Operator.          ____


                          LAST PAGE

## BROWNS FERRY NUCLEAR PLANT
## JOB PERFORMANCE MEASURE

JPM NUMBER:     115F

TITLE:          PLACE A 4KV SHUTDOWN BOARD 250V BATTERY CHARGER
                IN SERVICE

TASK NUMBER:    S-57D-NO-11

Provide a copy of 0-OI-57D, Section 5.16 (include 0-OI-57D, Section 3.0)

## IN-PLANT "C"

SUBMITTED BY: _____     DATE:_____

VALIDATED BY: _____     DATE:_____

APPROVED BY: _____     DATE:_____
                          TRAINING

PLANT CONCURRENCE: _____     DATE:_____
                          OPERATIONS

*     Examination JPMs Require Operations Training Manager Approval 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 | 08/19/06 | All | Initial issue |
| 1 | 07/20/08 | All | General revision & re-format |
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**BROWNS FERRY NUCLEAR PLANT**
**JOB PERFORMANCE MEASURE**

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OPERATOR:_____

RO _____        SRO _____                    DATE:_____

JPM NUMBER:        115F

TASK NUMBER:        S-57D-NO-11

TASK TITLE:        PLACE A 4KV SHUTDOWN BOARD 250V BATTERY CHARGER
                   IN SERVICE

K/A NUMBER:        263000K1.02        K/A RATING:        RO _3.2_        SRO _3.3_

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TASK STANDARD: SIMULATE PERFORMING OPERATIONS REQUIRED TO PLACE
               A 4KV SHUTDOWN BOARD 250V DC BATTERY CHARGER IN
               SERVICE

PERFORMANCE  LOCATION:        SIMULATOR ___ PLANT _X_ CONTROL ROOM ___

REFERENCES/PROCEDURES NEEDED:        0-OI-57D, Rev 119

VALIDATION TIME:        CONTROL ROOM :_____        LOCAL: _____

MAX. TIME ALLOWED:        ___N/A___ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME:        _____

COMMENTS:        _____
                 _____
                 _____

ADDITIONAL COMMENT SHEETS ATTACHED?        YES _____ NO _____

RESULTS:        SATISFACTORY _____        UNSATISFACTORY _____

EXAMINER SIGNATURE: _____DATE:_____

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**BROWNS FERRY NUCLEAR PLANT**
**JOB PERFORMANCE MEASURE**

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

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**INITIAL CONDITIONS:**    You are an operator.

- 4KV Shutdown Board A control power is being supplied by its alternate source in accordance with Section 8.6 of 0-OI-57D.

- 4KV Shutdown Board 250V Battery Charger SB-A has been temporarily out of service for maintenance which has been completed.

- Diesel Generator A is <u>NOT</u> running.

**INITIATING CUES:**        You are directed to return 4KV Shutdown Board 250V Battery Charger SB-A to service.


# CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

START TIME _____

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PERFORMANCE STEP:                CRITICAL _____     NOT CRITICAL __X__

When requested by examiner, identify/obtain copy of required procedure.

| Examiner Note: Applicant has demonstrated obtaining procedures on the simulator, therefore, just hand him/her the procedure. |
| --- |

STANDARD:

Identified or obtained copy of 0-OI-57D.

SAT _____     UNSAT _____   N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____     NOT CRITICAL __X__

5.16   Placing the 4kV Shutdown Board 250V Battery Charger SB-A(B)(C)(D) in Service

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

STANDARD:

Reviewed section 3.0

SAT _____     UNSAT _____   N/A _____       COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL ___X___   NOT CRITICAL _____

[2]    VERIFY OFF SHUTDOWN BDS 250V DC SPARE BAT CHGR TRANS SW SB-A(B)(C)(D), 0-XSW-248-0000A(B)(C)(D).

| CUE:  [When OFF position is indicated] 0-XSW-248-0000A is in the OFF position |

STANDARD:

Simulated placing 0-XSW-248-0000A in the OFF position.

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL _____   NOT CRITICAL ___X___

[3]    FOR CHARGER SB-C ONLY, VERIFY APPENDIX R TRANSFER SWITCH, 0-XSW-248-000C1 IS IN THE NORMAL POSITION.

STANDARD:

N/A – SB-C charger not being used

SAT _____    UNSAT _____    N/A _____        COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____     NOT CRITICAL __X__

[4]     VERIFY ON MAIN DISCONNECT FOR 0-PNLA-248-A(B)(C)(D),
0-FUDS-248-0001A(B)(C)(D).

| CUE:  [When ON position is indicated] 0-FUDS-248-0001A is in the ON position |
|---|

STANDARD:

Verified 0-FUDS-248-0001A in the ON position

SAT _____          UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                CRITICAL _____     NOT CRITICAL __X__

[5]     VERIFY ON DISTRIBUTION PANEL SUPPLY FROM BAT CHGR
0-CHGA-248-A(B)(C)(D), 0-FUDS-248-000AF(BF)(CF)(DF).

| CUE:  [When ON position is indicated] 0-FUDS-248-000AF is in the ON position |
|---|

STANDARD:

Simulated verifying 0-FUDS-248-000AF in the ON position

SAT _____          UNSAT _____     N/A _____          COMMENTS:_____

_____

_____

| CAUTION |
| --- |
| If a charger malfunction occurs the AC and DC power breakers should be placed to the OFF position. The Shift Manager should be informed immediately of this condition. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:          CRITICAL __X__   NOT CRITICAL _____

    [6]    CLOSE BATTERY CHARGER 0-CHGA-248-A(B)(C)(D) AC SUPPLY
            BKR, 0-BKR-248-000A/AC(B/AC)(C/AC)(D/AC).

| CUE:  [When simulated] 0-BKR-248-000A/AC is in the ON position |
| --- |

STANDARD:

Simulated placing 0-BKR-248-000A/AC in the ON position

SAT _____     UNSAT _____   N/A _____     COMMENTS:_____

_____

_____

| CAUTION |
| --- |
| If a charger malfunction occurs the AC and DC power breakers should be placed to the OFF position. The Shift Manager should be informed immediately of this condition. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:                    CRITICAL __ X __    NOT CRITICAL _____

[7]    CHECK SHUTDOWN BDS 250V DC BATTERY CHGR SB-A(B)(C)(D),
0-EI-248-A/B(B/B)(C/B)(D/B) indicates greater than 250 volts and stable.

| CUE: [When location and position indicated] 0-EI-248-A/B is swinging from 200 to 240 volts. |
| --- |

STANDARD:

Indicated location of 0-EI-248-A/B and approximate pointer position for 250 volts.
When CUE given, refers to CAUTION (top of this page) and SIMULATES OPENING the
AC and DC power breakers and immediately notifies the Shift Manager (Only simulating
opening the AC breaker is Critical, the DC breaker has not been closed yet).

SAT _____        UNSAT _____      N/A _____        COMMENTS:_____

_____

_____

| CUE: [When simulated opening breakers and notifying the Shift Manager] 0-BKR-248-000A/AC and 0-BKR-248-000A/DC are open, That will be all for now. |
| --- |

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PERFORMANCE STEP:               CRITICAL _____     NOT CRITICAL __X__

PERFORMER complied with all safety rules and regulations

STANDARD:

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

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

SAT _____      UNSAT _____    N/A _____          COMMENTS:_____

_____

_____

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PERFORMANCE STEP:               CRITICAL _____     NOT CRITICAL __X__

PERFORMER demonstrated proper radiological practices AS REQUIRED

STANDARD:

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

SAT _____      UNSAT _____    N/A _____          COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                CRITICAL _____    NOT CRITICAL __X__

PERFORMER demonstrated the use of SELF CHECKING during this JPM

STANDARD:

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

SAT _____       UNSAT _____    N/A _____       COMMENTS:_____

_____

_____

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PERFORMANCE STEP:                CRITICAL _____    NOT CRITICAL __X__

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

STANDARD:

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

SAT _____       UNSAT _____    N/A _____       COMMENTS:_____

_____

_____

**END OF TASK**

**STOP TIME:** _____

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│                                                               │
│                 BROWNS FERRY NUCLEAR PLANT                     │
│                 JOB PERFORMANCE MEASURE                        │
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**IN-PLANT:** I will explain the initial conditions and state the task to be performed. <u>ALL STEPS WILL BE SIMULATED</u>. Do <u>NOT</u> operate any plant equipment. SELF CHECKING may be carried out to the point of touching a label. If it becomes necessary to physically touch a control switch, use a non-conductive pointing device.  Observe ALL plant radiological and safety precautions.  I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's correct" (or That's incorrect", if applicable). When you have completed your assigned task, you will say, "My task is complete" and I will acknowledge that your task is complete.

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**INITIAL CONDITIONS:**     You are an operator.

- 4KV Shutdown Board A control power is being supplied by its alternate source in accordance with Section 8.6 of 0-OI-57D.

- 4KV Shutdown Board 250V Battery Charger SB-A has been temporarily out of service for maintenance which has been completed.

- Diesel Generator A is <u>NOT</u> running.

**INITIATING CUES:**     You are directed to return 4KV Shutdown Board 250V Battery Charger SB-A to service.


# CAUTION: DO NOT OPERATE ANY PLANT EQUIPMENT!

## 3.0 PRECAUTIONS AND LIMITATIONS

A. In the event a Unit Battery System is removed from service or a 250VDC RMOV Board is transferred to the alternate supply, one or more of the limitations below may apply. If time permits, a Caution Order should be placed on the affected MOV handswitches prior to transfer of board to alternate to prevent violation of these safe shutdown restrictions.

1. In the event any 250VDC RMOV Board is on its alternate supply, the following restrictions apply to DC motor operated valves that are supplied from a battery that is feeding any RMOV board alternate supply:

a. No DC MOV may be operated except as required to mitigate accident conditions, to obtain safe shutdown or to comply with Technical Specifications(i.e. to comply with LCO ACTIONS statements only).

b. Testing(including SI/SRs) that requires DC motor operated valve operation is NOT allowed. [Ref. Dwgs. 1-45E701-3, 2-45E702-4, 3-45E703-3]

DC MOVs that may NOT be operated except as required to mitigate accident conditions or to obtain safe shutdown or to comply with Technical Specifications(i.e. to comply with LCO ACTIONS statements only) with RMOV boards on alternate supply.

| RMOV<br>BOARD ON<br>ALTERNATE | NORMAL<br>SUPPLY<br>BATTERY | ALTERNATE<br>SUPPLY<br>BATTERY | MAY NOT OPERATE MOVs<br>SUPPLIED FROM RMOV<br>BD (i.e. supplied from the<br>alternate battery) |
| --- | --- | --- | --- |
| 1A | 1 | 2 | 1C, 2A, 3C, 1A |
| 1B | 3 | 1 | 1A, 2C, 3B, 1B |
| 1C | 2 | 1 | 1A, 2C, 3B, 1C |
| 2A | 2 | 3 | 1B, 2B, 3A, 2A |
| 2B | 3 | 1 | 1A, 2C, 3B, 2B |
| 2C | 1 | 2 | 1C, 2A, 3C, 2C |
| 3A | 3 | 2 | 1C, 2A, 3C, 3A |
| 3B | 1 | 3 | 1B, 2B, 3A, 3B |
| 3C | 2 | 3 | 1B, 2B, 3A, 3C |

## 3.0 PRECAUTIONS AND LIMITATIONS (continued)

2. If Battery System 1 is out of service or 250VDC RMOV Board 1A is on alternate supply, the following actions are required:
[Ref. Dwg.: 1-45E701-3, 1-45E712-1]

    a. If Battery System 1 is out of service, 1-FCV-073-0044, 2-FCV-73-44 and 3-FCV-73-44 and their supply circuit breakers must be open.

    b. If 250V DC MOV Board 1A is transferred to alternate supply, 1-FCV-0073-0044 and 2-FCV-73-44 and their supply circuit breakers must be open.

3. If Battery System 2 is out of service or 250VDC RMOV Board 2A is on the alternate supply, the following additional actions and limitations are required: [Ref. Dwgs.: 2-45E702-4, 2-45E712-1]

    a. If Battery System is out of service, valves 1-FCV-73-44, 2-FCV-73-44 and 3-FCV-73-44 and their associated supply circuit breakers must be opened.

    b. If 250VDC RMOV Board 2A is transferred to the alternate supply, valves 2-FCV-73-44 and 3-FCV-73-44 and their associated supply circuit breakers must be opened.

4. If Battery System 3 is out of service or 250VDC RMOV Board 3A is on the alternate supply, the following additional actions and limitations are required: [Ref. Dwgs.: 3-45E703-3, 3-45E712-1]

    a. If Battery System is out of service, valves 1-FCV-73-44, 2-FCV-73-44 and 3-FCV-73-44 and their associated supply circuit breakers must be opened.

    b. If 250VDC RMOV Board 3A is transferred to the alternate supply, valves 3-FCV-73-44 and 2-FCV-73-44 and their associated supply circuit breakers must be opened.

B. If Battery System 4, 5 or 6 becomes inoperable the emergency bearing oil pump motor must be started upon transfer to the alternate source. This action ensures D.C. system availability during design basis conditions.

C. Prior to entry into Battery Room(s) ventilation fans to the Battery Room(s) should be in service.

D. Extreme care should be used when deenergizing equipment while locating grounds to prevent interruption of power to vital and safeguard equipment. REFER TO 0-GOI-300-2, Electrical.

**3.0     PRECAUTIONS AND LIMITATIONS (continued)**

E.   All safety requirements concerning smoking, fires or sparks should be observed when in the Battery-Battery Board Rooms because of potential accumulation of hydrogen in flammable amounts.

F.   250V Unit Battery Charger 1,2A,2B and 3 Emergency ON select switch bypasses battery charger emergency load shed contacts.  Placing the select switch in Emergency ON reestablishes charger operations with an accident signal present and Diesel Generator voltage available.  Battery Charger 4 supply breaker, 480V Shutdown Board 3B, Compt 6D, receives a trip signal from the load shed logic and the breaker must be manually re-closed after a 40 second time delay to restore the charger to service.  The annunciation circuit for the 250V Unit Battery Charger 3 does NOT work when the EMER/OFF/ON Select Switch is in the EMER Position.

G.   [II/C] Neutron monitoring battery chargers are NOT stand alone power supplies and shall only be operated while connected to the neutron monitoring batteries. [BFPER 940862]

H.   Within 30 minutes after the loss of the normal charger to a 250V Unit Battery another charger shall be placed in service to that battery and load reduced so that the battery is NOT discharging.

I.   [NRC/C] Upon return to service of 24V DC Neutron Monitoring Battery A or B, Instrument Maintenance must perform functional tests on SRMs and IRMs that are powered from the affected battery board (In that the IRMs and SRMs are normally inoperable after entering RUN mode due to lack of testing, these tests are N/A for the IRMs and the SRMs if the Unit is in RUN Mode and the IRMs and SRMs are inoperable).  Prior to calling the IRMs and SRMs operable, the tests have to be performed.  [NRC IE Inspect Follow-up Item 86-40]

J.   To return equipment to service following a failure or trip, the shutdown section of this instruction should be performed on the equipment failed.  The initial conditions may NOT be applicable in this case.

K.   [NRC/C] The transfer of 250VDC control power to a 4kV Shutdown Board with a diesel generator operating may cause an inadvertent start of a RHRSW pump. [LER 88021/25]

## 3.0    PRECAUTIONS AND LIMITATIONS (continued)

L.    The 250 V DC RMOV boards have alternate power supplies from another 250 V Unit DC board.  For a unit in MODES 1, 2, or 3, the boards are considered inoperable when powered from their alternate feeder breakers because a single failure of the power source could affect both divisions depending on the board alignment.

   1.    The alternate battery that has been loaded due to the transfer may be considered operable if the controlled drawing restrictions as referenced in P&L W are met.

   2.    Transfer of individual loads required by the Technical Specifications on the Unit Batteries such as the RPT Logic should be considered inoperable if divisional separation cannot be proven.  If transfer of such loads is performed solely due to an inoperable distribution board or source, then Technical Specification LCO 3.0.6 can apply to the loads, however, a distribution LCO must be entered.

   3.    For a unit in MODE 4 or 5, the DC boards can be placed on their alternate feeder breakers and considered OPERABLE as long as the restrictions on the associated drawings are met.

M.    A 250V DC unit battery charger should NOT be considered operable if its safety related supply is NOT available.  If normal power(safety related supply) is available but the charger is on its alternate supply it is still considered operable.

N.    When a 250V RMOV board is transferred to the alternate supply (except for 2B 250V DC RMOV Bd), both divisions (I and II) will be supplied from the same source.

O.    Battery Boards should be unloaded before removing Battery or Battery Charger from service, unless the evolution is of short duration (i.e. transferring battery chargers) or plant conditions warrant otherwise.

P.    A critical voltage for any cell is 2.13 volts.  Prolonged operation of a cell below 2.13 volts will reduce its life expectancy.  However it is NOT unusual for a replacement cell to measure 2.07 volts (on float charge) and to slowly rise in voltage over a 3 month period to normal float voltage ranges.

Q.    Any Battery suspected to have been discharged shall be recharged immediately to prevent battery damage.

## 3.0     PRECAUTIONS AND LIMITATIONS (continued)

R.   The 125V DC Diesel Generator Batteries 0-BATB-254-A(B)(C)(D) and
3-BATB-254-3A(3B)(3C)(3D) are designed to normally operate with 60 cells.
The batteries have sufficient capacity to maintain minimum acceptable voltages
with one(1) cell jumpered out of service (Strapped Out). The cell SHALL BE
jumpered out (Strapped Out) in accordance with Drawing 0-761E580-1 NOTE 9
or 3-C196C11017, NOTE 8, as applicable The plant SHALL NOTIFY the Site
Engineering Manager prior to implementation. [see EDC 69382]

S.   The 250V DC Shutdown Boards Batteries 0-BATA-248-A(B)(C)(D) and
3-BATA-248-3EB are designed to normally operate with 120 cells. The batteries
have sufficient capacity to maintain minimum acceptable voltages with two(2)
cells jumpered out of service (Strapped Out). The cells SHALL BE jumpered out
(Strapped Out) in accordance with Drawing 0-45E709-1 NOTE 10 or
3-45E709-2, NOTE 13, as applicable The plant SHALL NOTIFY the Site
Engineering Manager prior to implementation. [see EDC 69382]

T.   The 250V spare battery charger shall be stored in the seismic restraint at all
times unless the charger is being transported to another location.

U.   Battery Board 1 is the only EQ power supply to Unit 2 ADS valves 1-5 and 1-34.
Valves 1-5 and 1-34 are still considered operable when on there alternate
power supply.

V.   [II/F] To prevent the interruption of test equipment and chemical analyses, the
Radiochemical Lab (RCL) shall be notified prior to transferring the power supply
to Battery Board 2. [II-B-91-056]

W.   Environmental calculations assume battery ambient temperatures at 60° to
110°F for all batteries except Shutdown Board 3EB and DG batteries which are
40°F - 110°F.

X.   [CAQR/C] Unless the spare and normal 48V Annunciator battery chargers are
operated in parallel, a discharged battery CANNOT be recharged within
12 hours while supplying normal loads. [CAQR BFP 880827]

## 3.0 PRECAUTIONS AND LIMITATIONS (continued)

Y. Plant controlled drawings document restrictions on Unit 1, 2, & 3 loads which could adversely affect Unit 1, 2, 3 Safe Shutdown capability based on Nuclear Engineering calculations for plant configurations. Due to these restrictions operators must check the restrictions on the associated prints prior to manipulating the following loads.

| BOARD | Drawing No. |
|---|---|
| 250V Battery Bd 1 | 1-45E701-3 |
| 250V Battery Bd 2 | 2-45E702-4 |
| 250V Battery Bd 3 | 3-45E703-3 |
| 250V Battery Bd 4 | 0-45E704 |
| 250V Battery Bd 5 | 0-45E704-1 |
| 250V Battery Bd 6 | 0-45E704-2 |
| 250V RMOV Bd 1A | 1-45E712-1 |
| 250V RMOV Bd 1B | 1-45E712-2 |
| 250V RMOV Bd 1C | 1-45E712-3 |
| 250V RMOV Bd 2A | 2-45E712-1 |
| 250V RMOV Bd 2B | 2-45E712-2 |
| 250V RMOV Bd 2C | 2-45E712-3 |
| 250V RMOV Bd 3A | 3-45E712-1 |
| 250V RMOV Bd 3B | 3-45E712-2 |
| 250V RMOV Bd 3C | 3-45E712-3 |

## 3.0 PRECAUTIONS AND LIMITATIONS (continued)

Z. Plant controlled drawings document Technical Specification restrictions on Unit 1, 2, & 3 when a Shutdown Boards Control Power is transferred to its Alternate source. Due to these restrictions, operators must check the restrictions on the associated prints prior to transferring Control Power.

| Shutdown Board | Norm Control Power | Transfer Switch | Drawing |
|---|---|---|---|
| 4160V SD BD A | 250V Battery SB-A | 0-XSW-211-A | 0-45E724-1 |
| 4160V SD BD B | 250V Battery SB-B | 0-XSW-211-B | 0-45E724-2 |
| 4160V SD BD C | 250V Battery SB-C | 0-XSW-211-C | 0-45E724-3 |
| 4160V SD BD D | 250V Battery SB-D | 0-XSW-211-D | 0-45E724-4 |
| 4160V SD BD 3EA | 250V Battery BD 1 | 3-XSW-211-3EA | 3-45E724-6 |
| 4160V SD BD 3EB | 250V Battery SB-3EB | 3-XSW-211-3EB | 3-45E724-7 |
| 4160V SD BD 3EC | 250V Battery BD 3 | 3-XSW-211-3EC | 3-45E724-8 |
| 4160V SD BD 3ED | 250V Battery BD 2 | 3-XSW-211-3ED | 3-45E724-9 |
| 480V SD BD 1A | 250V Battery SB-A | 1-XSW-231-1A | 1-45E749-1 |
| 480V SD BD 1B | 250V Battery SB-C | 1-XSW-231-1B | 1-45E749-2 |
| 480V SD BD 2A | 250V Battery SB-B | 2-XSW-231-2A | 2-45E749-3 |
| 480V SD BD 2B | 250V Battery SB-D | 2-XSW-231-2B | 2-45E749-4 |
| 480V SD BD 3A | 250V Battery BD 1 | 3-XSW-231-3A/A | 3-45E749-5 |
| 480V SD BD 3B | 250V Battery BD 3 | 3-XSW-231-3B/A | 3-45E749-6 |

## 5.16 Placing the 4kV Shutdown Board 250V Battery Charger SB-A(B)(C)(D) in Service

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

[2] **VERIFY OFF** SHUTDOWN BDS 250V DC SPARE BAT CHGR TRANS SW SB-A(B)(C)(D), 0-XSW-248-0000A(B)(C)(D). ☐

[3] **FOR** CHARGER SB-C **ONLY, VERIFY** APPENDIX R TRANSFER SWITCH, 0-XSW-248-000C1 IS IN THE **NORMAL** POSITION. ☐

[4] **VERIFY ON** MAIN DISCONNECT FOR 0-PNLA-248-A(B)(C)(D), 0-FUDS-248-0001A(B)(C)(D). ☐

[5] **VERIFY ON** DISTRIBUTION PANEL SUPPLY FROM BAT CHGR 0-CHGA-248-A(B)(C)(D), 0-FUDS-248-000AF(BF)(CF)(DF). ☐

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### CAUTION

If a charger malfunction occurs the AC and DC power breakers should be placed to the OFF position. The Shift Manager should be informed immediately of this condition.

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[6] **CLOSE** BATTERY CHARGER 0-CHGA-248-A(B)(C)(D) AC SUPPLY BKR, 0-BKR-248-000A/AC(B/AC)(C/AC)(D/AC). ☐

[7] **CHECK** SHUTDOWN BDS 250V DC BATTERY CHGR SB-A(B)(C)(D), 0-EI-248-A/B(B/B)(C/B)(D/B) indicates greater than 250 volts and stable. ☐

[8] **CHECK** SHUTDOWN BDS 250V DC BATTERY CHGR SB-A(B)(C)(D), 0-II-248-A/B(B/B)(C/B)(D/B) indicates from 0-50 amps and stable. ☐

[9] **CLOSE** BATTERY CHARGER 0-CHGA-248-A(B)(C)(D) DC SUPPLY, 0-BKR-248-000A/DC(B/DC)(C/DC)(D/DC). ☐

**5.16** **Placing the 4kV Shutdown Board 250V Battery Charger**
**SB-A(B)(C)(D) in Service (continued)**

[10] **CHECK** the following indications on SHUTDOWN BDS
250V DC DISTRIBUTION PNL SB-A(B)(C)(D),
0-PNLA-248-0000A(B)(C)(D):

- SHUTDOWN BDS 250V DC DISTRIBUTION PNL
  SB-A(B)(C)(D), 0-EI-248-A/A(B/A)(C/A)(D/A) indicates
  greater than 250 volts. ☐

- SHUTDOWN BDS 250V DC DISTRIBUTION PNL
  SB-A(B)(C)(D), 0-II-248-A/A(B/A)(C/A)(D/A) indicates
  zero amps or less. ☐