

FINAL SUBMITTAL

**BROWNS FERRY 2000-301
50-259, 260, and 296/2000-301**

**JUNE 12 - 15, JUNE 27 - 29, AND
JUNE 30, 2000**

NUREG-1021 - ES-501 - F.1.g

FINAL AS-GIVEN JPMs FOR EACH

WALK-THROUGH TEST

Facility: Browns Ferry
 Exam Level (circle one): **RO / SRO(I) / SRO(U)**

Date of Examination: 6/15-16/26-29
 Operating Test No.: 1

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. Respond to Drywell Pressure and/or Temperature High or Excessive Leakage into Drywell <u>JPM # 126F</u> , KA 223001A4.07, 4.2/4.1. 3 critical steps. (RO & SRO)	D,S,A	5
b. Line up Alternate RPV Injection System - - RHR Crosstie - in accordance with EOI Appendix 7C, <u>JPM # 28</u> , KA 203000A2.16, 4.4/4.5 (RO & SRO)	D,S	2
c. Place the Standby SJAE in Operation, <u>JPM #116F</u> , KA 271000A4.09, 3.3/3.2 (RO&SRO)	D,S,A	9
d. Respond to uncoupled Control Rod (Multiple Notches), <u>JPM # 81</u> , KA 2010003A2, 3.7/3.8 (ALL)	D,S	1
e. Line up Control of SRVs and MSIVs at 25-32, <u>JPM #78</u> , KA 239002, 4.4/4.4 (RO&SRO)	D,S	3
f. Tie D/G to 4 kV shutdown board at Panel 9-23, <u>JPM #104(NRC Alternate Path)</u> , KA 26400A2.05, 3.6/3.6. A loss of lube oil will require the operator to trip the DG manually. (ALL)	M,A,S	6
g. Recover from a loss of Shutdown Cooling, <u>NRC-1, Alternate Path</u> , KA 205000A4.01, 3.7/3.7 (RO & SRO)	N,A,S	4

B.2 Facility Walk-Through

a. Manually SLOW Start "A" Diesel Generator Locally, <u>JPM #106</u> , KA 264000G2.1.30, 3.9/3.4 (ALL)	D,	6
b. EOI Appendix 1A - Removal and Replacement of RPS Scram Solenoid Fuses, <u>JPM # 311</u> KA 212000A2.20, 4.1/4.2 (ALL)	D,R	7
c. Place PSC System in Service, <u>JPM #101</u> , KA 209001K1.03, 2.9/3.0 (ALL)	D	4

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 126F

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

TASK NUMBER: U-064-AB-01

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____

TRAINING

PLANT CONCURRENCE: _____ DATE: _____

OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	9/22/99	ALL	NEW JPM
1	05/19/00	4	CHANGED INCREASING TO RISING

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 126F

TASK NUMBER: U-064-AB-01

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

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

*

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

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-AOI-64-1, REV 18

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

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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.

NON-CRITICAL STEP: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

PERFORMER shall demonstrate the use of 3-way communication.

INITIAL CONDITIONS: You are an Operator. Unit 2 is experiencing rising drywell pressure due to a small leak inside the drywell. 2-XA-55-3B, Window 26, DRYWELL TO SUPPRESSION CHAMBER DP ABNORMAL, is in alarm.

INITIATING CUES: _____(NAME)_____, vent the drywell in accordance with 2-AOI-64-1.

START TIME _____

Performance Step: Critical___ Not Critical_X_

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

Standard:

IDENTIFIED OR OBTAINED copy of 2-AOI-64-1.

SAT___UNSAT___N/A___ COMMENTS:_____

4.2 Subsequent Actions

4.2.1 If any EOI entry condition is met, THEN
ENTER appropriate EOI(s).

4.2.2 High Drywell Pressure:

4.2.2.1 CHECK Drywell pressure using multiple
indications.

4.2.2.2 ALIGN and START additional Drywell
coolers and fans as necessary. REFER to
2-OI-64.

CAUTION

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

Performance Step : Critical X Not Critical

4.2.2.3 VENT Drywell as follows:

4.2.2.3.1 CLOSE SUPPR CHBR INBD
ISOLATION VLV 2-FCV-64-34
(Panel 2-9-3)

Standard:

PLACED 2-FCV-64-34 in the CLOSE position and **VERIFIED** illuminated GREEN valve position indicating lamp above associated hand switch.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical___ Not Critical_X__

4.2.2.3.2 VERIFY OPEN, DRYWELL INBD ISOLATION
VLV, 2-FCV-64-31, (Panel 2-9-3).

Standard:

VERIFIED illuminated RED valve position indicating lamps above associated hand switch.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical___ Not Critical X

4.2.2.3.3 VERIFY 2-FIC-84-20 is in AUTO and
SET at 100 scfm (Panel 2-9-55).

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical X Not Critical___

4.2.2.3.4 START STGTS TRAIN C (Panel 2-9-25).

Standard:

At Panel 2-9-25, **DISCOVERED** that 0-HS-65-69A/2 for C SBT was
tagged, and requested Unit 1 Operator to START SBT A OR B in
step 2.2.2.3.5.

SAT___ UNSAT___ N/A___ COMMENTS:_____

4.2.2.3.5 REQUEST Unit 1 Operator to START
Standby Gas Treatment Fans A or B,
if required.

CAUTION

If 2-FCV-84-20 closes after 2-HS-64-35 is opened, the reason for
valve closure must be cleared and 2-HS-64-35 must be returned to
OPEN in order for 2-FCV-84-20 to re-open.

4.2.2.3.6 PLACE 2-FCV-84-20 CONTROL DW/SUPPR
CHBR VENT, 2-HS-64-35, in OPEN
(Panel 2-9-3).

Standard:

PLACED 2-HS-64-35 in the OPEN position.

SAT____UNSAT____N/A____ COMMENTS:_____

CUE: [WHEN STEP 4.2.2.3.6 COMPLETED] THE UNIT SUPERVISOR DIRECTS DRYWELL VENTING TO BE CONTINUED UNTIL DIRECTED TO SECURE THE VENTING OPERATION. STACK RELEASE RATES ARE WELL WITHIN LIMITS.

Performance Step: Critical___ Not Critical_X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT_____ UNSAT_____ N/A _____ COMMENTS:_____

Performance Step: Critical____ Not Critical_X

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

Standard:

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

SAT____ UNSAT____ N/A _____ COMMENTS:_____

END OF TASK

STOP TIME: _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEP: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

PERFORMER shall demonstrate the use of 3-way communication.

INITIAL CONDITIONS: You are an Operator. Unit 2 is experiencing rising drywell pressure due to a small leak inside the drywell. 2-XA-55-3B, Window 26, DRYWELL TO SUPPRESSION CHAMBER DP ABNORMAL, is in alarm.

INITIATING CUES: _____(NAME)_____, vent the drywell in accordance with 2-AOI-64-1.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 28
TITLE: EOI APPENDIX 7C - ALTERNATE RPV INJECTION
SYSTEM LINEUP - RHR CROSSTIES
TASK NUMBER: U-000-EM-38

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____

TRAINING

PLANT CONCURRENCE: _____ DATE: _____

OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
3	12/6/94	1,2,3,4	REVISE TO NEW FORMAT
4	11/8/95	ALL	REVISED BASE PROCEDURE
5	8/27/98	ALL	NEW PROCEDURE REV., FORMAT, ADD 3-WAY COMM., TOUCH STAAR, DELETE PLANT NOTE.
6	05/20/00	5,7,9	ADDED UNIT 2 SPECIFIC, ADDED RHR 1B & 1D SPECIFIC.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 28

TASK NUMBER: U-000-EM-38

TASK TITLE: LINE UP ALTERNATE RPV INJECTION SYSTEM - RHR
CROSSTIE - IN ACCORDANCE WITH EOI APPENDIX 7C

K/A NUMBER: 203000A2.16 K/A RATING: RO 4.4 SRO: 4.5

*

TASK STANDARD: SIMULATE AND PERFORM ACTIONS/MANIPULATIONS
REQUIRED TO ALIGN UNIT 1 RHR LOOP II TO UNIT 2 RHR
LOOP I FOR UNIT 2 RPV INJECTION

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

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

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

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

*

INITIAL CONDITIONS: You are an Operator. The Unit 2 reactor has scrammed and due to several malfunctions you are unable to maintain RPV level >12 inches. EOI-1 has been entered and followed to RC/L-8.

INITIATING CUES: The Unit Supervisor directs you to perform EOI Appendix 7C, ALTERNATE RPV INJECTION SYSTEM LINEUP - RHR CROSSTIES, using RHR crossties to inject water into the RPV.

START TIME _____

Performance Step: Critical___ Not Critical_X_

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

Standard:

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

SAT___UNSAT___N/A___ COMMENTS:_____

1. IF.....RHR crosstie to Unit 1 CANNOT be performed
THEN....**CONTINUE** at Step 2.

Performance Step : Critical___ Not Critical_X_

- a. **NOTIFY** Unit 1 operators that Unit 1 RHR pumps will
be crosstied to Unit 2 as directed by the EOIs.

Standard:

NOTIFIED Unit 1 Operators that Unit 1 RHR pumps will be
crosstied to Unit 2 as directed by the 2-EOI Appendix-7C.

SAT___ UNSAT___ N/A___ COMMENTS:_____

**CUE: [WHEN NOTIFIED] ACKNOWLEDGE THAT UNIT 1 RHR PUMPS WILL
BE CROSSTIED TO UNIT 2.**

Performance Step: Critical X Not Critical__

b. **DISPATCH** personnel to Unit 1 Auxiliary Instrument Room to perform the following:

- 1). **REFER** TO Attachment 1 and OBTAIN tools and equipment from EOI Equipment Storage Box.
- 2) **REFER** TO Attachment 2 and BOOT the following relay contacts on Unit 1, Panel 1-9-33, Front:
 - ❖ 1-RLY-074-10A-K19B, contact 1-2.
 - ❖ 1-RLY-074-10A-K22B, contact 1-2.
- 3) **NOTIFY** Unit 2 Operator that 1B and 1D RHR Pump Suction Valve interlocks have been defeated.

Standard:

DISPATCHED personnel by phone or radio to UNIT 1 auxiliary instrument room to perform step 1.b of 2-EOI-Appendix 7C.

SAT__UNSAT__N/A__ COMMENTS:_____

CUE: [WHEN NOTIFIED]ACKNOWLEDGE THAT 1B AND 1D RHR PUMP SUCTION VALVE INTERLOCKS HAVE BEEN DEFEATED IN ACCORDANCE WITH 2-EOI APPENDIX-7C, STEP 1.b.

Performance Step: Critical X Not Critical____

c. **DISPATCH** personnel to **CLOSE** the following
breakers:

❖ 1-BRK-074-0098, RHR PUMP B SUCTION CROSSTIE
VALVE FCV-74-98 (M010-180), (480V RMOV MOV
Board 1B, Compartment 1C).

❖ 1-BRK-074-0099, RHR PUMP D SUCTION XTIE VLV
FCV-74-99 (480V RMOV MOV Board 2B,
Compartment 17E).

Standard:

DISPATCHED personnel to close the above listed
breakers.

SAT____UNSAT____N/A____ COMMENTS:_____

**CUE: NOTIFICATION HAS BEEN RECEIVED THAT THE BREAKERS FOR
1-FCV-74-98 AND 1-FCV-74-99 HAVE BEEN CLOSED.**

Critical X Not Critical__

- d. **NOTIFY** Unit 1 Operator to perform the following on Unit 1, Panel 1-9-3:
- 1) **CLOSE** the following valves:
 - ❖ FCV-74-24, RHR PUMP B SUPP POOL SUCTION VALVE
 - ❖ FCV-74-35, RHR PUMP D SUPP POOL SUCTION VALVE.
 - 2) **PLACE** HS-74-149, RHR SYSTEM-II MIN FLOW BYPASS, switch in BYPASS.
 - 3) **VERIFY CLOSED** FCV-74-30, RHR SYSTEM II MINIMUM FLOW VALVE.
 - 4) **OPEN** FCV-74-98, UNITS 1-2 SUCTION CROSSTIE.
 - 5) **OPEN** FCV-74-99 UNITS 1-2 SUCTION CROSSTIE.
 - 6) **OPEN** FCV-74-101, UNIT 1-2 DISCHARGE CROSSTIE.
 - 7) **VERIFY CLOSED** the following valves:
 - ❖ FCV-74-67 RHR SYSTEM II INBD RECIRC LOOP VALVE
 - ❖ FCV-74-74 RHR SYS II CONTAINMENT SPRAY OUTBD VALVE
 - ❖ FCV-74-75 RHR SYS II CONTAINMENT SPRAY INBD VALVE
 - ❖ FCV-74-71 RHR SYSTEM II SUPPRESSION POOL VALVE.
 - 8) **CHECK** 1-PI-74-65, RHR SYSTEM II PRESS, indicates above 45 psig.
 - 9) **VERIFY** at least one RHRSW pump operating on each EECW header.
 - 10) **START** an RHRSW pump to supply the desired RHR Heat Exchanger (1B or 1D).

- 11) **SLOWLY THROTTLE** FCV-23-46 or 52, RHR HEAT EXCHANGER B(D) COOL WATER OUTLET VLV, to obtain between 1350 and 4500 gpm flow through the desired RHR heat exchanger.
- 12) **NOTIFY** Unit 2 Operator when complete.

Standard:

DIRECTED Unit 1 Operator by phone to **PERFORM** the above listed as directed by 2-EOI Appendix-7C, Step 1.d.

SAT____UNSAT____N/A____ COMMENTS:_____

CUE: [SIMULATOR OPERATOR] INSERT MRF RH02A OPEN AND REPORT STEP 1.d. COMPLETE. THIS IS FOR VALVE 1-FCV-74-101

Performance Step: Critical X Not Critical__

- e. **PLACE** 2-HS-74-148, RHR SYSTEM I MIN FLOW INHIBIT, switch in INHIBIT on Unit 2, Panel 2-9-3.

Standard:

PLACED 2-HS-74-148, Panel 2-9-3, in the INHIBIT position.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

- f. **VERIFY CLOSED** FCV-74-7, RHR SYSTEM I MIN FLOW
VALVE.

Standard:

VERIFIED illuminated GREEN valve position indicating lamp
above 2-HS-74-7A, Panel 2-9-3.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical_X

- g. **VERIFY CLOSED** FCV-74-53. RHR SYSTEM I LPCI INBD
INJECT VALVE.

Standard:

VERIFIED illuminated GREEN valve position indicating lamp
above 2-HS-74-53A.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

- h. **CLOSE** FCV-74-52, RHR SYS I LPCI OUTBD INJECT VALVE.

Standard:

PLACED 2-HS-74-52A in the CLOSE position and **VERIFIED** illuminated GREEN valve position indicating lamp above associated control switch.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

- i. **DISPATCH** personnel to rack out the following Unit 2 RHR Pump breakers:

❖ 2-BKR-074-005, RESIDUAL HEAT REMOVAL PUMP 2A, 4KV SD BD A, COMPARTMENT 19.

❖ 2-BKR-074-0016, RESIDUAL HEAT REMOVAL PUMP 2C, 4KV SD BD B, Compartment 17.

Standard:

DISPATCHED personnel by phone or radio to rack out the above listed breakers.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: [SIMULATOR OPERATOR] INSERT BAT JPM28 AND REPORT RHR PUMP 2A AND 2C BREAKERS RACKED OUT (STEP 6).

Performance Step: Critical X Not Critical___

j. OPEN the following valves on Unit 2, Panel 2-9-3:

❖ 2-FCV-74-96, RHR PUMP 2A SUCT U-1 XTIE

Standard:

PLACED 2-HS-74-96A, Panel 2-9-3, in the OPEN position and
VERIFIED illuminated RED valve position indicating lamp above
associated control switch.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical___

❖ 2-FCV-74-97, RHR PUMP 2C SUCT U-1 XTIE.

Standard:

PLACED 2-HS-74-97A, Panel 2-9-3, in the OPEN position and
VERIFIED illuminated RED valve position indicating lamp above
associated control switch.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical_X Not Critical__

2-FCV-74-100, RHR SYS I U-1 DISCH XTIE.

Standard:

PLACED 2-HS-74-100A, Panel 2-9-3, in the OPEN position and **VERIFIED** illuminated RED valve position indicating lamp above associated control switch.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

k. **CHECK** 2-PI-74-51, RHR SYS I DISCH PRESS, indicates above 48 psig.

Standard:

VERIFIED 2-PI-74-51 indicating pressure greater than 48 psig.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical X Not Critical___

1. **NOTIFY** Unit 1 Operator to start RHR Pump (1B or 1D) for the RHR heat exchanger aligned in Step 1.d.10).

Standard:

DIRECTED Unit 1 Operator by phone to START 1B or 1D RHR pump.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: [SIMULATOR OPERATOR] INSERT MRF RH01 START AND REPORT 1B RHR PUMP RUNNING.

Performance Step: Critical X Not Critical___

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

Standard:

PLACED 2-HS-74-53A, Panel 2-9-3, in the OPEN position and **VERIFIED** illuminated RED valve position indicating lamp above associated control switch.

SAT___ UNSAT___ N/A___ COMMENTS:_____

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT___ UNSAT___ N/A ___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

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

Standard:

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

SAT___ UNSAT___ N/A ___ COMMENTS:_____

END OF TASK

STOP TIME _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

*

INITIAL CONDITIONS: You are an Operator. The Unit 2 reactor has scrammed and due to several malfunctions you are unable to maintain RPV level >12 inches. EOI-1 has been entered and followed to RC/L-8.

INITIATING CUES: The Unit Supervisor directs you to perform EOI Appendix 7C, ALTERNATE RPV INJECTION SYSTEM LINEUP - RHR CROSSTIES, using RHR crossties to inject water into the RPV.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

SUBMITTED BY: _____ DATE: _____
VALIDATED BY: _____ DATE: _____
APPROVED: _____ DATE: _____
TRAINING
PLANT CONCURRENCE: _____ DATE: _____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	10/10/99	ALL	NEW JPM
1	05/20/00	ALL	PROCEDURE REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 116F

TASK NUMBER: U-066-NO-07

TASK TITLE: PLACE THE STANDBY SJAE IN OPERATION

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

*

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

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-OI-66, REV 60

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

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

INITIAL CONDITIONS: You are an Operator. Unit 2 is at 100% power. 2A steam jet air ejector is in service in accordance with Section 5.9 of 2-OI-66. 2A steam jet air ejector is to be removed from service for maintenance and 2B steam jet air ejector is to be placed into operation. HWC is shutdown per 2-OI-4.

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

START TIME _____

Performance Step: Critical___ Not Critical X

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

Standard:

IDENTIFIED OR OBTAINED current revision of 2-OI-66.

SAT___ UNSAT___ N/A___ COMMENTS: _____

8.4 Placing Standby SJAE in Operation

NOTES:

1. Auto swapping of SJAE is administratively prohibited per GE-SIL-150. See Precautions and Limitations 3.17.
2. Panel 25-105 located in Unit 2 Turbine Bldg. EL 586' T6-C
3. The HWC system is shutdown prior to intentional swapping of SJAEs to prevent receipt of the automatic trip of the HWC system that will occur when both SJAE DISCHARGE VALVES 2-FCV-66-14 AND 18 are closed.

Performance Step : Critical___ Not Critical X

8.4.1 REVIEW all Precaution and Limitations in Section 3.0.

Standard:

REVIEWED all Precautions and Limitations in Section 3.0.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical___ Not Critical X

8.4.2 VERIFY the following initial conditions have been met:

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

Standard:

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

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

8.4.2.2 IF HWC System is in service, THEN
SHUTDOWN HWC System. REFER TO 2-OI-4.
(otherwise N/A)

Standard:

None

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

Performance Step : Critical___ Not Critical X

8.4.2.3 SJAEs are in operation. REFER TO Section 5.9.

Standard:

None

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

Performance Step : Critical___ Not Critical X

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

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

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

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical_X_

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

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

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

Performance Step : Critical___ Not Critical_X__

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

8.4.5.1 Setpoint for STEAM TO SJAE B(A) STAGE I & II, 2-PC-1-152(150) set for approximately 225 psig (dial located inside controller housing).

8.4.5.2 Manual/Hand loader for STEAM TO SJAE B(A) STAGE I & II, 2-PC-1-152(150) set for approximately 6 psig.

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

B(A) 8.4.5.4 Manual/hand loader for STEAM TO SJAE STAGE III, 2-PC-1-167(166), set for approximately 6 psig.

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

MANUAL HAND LOADER FOR SJAE B STAGE I AND II IS SET AT 6 PSIG.

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

MANUAL HAND LOADER FOR STEAM TO SJAE B, STAGE III, 2-PC-1-167 IS SET FOR 6 PSIG.

Standard:

DISPATCH US to perform/verify steps 8.4.5.1 through 8.4.5.4.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical____Not Critical X

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

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

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

CUE: [WHEN DISPATCHED/CALLED], BOTH SJAE DILUTION STEAM PRESSURE MODIFIERS ARE ADJUSTED TO MID-POSITION.

Standard:

DISPATCHED US to verify both SJAE dilution steam pressure modifiers are in mid-position.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical____Not Critical X

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

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

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

Standard:

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

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical X Not Critical_____

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

Standard:

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

SAT_____UNSAT_____N/A_____ COMMENTS:_____

Performance Step : Critical X Not Critical_____

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

Standard:

PLACED 2-HS-1-155A in the CLOSE position.

SAT_____UNSAT_____N/A_____ COMMENTS:_____

Performance Step : Critical X Not Critical_____

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

Standard:

PLACED 2-HS-1-150 in the CLOSE position.

SAT_____UNSAT_____N/A_____ COMMENTS:_____

Performance Step : Critical___Not Critical_X__

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

Standard:

PLACED 2-HS-66-14 IN CLOSE position.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step : Critical_X__Not Critical___

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

Standard:

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

SAT___UNSAT___N/A___ COMMENTS:_____

—

—

Performance Step : Critical X Not Critical_____

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

Standard:

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

SAT_____UNSAT_____N/A_____ COMMENTS:_____

**CUE: When failure of 2B jet recognized, STATE as US " Place 2A jet
back in service.....continue at step 8.4.8" .**

Performance Step : Critical X Not Critical_____

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

Standard:

PLACED 2-HS-66-14 in the OPEN/AUTO position.

SAT_____UNSAT_____N/A_____ COMMENTS:_____

Performance Step : Critical____Not Critical_X__

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

Standard:

PLACED 2-HS-1-156A to CLOSE.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical____Not Critical_X__

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

Standard:

PLACED 2-HS-1-152 to CLOSE.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical____Not Critical_X__

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

Standard:

PLACED 2-HS-66-18 in CLOSE.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical X Not Critical____

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

Standard:

PLACED 2-HS-1-155A in OPEN.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical X Not Critical____

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

Standard:

PLACED 2-HS-1-150 in OPEN.

SAT____UNSAT____N/A____ COMMENTS:_____

NOTE:

It may be necessary to return 2-HS-1-152(150) to CLOSE position, then back to OPEN in order to open the SJAE steam supply valves. This will reset the logic sequence.

Performance Step : Critical____Not Critical_X__

8.4.14 Dispatch operator to **locally perform** step 8.4.14 through 8.4.18.

CUE: [WHEN DISPATCHED/CALLED], INFORM OPERATOR THAT LOCAL STEPS 8.4.14 THROUGH 8.4.18 HAVE BEEN COMPLETE.

Standard:

DISPATCHED Operator to perform steps 8.4.14 through 8.4.18 locally.

SAT____UNSAT____N/A____ COMMENTS:_____

—

Performance Step : Critical___ Not Critical_X_

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

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: FOR STEP 8.4.19: INFORM OPERATOR THAT HWC IS TAGGED OUT AND UNAVAILABLE FOR SERVICE.

Performance Step: Critical____ Not Critical_X__

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.
Standard:

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

SAT____ UNSAT____ N/A____ COMMENTS:_____

—

Performance Step: Critical____ Not Critical_X__

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

Standard:

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

SAT____ UNSAT____ N/A____ COMMENTS:_____

—

END OF TASK

STOP TIME:_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

INITIAL CONDITIONS: You are an Operator. Unit 2 is at 100% power. 2A steam jet air ejector is in service in accordance with Section 5.9 of 2-OI-66. 2A steam jet air ejector is to be removed from service for maintenance and 2B steam jet air ejector is to be placed into operation. HWC is shutdown per 2-OI-4.

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 81
TITLE: RESPOND TO UNCOUPLED CONTROL ROD (MULTIPLE NOTCHES)
TASK NUMBER: U-000-AB-02

SUBMITTED BY: _____ DATE: _____
VALIDATED BY: _____ DATE: _____
APPROVED: _____ DATE: _____
TRAINING
PLANT CONCURRENCE: _____ DATE: _____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
2	10/4/94	ALL	GENERAL REVISION
3	12/14/95	4	CHANGED PROCEDURE FROM 2-AOI-85-1 TO 2-AOI-85-2
4	12/16/96	ALL	PROCEDURE CHANGE, ADDED NON-CRIT STEP ON TOUCH STAAR, CHANGED ASOS TO US.
5	11/10/99	ALL	PROCEDURE REVISION, FORMAT DOCUMENT, CHANGED MGT. EXPECT. TO PLANT WORK EXPECT., ADDED NON-CRIT. STEP 3-WAY COMM.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 81

TASK NUMBER: U-000-AB-02

TASK TITLE: RESPOND TO AN UNCOUPLED CONTROL ROD

K/A NUMBER: 201003A2.02 K/A RATING: RO 3.7 SRO: 3.8

*

TASK STANDARD: PERFORM OPERATIONS NECESSARY TO RESPOND TO AN
UNCOUPLED CONTROL ROD AS DIRECTED BY 2-AOI-85-2

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-AOI-85-2, REV 8

VALIDATION TIME: CONTROL ROOM: 11:00 LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____

EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

INITIAL CONDITIONS: You are an Operator. Unit 2 is in the startup mode withdrawing control rods in RWM Group 1. Control rod 02-23 was withdrawn from 00 to position 48 and has just been checked for coupling integrity. CONTROL ROD OVERTRAVEL annunciator (2-XA-55-5A, Window 14) is in alarm and control rod 02-23 has been verified to be uncoupled.

INITIATING CUES: The UNIT SUPERVISOR has directed you to respond to the uncoupled control rod as directed by 2-AOI-85-2.

START TIME _____

Performance Step: Critical___ Not Critical_X

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

Standard:

IDENTIFIED OR OBTAINED copy of 2-AOI-85-2.

SAT___ UNSAT___ N/A___ COMMENTS:_____

4.0 OPERATOR ACTIONS

4.1 Immediate Actions

Performance Step: Critical_X Not Critical___

4.1.1 STOP all control rod withdrawal.

Standard:

DID NOT ATTEMPT further rod withdrawal.

SAT___ UNSAT___ N/A___ COMMENTS:_____

4.2 Subsequent Actions

Performance Step: Critical___ Not Critical_X

- 4.2.1 NOTIFY Reactor Engineer to evaluate the uncoupled control rod for its impact on core thermal limits and rod worth.

Standard:

NOTIFIED Reactor Engineer to evaluate the rod for its impact on core thermal limits and rod worth.

SAT___UNSAT___N/A___ COMMENTS:_____

CUE: [WHEN REACTOR ENGINEER ASKED] NO THERMAL LIMIT OR ROD WORTH PROBLEMS AS LONG AS NO OTHER RODS BEYOND THIS ROD IN THE SEQUENCE ARE WITHDRAWN PAST POSITION 00.

- 4.2.2 **ADJUST** the rod pattern as directed by the
of Reactor Engineer throughout the performance
 this procedure.

CUE: THE REACTOR ENGINEER AGREES THAT STEP 4.2.3 SHOULD BE PERFORMED TO RECOUPLE CONTROL ROD 02-23.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical X Not Critical__

4.2.3.3 NOTCH WITHDRAW the control rod drive to
position 48.

Standard:

NOTCH WITHDREW control rod 02-23 to position 48.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical X Not Critical__

4.2.3.4 PERFORM a coupling check.

Standard:

PERFORMED coupling integrity check by giving another notch
withdrawal signal. VERIFIED control rod still uncoupled by
observing CONTROL ROD OVERTRAVEL and CONTROL ROD DRIFT alarms
and loss of control rod position indication.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical X Not Critical__

4.2.3.5 IF coupling integrity check fails, THEN

CONTINUOUSLY INSERT control rod to position 00 to attempt to latch control rod with control rod drive mechanism.

Standard:

CONTINUOUSLY INSERTED control rod 02-23 to 00.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical X Not Critical__

4.2.3.6 RESET associated annunciators.

Standard:

RESET CONTROL ROD OVERTRAVEL and CONTROL ROD DRIFT annunciators on Panel 2-9-5.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical X Not Critical__

4.2.3.7 **NOTCH WITHDRAW** the control rod drive to position 48.

Standard:

NOTCH WITHDREW control rod 02-23 to position 48.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical X Not Critical__

4.2.3.8 PERFORM a coupling check.

Standard:

APPLIED notch withdraw signal to control rod 02-23.

DETERMINED control rod now coupled by presence of control rod position indication and/or lack of associated annunciators.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT_____ UNSAT_____ N/A _____ COMMENTS:_____

Performance Step: Critical_____Not Critical X

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

Standard:

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

SAT_____UNSAT_____N/A_____COMMENTS_____

—

END OF TASK

STOP TIME_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

INITIAL CONDITIONS: You are an Operator. Unit 2 is in the startup mode withdrawing control rods in RWM Group 1. Control rod 02-23 was withdrawn from 00 to position 48 and has just been checked for coupling integrity. CONTROL ROD OVERTRAVEL annunciator (2-XA-55-5A, Window 14) is in alarm and control rod 02-23 has been verified to be uncoupled.

INITIATING CUES: The UNIT SUPERVISOR has directed you to respond to the uncoupled control rod as directed by 2-AOI-85-2.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 78
TITLE: LINE UP CONTROL OF SRVs AND MSIVs AT 25-32
TASK NUMBER: U-000-AB-05

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____

TRAINING

PLANT CONCURRENCE: _____ DATE: _____

OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
2	12/8/94	1,2,3,4	REVISE TO NEW FORMAT
3	8/4/96	ALL	PROCEDURE UPGRADE, ADDED CRITICAL STEP ON TOUCH STAAR, AND CHANGED COMM. STD.
4	11/08/99	ALL	PROCEDURE CHANGE, CHANGED MGT. EXPECT. TO PLANT WORK EXPECT., ADDED NON- CRIT. STEP 3-WAY COMM.
5	05/21/00	2,5,6,7,9	MINOR FORMAT, ADDED VERIFYING CURRENT REVISION, CHANGED TOUCH STAAR FROM CRIT. STEP TO NON-CRIT. STEP.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 78

TASK NUMBER: U-000-AB-05

TASK TITLE: RESPOND TO CONTROL ROOM ABANDONMENT

K/A NUMBER: 295016AA1.07 K/A RATING: RO 4.2 SRO: 4.3

*

TASK STANDARD: PERFORM OPERATION NECESSARY TO LINE UP CONTROL OF
SRVs AND MSIVs AT PANEL 2-25-32 AS DIRECTED BY 2-
AOI-100-2.

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-AOI-100-2, REV 45

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

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

INITIAL CONDITIONS: You are an Operator. Unit 2 Control Room is being abandoned and IMMEDIATE OPERATOR ACTIONS have been completed. You are to proceed to Panel 2-25-32.

INITIATING CUES: The Unit Supervisor directs you to continue with 2-AOI-100-2 at Step 4.2.2.

START TIME _____

Performance Step: Critical___ Not Critical_X

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

Standard:

IDENTIFIED OR OBTAINED current revision of 2-AOI-100-2

SAT___ UNSAT___ N/A___ COMMENTS: _____

4.2 Unit 2 Subsequent Actions

4.2.1 IF ALL control rods were NOT fully inserted AND
RPS failed to deenergize, THEN

DIRECT an operator to Unit 2 Auxiliary Instrument
Room to perform Attachment 11.

CAUTION

Failure to place control switch in desired position prior to
transferring to the emergency position may result in inadvertent
actuation of the component.

[NER/C] Operation from Panel 2-25-32 bypasses logic and interlocks
normally associated with the components. [GE SIL 326.S1]

NOTES:

- (1) The following transfers Reactor Pressure Control to Panel 2-
25-32 to allow for pressure control while completing the
Panel Checklist.
- (2) Attachment 9, Alarm Response Procedure Panel 2-25-32,
provides for any alarms associated with this instruction.

Performance Step: Critical___ Not Critical_X

4.2.2 At Panel 2-25-32, PLACE the following MSR/V control switches in CLOSE/AUTO:

<u>Switch No.</u>	<u>Description</u>
2-HS-1-22C	MN STM LINE B RELIEF VALVE
2-HS-1-5C	MN STM LINE A RELIEF VALVE
2-HS-1-30C	MN STM LINE C RELIEF VALVE
2-HS-1-34C	MN STM LINE C RELIEF VALVE

Standard:

VERIFIED 2-HS-1-22C, 2-HS-1-5C, 2-HS-1-30C and 2-HS-1-34C control switches in the CLOSE/AUTO position.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical__

4.2.3 At Panel 2-25-32, PLACE the following MSRV
disconnect switches in DISCT.

<u>Switch No.</u>	<u>Description</u>
2-XS-1-18	MAIN STM LINE B RELIEF VALVE DISCT
2-XS-1-4	MAIN STM LINE A RELIEF VALVE DISCT
2-XS-1-42	MAIN STM LINE D RELIEF VALVE DISCT
2-XS-1-23	MAIN STM LINE B RELIEF VALVE DISCT
2-XS-1-41	MAIN STM LINE D RELIEF VALVE DISCT
2-XS-1-180	MAIN STM LINE D RELIEF VALVE DISCT

Standard:

PLACED the listed six (6) disconnect switches in DISCT.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical X Not Critical__

4.2.4 At Panel 2-25-32, PLACE the following MSRV
transfer switches in EMERG:

2-XS-1-22	MAIN STM LINE B RELIEF VALVE XFR
2-XS-1-5	MAIN STM LINE A RELIEF VALVE XFR
2-XS-1-30	MAIN STM LINE C RELIEF VALVE XFR
2-XS-1-34	MAIN STM LINE C RELIEF VALVE XFR

Standard:

PLACED the listed four (4) transfer switches in EMERG.

SAT__ UNSAT__ N/A__ COMMENTS:_____

NOTE:

Use of the following sequence when opening MSRVs should distribute heat evenly in the Suppression Pool.

Performance Step: Critical___ Not Critical_X

4.2.5 At Panel 2-25-32, MAINTAIN Reactor Pressure
 between 800 to 1000 psig using the following
 sequence:

4.2.5.1 2-HS-1-22C, MN STM LINE B RELIEF VALVE

4.2.5.2 2-HS-1-5C, MN STM LINE A RELIEF VALVE

4.2.5.3 2-HS-1-30C, MN STM LINE C RELIEF VALVE

4.2.5.4 2-HS-1-34C, MN STM LINE C RELIEF VALVE

Standard:

MAINTAINS reactor pressure 800 to 1000 psig using sequential
opening of the above listed four (4) MSRVs.

SAT___UNSAT___N/A___ COMMENTS:_____

CAUTION

Failure to place control switch in desired position prior to
transferring to emergency position may result in inadvertent
actuation of the component.

Performance Step:

Critical X Not Critical__

4.2.6 At Panel 2-25-32, CLOSE MSIVs using the following switch sequence:

4.2.6.1 PLACE control switch in CLOSE.

4.2.6.2 PLACE transfer switch in EMERG.

<u>MSIV LINE</u>	<u>Control Switch</u>	<u>Req'd Position</u>	<u>Transfer Switch</u>	<u>Req'd Position</u>
A INBOARD	HS-1-14C	CLOSE	2-XS-1-14	EMERG
B INBOARD	HS-1-26C	CLOSE	2-XS-1-26	EMERG
C INBOARD	HS-1-37C	CLOSE	2-XS-1-37	EMERG
D INBOARD	HS-1-51C	CLOSE	2-XS-1-51	EMERG
A OUTBOARD	HS-1-15C	CLOSE	2-XS-1-15	EMERG
B OUTBOARD	HS-1-27C	CLOSE	2-XS-1-27	EMERG
C OUTBOARD	HS-1-38C	CLOSE	2-XS-1-38	EMERG
D OUTBOARD	HS-1-52C	CLOSE	2-XS-1-52	EMERG

Standard:

VERIFIED the listed eight (8) control switches in the CLOSE position and then **PLACED** the listed eight (8) transfer switches in the EMERG positions.

SAT__ UNSAT__ N/A__ COMMENTS:_____

CUE: THIS ENDS THE JPM.

Performance Step: Critical_____Not Critical_ X_____

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT_____ UNSAT_____ N/A_____ COMMENTS:_____

Performance Step: Critical_____Not Critical_ X_____

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

Standard:

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

SAT_____ UNSAT_____ N/A_____ COMMENTS_____

END OF TASK

STOP TIME

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.

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

INITIAL CONDITIONS: You are an Operator. Unit 2 Control Room is being abandoned and IMMEDIATE OPERATOR ACTIONS have been completed. You are to proceed to Panel 2-25-32.

INITIATING CUES: The Unit Supervisor directs you to continue with 2-AOI-100-2 at Step 4.2.2.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 104F
TITLE: TIE D/G TO 4kV SHUTDOWN BOARD AT PANEL 9-23
TASK NUMBER: U-082-NO-07

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____

TRAINING

PLANT CONCURRENCE: _____ DATE: _____

OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	05/20/00	ALL	NEW JPM

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 104F

TASK NUMBER: U-082-NO-07

TASK TITLE: PERFORM PARALLEL WITH SYSTEM OPERATION AT PANEL 9-23

K/A NUMBER: 264000A2.05 K/A RATING: RO 3.6 SRO: 3.6

TASK STANDARD: PERFORM OPERATIONS NECESSARY TO PARALLEL A DIESEL GENERATOR WITH OFFSITE POWER AT PANEL 9-23 AS DIRECTED BY 0-OI-82.

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 0-OI-82, REV. 0072

VALIDATION TIME: CONTROL ROOM: _____ LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

INITIAL CONDITIONS: You are a Unit Operator. Unit 2 is operating at 100% power. Diesel Generator 'A' is running for special testing in accordance with Section 5.0. of 0-OI-82. The Operations Superintendent's permission has been received for performing the test.

INITIATING CUES: The UNIT SUPERVISOR directs you to parallel Diesel Generator 'A' with the system as directed by 0-OI-82. The diesel generator is to be loaded to 2600 \pm 50 Kw. (Procedure reference given to student).

START TIME_____

Performance Step: Critical___ Not Critical_ X__

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

Standard:

IDENTIFIED OR OBTAINED current revision of 0-OI-82.

SAT___UNSAT___N/A___ COMMENTS:_____

8.1 Parallel with System Operation at Panel 9-23

Performance Step: Critical___ Not Critical X

8.1.1 VERIFY the following initial conditions:

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

8.1.1.2 Diesel Generator A (B, C, D) is
operating in accordance with Section
5.0.

8.1.1.3 4-Kv Shutdown Board A (B, C, D) is being
supplied power from an offsite power
source.

Standard:

REVIEWED Precautions and Limitations. **VERIFIED** DG A operating
by alarm/red light illuminated on START switch. **VERIFIED**
normal supply breaker to 4kV Shutdown Board closed by red
light illuminated on breaker control switch.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical _____

8.1.2 PLACE the associated Diesel Generator breaker
synchronizing switch to ON:

Diesel	Instrument Name	Instrument No.	Panel
A	DG A BKR 1818 SYNC	0-25-211-A/22A	0-9-23-7
B	DG B BKR 1822 SYNC	0-25-211-B/4A	0-9-23-7
C	DG C BKR 1812 SYNC	0-25-211-C/4A	0-9-23-8
D	DG D BKR 1816 SYNC	0-25-211-D/20A	0-9-23-8

Standard:

PLACED 0-25-211-A/22A SYNC switch in the ON position.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical___ Not Critical_X__

8.1.3 **VERIFY** that 4-Kv Shutdown Board A (B, C, D)
voltage is 3950 to 4400 VOLTS and **NOT** undergoing
abnormal voltage transients.

Standard:

VERIFIED 4kV Shutdown Bd A voltage 3950-4400 volts and
stable.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X__

8.1.4 **VERIFY** SYSTEM SYNC FREQUENCY is between 59 to 61
Hertz and **NOT** undergoing abnormal frequency
transients.

Standard:

VERIFIED SYSTEM SYNC FREQUENCY 59-61 Hz and stable.

SAT___UNSAT___N/A___ COMMENTS:_____

CAUTION

Diesel generators shall **NOT** be paralleled with an unstable offsite
source or during inclement weather (e.g., lightning, heavy winds).

Performance Step: Critical___ Not Critical X

8.1.5 IF 4-Kv Shutdown Board A (B, C, D) is experiencing abnormal voltage/ frequency transients, **THEN**

PERFORM the following:

8.1.5.1 **PLACE** the associated Diesel Generator breaker synchronizing switch to OFF:

Diesel	Instrument Name	Instrument No.	Panel
A	DG A BKR 1818 SYNC	0-25-211-A/22A	0-9-23-7
B	DG B BKR 1822 SYNC	0-25-211-B/4A	0-9-23-7
C	DG C BKR 1812 SYNC	0-25-211-C/4A	0-9-23-8
D	DG D BKR 1816 SYNC	0-25-211-D/20A	0-9-23-8

8.1.5.2 TRANSFER the 4-Kv shutdown board to a stable offsite source in accordance with 0-OI-57A.

8.1.5.3 **WHEN** the 4-Kv shutdown board has been transferred to a stable offsite power source, **THEN**

PLACE the Diesel Generator synchronizing switch to ON.

Standard:

None - Satisfied by steps 3 and 4.

SAT___UNSAT___N/A___ COMMENTS:_____

NOTE:

Only one Unit 1 and 2 Diesel Generator at a time shall be operated in parallel with system.

Performance Step: Critical X Not Critical _____

8.1.6 PULL and **PLACE** the associated Diesel Generator mode selector switch in PARALLEL WITH SYSTEM:

Diesel	Handswitch Name	Handswitch No.	Panel
A	DG A MODE SELECT	0-HS-82-A/5A	0-9-23-7
B	DG B MODE SELECT	0-HS-82-B/5A	0-9-23-7
C	DG C MODE SELECT	0-HS-82-C/5A	0-9-23-8
D	DG D MODE SELECT	0-HS-82-D/5A	0-9-23-8

CAUTION

Failure of the PARALLEL WITH SYSTEM light to illuminate in the following step could indicate that the DG is still in SINGLE UNIT operation and result in overload when the DG output breaker is closed.

Standard:

PULLED UP on 0-HS-82-A/5A and **PLACED** in PARALLEL WITH SYSTEM.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical___ Not Critical_X__

8.1.7 **RELEASE** the Diesel Generator mode selector switch and **OBSERVE** PARALLEL WITH SYSTEM light illuminated.

Standard:

RELEASED the Operation Mode Selector switch and **VERIFIED** RED Parallel with System light illuminated.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step : Critical_X__ Not Critical_____

8.1.8 **ADJUST** diesel generator frequency using the associated Diesel Generator governor control switch to obtain a synchroscope needle rotation of one revolution every 15 to 20 seconds in the **FAST** direction.

Diesel	Instrument Name	Instrument No.	Panel
A	DG A GOVERNOR CONTROL	0-HS-82-A/3A	0-9-23-7
B	DG B GOVERNOR CONTROL	0-HS-82-B/3A	0-9-23-7
C	DG C GOVERNOR CONTROL	0-HS-82-C/3A	0-9-23-8
D	DG D GOVERNOR CONTROL	0-HS-82-D/3A	0-9-23-8

Standard:

ADJUSTED frequency using 0-HS-82-A/3A to obtain one revolution every 15-20 seconds in the clockwise direction.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step : Critical X Not Critical _____

8.1.9 USE the associated Diesel Generator voltage regulator control switch to match Diesel Generator and System voltages:

Diesel	Instrument Name	Instrument	Panel
A	<u>DG A VOLT REGULATOR CONT</u> <u>GEN SYNC REF VOLTAGE</u> <u>SYSTEM SYNC REF VOLTAGE</u>	<u>0-HS-82-A/2A</u> <u>0-EI-82-AB</u> <u>0-EI-211-AB</u>	0-9-23-7
B	<u>DG B VOLT REGULATOR CONT</u> <u>GEN SYNC REF VOLTAGE</u> <u>SYSTEM SYNC REF VOLTAGE</u>	<u>0-HS-82-B/2A</u> <u>0-EI-82-AB</u> <u>0-EI-211-AB</u>	0-9-23-7
C	<u>DG C VOLT REGULATOR CONT</u> <u>GEN SYNC REF VOLTAGE</u> <u>SYSTEM SYNC REF VOLTAGE</u>	<u>0-HS-82-C/2A</u> <u>0-EI-82-CD</u> <u>0-EI-211-CD</u>	0-9-23-8
D	<u>DG D VOLT REGULATOR CONT</u> <u>GEN SYNC REF VOLTAGE</u> <u>SYSTEM SYNC REF VOLTAGE</u>	<u>0-HS-82-D/2A</u> <u>0-EI-82-CD</u> <u>0-EI-211-CD</u>	0-9-23-8

Standard:

ADJUSTED 0-HS-82-A/2A to match 0-EI-82-AB and 0-EI-211-AB readings.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step : Critical X Not Critical _____

8.1.10 **WHEN** the synchroscope needle is approximately 2 minutes on the left hand side of the 12 o'clock position, **THEN**

PLACE the associated Diesel Generator breaker handswitch to CLOSE:

Diesel	Handswitch Name	Handswitch No.	Panel
A	DG A BKR 1818	0-HS-211-A/22A	0-9-23-7
B	DG B BKR 1822	0-HS-211-B/4A	0-9-23-7
C	DG C BKR 1812	0-HS-211-C/4A	0-9-23-8
D	DG D BKR 1816	0-HS-211-D/20A	0-9-23-8

Standard:

WHEN synchroscope needle approximately 2 minutes to left of 12 o'clock position, **PLACED** 0-HS-211-A/22A in the CLOSE position.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical___ Not Critical X

8.1.11 **PLACE** the associated Diesel Generator breaker synchronizing switch to OFF:

Diesel	Instrument Name	Instrument No.	Panel
A	DG A BKR 1818 SYNC	0-25-211-A/22A	0-9-23-7
B	DG B BKR 1822 SYNC	0-25-211-B/4A	0-9-23-7
C	DG C BKR 1812 SYNC	0-25-211-C/4A	0-9-23-8
D	DG D BKR 1816 SYNC	0-25-211-D/20A	0-9-23-8

Standard:

PLACED 0-25-211-A/22A in the OFF position.

SAT___ UNSAT___ N/A___ COMMENTS:_____

NOTE:

Lagging VARS should be maintained when adjusting kW load (rising or lowering). This may require kW load adjustment to be stopped periodically to allow for adjusting kVAR load. Once desired kW load is achieved, Illustration 1 should be referred to for determination of kVAR loading required to obtain a power factor (pf) of 0.8 lagging. Diesel generator kVAR load should then be adjusted to obtain a 0.8 pf lagging. If system conditions will not permit the kVAR loading required to obtain a 0.8 pf lagging, kVAR load should be adjusted to the maximum kVAR lagging the system will allow.

Performance Step: Critical X Not Critical _____

8.1.12 USE the associated Diesel Generator's governor control switch and voltage regulator control switch to obtain desired kW and kVAR load:

Diesel	Instrument Name	Instrument No.	Panel
A	DG A GOVERNOR CONTROL DG A VOLT REGULATOR CONT	0-HS-82-A/3A 0-HS-82-A/2A	0-9-23-7
B	DG B GOVERNOR CONTROL DG B VOLT REGULATOR CONT	0-HS-82-B/3A 0-HS-82-B/2A	0-9-23-7
C	DG C GOVERNOR CONTROL DG C VOLT REGULATOR CONT	0-HS-82-C/3A 0-HS-82-C/2A	0-9-23-8
D	DG D GOVERNOR CONTROL DG C VOLT REGULATOR CONT	0-HS-82-D/3A 0-HS-82-D/2A	0-9-23-8

Standard:

ADJUSTED 0-HS-82-A/3A to obtain 2600 \pm 50 Kw.

DETERMINED KVAR loading to be 1950 \pm 50 from ILLUSTRATION 1.

ADJUSTED 0-HS-82-A/2A to obtain 1950 \pm 50 KVAR.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical___ Not Critical X

8.1.13 RECORD time/date loaded on Illustration 2.

CUE: ANOTHER OPERATOR WILL RECORD DATA ON ILLUSTRATION 2.

Standard:

N/A due to another operator will record data on Illustration 2.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical___

8.1.14 MONITOR the offsite source that is paralleled with the diesel generator.

CUE: INSTRUCTOR NOTE: HAVE CONSOLE OPERATOR TO INSERT IMF DG04A --DIESEL GENERATOR GOVERNOR FAILURE.

Standard:

Operator **RECOGNIZES** Diesel Generator A picking up kilowatt load and **NOTIFIES** UNIT SUPERVISOR that the Normal Breaker to 4KV SHUTDOWN Bd. "A" tripped and separated the D/G from offsite power. (**OPERATOR MAY TRIP D/G PRIOR TO RECEIVING OVERLOAD**) OPERATOR **RECOGNIZES** DIESEL GEN A OVERLOAD ALARM AND REFERS TO ARP 0-XA-55-23A WINDOW 11. (NOTE: ALTERNATE FEEDER BREAKER WILL ALSO TRIP IF IT TRIES TO CLOSE--NOT CRITICAL)

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: WHEN ARP IS REFERRED TO OR 0-OI-82:

UNIT SUPERVISOR/SHIFT MANAGER DIRECTS YOU TO SECURE DIESEL GENERATOR AND RESTORE NORMAL OFFSITE POWER TO 4KV S/D BOARD "A".

CUE: WHEN D/G IS SHUTDOWN AND NORMAL POWER RESTORED TO "A" 4KV SHUTDOWN BOARD:

THAT WILL ALL FOR NOW. THE UNIT SUPERVISOR WILL OBTAIN MAINTENANCE ON "A" D/G.

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT___ UNSAT___ N/A ___ COMMENTS:___

Performance Step: Critical_____Not Critical_X_____

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

Standard:

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

SAT_____UNSAT_____N/A_____COMMENTS_____

—

END OF TASK

STOP TIME_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 196F
TITLE: LOSS OF SHUTDOWN COOLING
TASK NUMBER: U-074-NO-11

SUBMITTED BY: _____ DATE: _____
VALIDATED BY: _____ DATE: _____
APPROVED: _____ DATE: _____
PLANT CONCURRENCE: _____ DATE: _____
 TRAINING
 OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	05/21/00	ALL	NEW JPM

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 196F

TASK NUMBER: U-074-NO-11

TASK TITLE: LOSS OF SHUTDOWN COOLING

K/A NUMBER: 205000A4.01 K/A RATING: RO 3.7 SRO: 3.7

*

TASK STANDARD: INITIATION OF SHUTDOWN COOLING USING UNIT 2
LOOP 2 RHR

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-OI-74, REV. 95; 2-AOI-74-1, REV. 21

VALIDATION TIME: _____ CONTROL ROOM: _____ LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM X LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

EXAMINER SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

PERFORMER shall demonstrate the use of TOUCH STAAR during this JPM.

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

INITIAL CONDITIONS: Unit 2 is in cold shutdown. RHR Loop I Pump 2C is in shutdown cooling with moderator temperature approximately 172 degrees Fahrenheit. RWCU is removed from service for placing Shutdown Cooling in service and both Recirc Pumps are off with discharge valves closed. MSIV's are open. Reactor level is approximately 80 inches. Primary containment integrity is established.

INITIATING CUES: 2C RHR pump has tripped. 2-AOI-74-1 has been completed to step 4.2.14. the Reactor Operator has completed through section 8.8.21.5 of 2-OI-74 and is ready to start the 2A RHR pump per 8.8.21.6. The US directs you to start 2A RHR pump IAW step 8.8.21.6.

Performance Step: Critical X Not Critical

4.2.14 RETURN the affected loop of RHR to Shutdown Cooling.
REFER TO 2-OI-74.

Standard:

OPERATOR **ATTEMPTS TO START** RHR PUMP 2A [CRITICAL] and informs SRO THAT 2A RHR PUMP will not start [NOT CRITICAL].

SAT___UNSAT___N/A___ COMMENTS:_____

CUE: SRO ACKNOWLEDGES, "2A RHR PUMP FAILED TO START--CONTINUE WITH THE AOI AND I WILL CALL ELECTRICIANS AND OUTSIDE US TO DETERMINE WHY 2A PUMP TRIPPED.

Performance Step: Critical X Not Critical

4.2.14.1 IF the affected loop of RHR cannot be placed back in Shutdown Cooling, THEN

PLACE the alternate loop of RHR in Shutdown Cooling. REFER TO 2-OI-74.

Standard:

Operator **PROCEEDS** to 2-OI-74 SECTION 8.8.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step:

Critical_Not Critical X

8.8.1 **VERIFY** the following initial conditions are satisfied:

- RWCU system removed from service.
REFER TO 2-OI-69.

CUE: ANOTHER OPERATOR WILL REMOVE RWCU FROM SERVICE PER OI-69

- **NOTIFY** other units of placing Loop I(II) of RHR in shutdown cooling, the subsequent start of common equipment (i.e. RHRSW pumps) and associated alarms are to be expected.

Standard:

OPERATOR notifies other units of common equipment manipulation.

SAT___UNSAT___N/A___ **COMMENTS:**_____

8.8.2 **VERIFY** ONE of the following conditions are met:

- RHR Loop I(II) has been flushed and aligned per Section 8.7, OR
- Plant conditions preclude flushing.

CUE: US INFORMS RO RHR LOOP II HAS BEEN FLUSHED AND ALIGNED PER SECTION 8.7.

8.8.2.1 If plant conditions preclude flushing,
Ensure Shutdown cooling header is filled

by performing the following:

- 8.8.2.1.1 UNLOCK and **OPEN** CNDS FLUSH
AND FILL TO SDC SPLY ,
2-SHV-074-0670.
- 8.8.2.1.2 DIRECT Mechanical
Maintenance to connect a
hose(20 ft with a 1.25"
threaded female coupling)
from the discharge of SD
CLG SPLY HDR TEST,
2-74-0666, and route it to
the floor drain (located in
drywell access after
2-FCV-074-047).
- 8.8.2.1.3 **OPEN** SD CLG SPLY HDR TEST
2-TV-074-665
- 8.8.2.1.4 **OPEN** SD CLG SPLY HDR TEST
2-TV-074-0666
- 8.8.2.1.5 **WHEN** a steady stream of
water flows from the hose
THEN

CLOSE SD CLG SPLY HDR TEST
2-TV-074-0665 and
2-TV-074-0666.
- 8.8.2.1.6 ALLOW CNDS FLUSH AND FILL
TO SDC SPLY, 2-SHV-074-0670
to remain open for
approximately 5 Min to
finish filling the header
THEN

LOCK CLOSED FLUSH AND FILL
TO SDC SPLY 2-SHV-074-0670.

8.8.2.1.7 **REQUEST** Mechanical
Maintenance to remove the
hose which was placed on
the SD CLG SPLY HDR TEST
2-TV-074-0666.

Performance Step: Critical_Not Critical_X

8.8.3 **VERIFY** MODE SELECTOR SWITCH, 2-HS-74-157, on
480V RMOV Bd 2A, Compartment 5B, in SHUTDOWN to
allow closing 2-FCV-74-1 and 12 (RHR Loop I),
and opening 2-FCV-74-48 (RHR Loop I & II).

Standard:

Operator **DISPATCHES** personnel to verify MODE SELECTOR
SWITCH, 2-HS-74-157 is in shutdown.

SAT___UNSAT___N/A___ COMMENTS:_____

Cue: [AUO when dispatched] 2-HS-74-157 is in the SHUTDOWN
position.

Performance Step: Critical ☒ Not Critical__

8.8.4 **IF** RHR Loop II is to be used, **THEN**

PLACE MODE SELECTOR SWITCH, 2-HS-74-158, on 480V RMOV
Bd 2B, Compartment 11C, in SHUTDOWN to allow closing
2-FCV-74-24 and 2-FCV-74-35 (RHR Loop II).

Standard:

Operator **DISPATCHES** personnel to place MODE SELECTOR SWITCH,
2-HS-74-158 in SHUTDOWN.

SAT__UNSAT__N/A__ COMMENTS:_____

=

INSTRUCTOR'S NOTE: CONSOLE OPERATOR, WHEN DIRECTED:
Insert MRF rh18 SHUTDOWN and report 2-HS-74-158 is in the
SHUTDOWN position.

Performance Step: Critical__Not Critical ☒

8.8.5 **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:

Momentarily **PLACES** 2-HS-74-1 and 2-HS-74-12 in the CLOSE
position and **VERIFIES** illuminated only GREEN valve
position indicating lamps above associated handswitches.

SAT__UNSAT__N/A__

COMMENTS:_____

=

CAUTION

[NER/C] Failure to place RHR SYSTEM I (II) MIN FLOW INHIBIT switch, 2-HS-74-148 (149) in the INHIBIT position may result in inadvertent draining of the reactor vessel when the RHR SHUTDOWN COOLING OUTBD and INBD ISOL VLVs, 2-FCV-74-47 and 2-FCV-74-48 are open. [INPO SOER 87-02]

Performance Step: Critical___Not Critical X___

- 8.8.6 [II/C] **VERIFY** a CAUTION ORDER is in place on the SYSTEM I(II) MIN FLOW VALVE, 2-FCV-74-7(30), stating "Operation of this valve can cause inadvertent drainage of the Reactor vessel to the Suppression Pool. DO NOT operate without Shift Manager permission". (Tags should be placed on all points of control.) [BFPER941099]

Standard:

REQUESTS Caution Order tag to be placed on 2-HS-74-30, Panel 9-3.

SAT___UNSAT___N/A___

COMMENTS: _____

CUE: When requested, place Caution Order tag on 2-HS-74-30 on Panel 9-3.

Performance Step: Critical X Not Critical _____

8.8.7 **VERIFY** RHR SYSTEM I(II) MIN FLOW INHIBIT Switch
2- HS-74-148(149) in INHIBIT and **VERIFY** CLOSED
SYSTEM I(II) MIN FLOW VALVE 2-FCV-74-7(30).

Standard:

PLACED 2-HS-74-149 in INHIBIT [CRITICAL] AND **VERIFIED** 2-FCV-74-30
closed as indicated by only GREEN valve position indicating lamp
above associated control switch [NOT CRITICAL].

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical X Not Critical _____

8.8.8 **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:

PLACED 2-HS-74-25 and 2-HS-74-25 in the OPEN position and verified
open as indicated by only RED valve position indicating lamps
above associated control switches.

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical___Not Critical_ X

8.8.9 **VERIFY** Recirculation Pump B(A) is stopped.

Standard:

VERIFIED Recirculation Pump A stopped as indicated by GREEN motor breaker position indicating switch above associated control switch on Panel 9-4.

SAT___UNSAT___N/A___ COMMENTS: _____

NOTE

Recirc pump suction and discharge valves may be closed if required for testing or maintenance. To prevent overpressurizing Recirc pump casing, ensure CRD seal purge is isolated to the Recirc pump if the suction and discharge valves are both closed.

8.8.9.1 If the period of any Cold Shutdown, (Mode 4) is expected to exceed 48 hours AND 2-SR-3.5.1.5, REACTOR RECIRCULATION PUMP DISCHARGE VALVES CYCLING, has NOT been performed during the preceding 31 days, **THEN**

PERFORM 2-SR-3.5.1.5 prior to going to Mode 2.

CUE: 2-SR-3.5.1.5 WAS PERFORMED LAST WEEK.

Performance Step: Critical___Not Critical_ X

8.8.10 **VERIFY** CLOSED one of the following valves:

- RECIRC PUMP 2B(2A) DISCHARGE VALVE,
2-FCV-68-79(3).
- RECIRC PUMP 2B(2A) SUCTION VALVE,
2-FCV-68-77(1).

Standard:

VERIFIED either 2-FCV-68-3 or 2-FCV-1 CLOSED as indicated by only GREEN valve position indicating lamp above associated control switch.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___Not Critical_ X

8.8.11 **VERIFY** Reactor pressure is less than 35 psig or
if entering this procedure from RC/P of
2-EOI-1, pressure is less than 105 psig.

Standard:

VERIFIED through available instrumentation that reactor pressure is less than 35 psig.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical__Not Critical_ X

8.8.12 DIRECT Instrument Mechanics to ENABLE RHR SD CLG FLOW LOW annunciator, 2-XA-55-3D, Window 11 and **VERIFY** setpoint of 3700 gpm by programming recorder 2-FR-74-64, RHR SYS I/II FLOW for RHR Loop to be placed in Shutdown Cooling.

Standard:

CONTACTED Instrument Mechanics to **ENABLE** annunciator and **VERIFY** recorder setpoint.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step: Critical__Not Critical_ X

8.8.13 **NOTIFY** Chemistry that RHRSW is to be placed in service and Shutdown Cooling is to be started.

Standard:

NOTIFIED Chemistry that RHRSW is to be placed in service on 2B and/or 2D RHR heat exchanger(s) for shutdown cooling.

SAT__UNSAT__N/A__ COMMENTS:_____

NOTE:

For closed loop vents, vent for 1 minute.

8.8.14 **OPEN** the following RHR Loop I(II) vent valves until a solid stream of water is observed, **THEN** CLOSE:

- Head (Containment) Spray Line through RHR SYS I HEAD SPRAY HI POINT (RHR SYS DW SPRAY) TELL-TALE VENT SOV, 2-SHV-074-0746(0747), **AND**
- HIGH POINT TELL TALE VENT HEAD SPRAY LINE (CONTAINMENT SPRAY), 2-FSV-74-138(139). [Rx Bldg, El 621' Fuel Pool Cooling Area (Rx Bldg, E, El 593')]

CUE: (WHEN VENTING ADDRESSED) SYSTEM HAS ALREADY BEEN VENTED.

NOTES:

- (1) If reactor pressure exceeds 100 psig OR a Group II isolation occurs while in Shutdown Cooling, RHR SHUTDOWN COOLING SUCT OUTBD and INBD ISOL VLVs, 2-FCV-74-47 and 2-FCV-74-48, will close, thus tripping Unit 2 operating RHR pumps.
- (2) If necessary, 2-BYP-074-0704(0828) may be used to provide reactor vessel makeup.

Performance Step: Critical___Not Critical___X___

8.8.15 **CLOSE** CNDS FILL TO HEAD SPRAY BYPASS,
2-BYP-074-0704 (CNDS FLUSH & FILL TO DW SPRAY
BYPASS, 2-BYP-074-0828), locally.
[Rx Bldg, El 621', Fuel Pool Cooling Area, (Rx
Bldg. El 593')]

Standard:

DISPATCHED personnel to CLOSE 2-BYP-074-0828.

SAT___UNSAT___N/A___ COMMENTS:_____

CUE: (When dispatched) 2-BYP-074-0828 has been CLOSED.

CAUTION

[INPO] Failure to have the following valves closed may result in inadvertent draining of the reactor vessel when the RHR SHUTDOWN COOLING OUTBD and INBD ISOL VLVs, 2-FCV-74-47 and 2-FCV-74-48, are open:

- RHR PUMP 2A(2B) and 2C(2D) SUPPR POOL SUCT VLVs, 2-FCV-74-1(24) and 2-FCV-74-12(35).
- RHR SYS I(II) SUPPR CHBR/POOL ISOL VLV, 2-FCV-74-57(71).
[INPO SOER 87-002]

Performance Step: Critical___Not Critical___X___

8.8.16 **PLACE** Breaker 2-BKR-074-0047 for 2-FCV-74-47 to ON at the 250 VDC RMOV Bd 2A compartment R1A.

Standard:

VERIFIED 2-BKR-074-0047 in the ON position as indicated by illuminated only RED valve position indicating lamp above 2-HS-74-47.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical__Not Critical__X

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

Standard:

VERIFIED 2-FCV-74-47 and 2-FCV-74-48 in the OPEN position as
indicated by illuminated only RED valve position indicating
lamps above associated control switches.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step: Critical__Not Critical__X

8.8.18 **CLOSE** RHR SYS I(II) LPCI OUTBD INJECT VALVE,
2-FCV-74-52(66).

Standard:

PLACED 2-HS-74-66 in the CLOSE position and **VERIFIED** closed as
indicated by illuminated only green valve position indicating lamp
above associated control switch.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step: Critical X Not Critical

8.8.19 **OPEN** RHR SYS I(II) LPCI INBD INJECT VALVE,
2-FCV-74-53(67).

Standard:

PLACED 2-HS-74-67 in the OPEN position and **VERIFIED** open as indicated by illuminated only red valve position indicating lamp above associated control switch.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step: Critical Not Critical X

8.8.20 **VERIFY** at least one RHRSW Pump is operating on each EECW Header.

Standard:

VERIFIED C3 RHRSW and D3 RHRSW pumps running as indicated by illuminated red motor breaker position indicating lamps above associated control switches.

SAT	UNSAT	N/A	COMMENTS:

CAUTION

- 1) To avoid exceeding the qualification temperature limits (150°F) on RHRSW piping and components downstream of the common point, dilute the flow through the RHRSW piping by establishing additional flow through the selected Loop's companion RHR Heat Exchanger not being used for Shutdown Cooling.
- 2) [II/C] During Shutdown Cooling modes of operation, if RHRSW outlet temperature exceeds 150°F, the following limitations apply
 - For temperatures between 150°F and 178°F, flow through the inservice RHR Heat Exchanger shall be less than or equal to 3000 gpm.
 - For temperatures above 178°F, flow through the inservice RHR Heat Exchanger shall be less than or equal to 1500 gpm.
 - Flow through the companion RHR Heat Exchanger shall be greater than or equal to 1500 gpm.
(2-47E858-1) [BFPER961410]

NOTE:

- Step 8.8.21 will initiate Shutdown Cooling through RHR Loop I.
- Step 8.8.22 will initiate Shutdown Cooling through RHR Loop II.

8.8.21 **PLACE** RHR Loop I Pump and Heat Exchanger A(C) in service as follows:

8.8.21.1 **START** an RHRSW Pump to establish flow through the Loop I COMPANION RHR Heat

Exchanger not being used for Shutdown Cooling, RHR Heat Exchanger C(A).

8.8.21.2 **WHEN** time permits after RHRSW pump is started, **THEN**

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

8.8.21.3 **THROTTLE** RHR HX 2C(2A) RHRSW OUTLET VLV, 2-FCV-23-40(34), to obtain a flow of 3000 to 4000 gpm.

8.8.21.4 **START** the RHRSW Pump to supply the Loop I RHR Heat Exchanger which will be utilized for Shutdown Cooling, RHRSW Pump A(C).

8.8.21.5 **WHEN** time permits after RHRSW pump is started, **THEN**

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

CAUTIONS

- (1) To prevent excessive vibration, RHR pumps should NOT be allowed to operate for more than 3 minutes at no flow.
- (2) [NER/C] During refueling operation (Mode 5), whenever any fuel bundle is removed from around Nuclear Instrumentation, Shutdown Cooling flow should be administratively limited to less than 6500 gpm to prevent nuclear instrumentation vibration. [GE SIL-406]
- (3) Care should be exercised when changing the operating mode or any system parameter while SFSP or reactor cavity operations are in progress. This will preclude the possible introduction of sediment/dirt into the SFSP or

reactor cavity, thereby reducing water clarity. Contact the refuel floor SRO, if applicable, for permission to alter RHR/SDC system alignment and/or parameters.

8.8.21.6 **START** RHR PUMP 2A(2C) using
2-HS-74-5A(16A) **THEN**

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

RHR Pumps in Operation	1	2
Loop Flow	7,000 to 10,000	14,000 to 20,000
Loop Flow (Rx Head Off, Cavity Flooded)	6,000 to 6,500	N/A

8.8.21.7 **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.

CAUTIONS

- (1) When little decay heat is present, RHR Heat Exchanger RHRSW Outlet Valves should be throttled very slowly to prevent excessive cooldown rates.
- (2) Do NOT exceed 4500 gpm RHRSW flow through any RHR Heat Exchanger or cooldown rate of 90°F/hr.

- (3) During RHRSW low flows, such as shutdown cooling split flows, the initial flow rate from any RHRSW heat exchanger must exceed 600 gpm. This flow rate will ensure operation of the off-line radiation monitor. Upon reaching this flow rate, the flow may be lowered or split as desired to establish a cooldown rate or maintain consistent shutdown temperatures. Off-line monitors receive their start signal from a TDPU relay which is energized by the RHRSW heat exchanger's discharge flow rate.
- (4) It may be necessary to establish RHRSW flow through another unit's heat exchanger or through EECW to prevent operating the RHRSW pump at less than 1350 gpm.
REFER TO 0-OI-23.

8.8.21.8 **IF** reactor cooldown is desired, **THEN**
VERIFY 2-SR-3.4.9.5-7 is in progress.

8.8.21.9 SLOWLY **THROTTLE** RHR HX 2A(2C) RHRSW
OUTLET VLV, 2-FCV-23-34(40), to
obtain desired cooldown rate
($\leq 90^{\circ}\text{F/hr}$).

8.8.21.10 **IF** RWCU was removed from service in
Step 8.8.1, **THEN**

PLACE RWCU in service.
REFER TO 2-OI-69, Section 5.0.

8.8.21.11 MONITOR RHR HX A/C COM DISCH
temperature on 2-TR-74-80,
Panel 2-9-21 AND ENSURE temperature
is less than 140°F .

8.8.21.12 **IF** RHR HX A/C COM DISCH temperature
exceeds 140°F , **THEN**

THROTTLE one or both of the following
to MAINTAIN RHRSW Common Discharge

Header Temperature less than 140°F
while maintaining the desired
cooldown rate:

- RHR HX 2A(2C) RHRSW OUTLET VLV,
2-FCV-23-34(40), on the RHR Heat
Exchanger being utilized for Shutdown
Cooling.
- RHR HX 2C(2A) RHRSW OUTLET VLV,
2-FCV-23-40(34), on the COMPANION RHR
Heat Exchanger being utilized for
dilution flow.

- 8.8.21.13 [NER/C] **PLACE** "ALIGNED FOR SHUTDOWN
COOLING" information cards on
handswitches as appropriate.
REFER TO Illustration 9.
- 8.8.21.14 **VERIFY** "WARNING!! SHUTDOWN COOLING
ISOLATION HAZARD" signs in place and
Instrument Racks roped off.
REFER TO Illustration 13.
- 8.8.21.15 **PLACE** Caution Order on Recirc Suction
and Discharge valves of both Loops
stating "When Recirc Loop is not in
service, EITHER the Suction OR the
Discharge valve SHALL remain closed."
[OE 7481, SER 95-025]
- 8.8.21.16 **IF** RHR HX A/C COM DISCH temperature
on 2-TR-74-80, Panel 2-9-21, can be
MAINTAINED less than or equal to
140°F without dilution flow, **THEN**

RHRSW through the COMPANION RHR Heat
Exchanger NOT being used for Shutdown
Cooling can be terminated.

NOTE:

Once Reactor water is cooled to <140°F, dilution flow should
not be required.

8.8.21.17 **IF** the second Loop I RHR Pump is
desired for additional cooling, **THEN**

RAISE the cooldown rate by placing
the second Loop I RHR Pump in
service. **REFER TO** Step 8.8.11.4
through step 8.8.11.6.

8.8.21.18 **IF** additional pumps are NOT needed
for Shutdown Cooling requirements,
THEN

PROCEED to Step 8.8.23 for Shutdown
Cooling operation.

CAUTION

- 1) To avoid exceeding the qualification temperature limits
(150°F) on RHRSW piping and components downstream of the
common point, dilute the flow through the RHRSW piping by
establishing additional flow through the selected Loop's
companion RHR Heat Exchanger not being used for Shutdown
Cooling.
- 2) [II/C] During Shutdown Cooling modes of operation, if
RHRSW outlet temperature exceeds 150°F, the following
limitations apply
 - For temperatures between 150°F and 178°F, flow through
the inservice RHR Heat Exchanger shall be less than or
equal to 3000 gpm.
 - For temperatures above 178°F, flow through the
inservice RHR Heat Exchanger shall be less than or
equal to 1500 gpm.
 - Flow through the companion RHR Heat Exchanger shall be
greater than or equal to 1500 gpm.
(2-47E858-1) [BFPER961410]

CUE: UNIT SUPERVISOR DIRECTS USING 2B RHR HEAT EXCHANGER FOR SHUTDOWN COOLING.

Performance Step: Critical X Not Critical

8.8.22 **PLACE** RHR Loop II Pump and Heat Exchanger B(D)
in service as follows:

8.8.22.1 **START** an RHRSW Pump to establish flow
through the Loop II COMPANION RHR
Heat Exchanger not being used for
Shutdown Cooling, RHR Heat Exchanger
D(B).

Standard:

ESTABLISHED flow through 2D RHR Heat Exchanger using D1 or
D2 RHRSW Pump.

SAT UNSAT N/A COMMENTS:

Performance Step: Critical__ Not Critical X

8.8.22.2 **WHEN** time permits after RHRSW pump is started, **THEN**

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

Standard:

DISPATCHED (OR STATED WOULD DISPATCH LATER) personnel to verify D1 or D2 RHRSW Pump breaker closing spring recharged.

SAT__ UNSAT__ N/A__ COMMENTS: _____

CUE: [IF DISPATCHED] AUO REPORTS D1 (OR D2) RHRSW PUMP BREAKER CLOSING SPRING RECHARGED AS INDICATED BY ILLUMINATED AMBER CHARGED LAMP AND CLOSING SPRING TARGET INDICATES CHARGED.

Performance Step: Critical__ Not Critical X

8.8.22.3 **THROTTLE** RHR HX 2D(2B) RHRSW OUTLET VLV, 2-FCV-23-52(46), to obtain a flow of 3000 to 4000 gpm.

Standard:

THROTTLED OPEN 2-FCV-23-52 to obtain 3000 to 4000 gpm as indicated on 2-FI-23-54, Panel 9-3.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical X Not Critical

8.8.22.4 **START** the RHRSW Pump to supply the Loop II RHR Heat Exchanger which will be utilized for Shutdown Cooling, RHRSW Pump B(D).

Standard:

ESTABLISHED flow through 2B RHR Heat Exchanger using B1 or B2 RHRSW Pump.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step: Critical___Not Critical_X

8.8.22.5 **WHEN** time permits after RHRSW pump is started, **THEN**

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

Standard:

DISPATCHED (OR STATED WOULD DISPATCH LATER) personnel to verify B1 or B2 RHRSW Pump breaker closing spring recharged.

SAT	UNSAT	N/A	COMMENTS:

CUE: [IF DISPATCHED] AVO REPORTS B1 (OR B2) RHRSW PUMP
BREAKER CLOSING SPRING RECHARGED AS INDICATED BY
ILLUMINATED AMBER CHARGED LAMP AND CLOSING SPRING TARGET
INDICATES CHARGED.

CAUTIONS

- (1) To prevent excessive vibration, RHR pumps should NOT be allowed to operate for more than 3 minutes at no flow.
- (2) [NER/C] During refueling operation (Mode 5), whenever any fuel bundle is removed from around Nuclear Instrumentation, Shutdown Cooling flow should be administratively limited to less than 6500 gpm to prevent nuclear instrumentation vibration. [GE SIL-406]
- (3) Care should be exercised when changing the operating mode or any system parameter while SFSP or reactor cavity operations are in progress. This will preclude the possible introduction of sediment/dirt into the SFSP or reactor cavity, thereby reducing water clarity. Contact the refuel floor SRO, if applicable, for permission to alter RHR/SDC system alignment and/or parameters.

Performance Step: Critical X Not Critical

8.8.22.6 **START** RHR PUMP 2B(2D) using
2-HS-74-28A(39A), **THEN**

THROTTLE RHR SYS II LPCI OUTBD INJECT
VALVE, 2-FCV-74-66, to establish and
maintain RHR flow as indicated by
2-FI-74-64, RHR SYS II FLOW, as
follows:

RHR Pumps in Operation	1	2
Loop Flow	7,000 to 10,000	14,000 to 20,000
Loop Flow (Rx Head Off, Cavity Flooded)	6,000 to 6,500	N/A

Standard:

STARTED 2B RHR Pump using 2-HS-74-28A and **THROTTLED** 2-FCV-
74-66 to establish 7,000 to 10,000 gpm as indicated on 2-FI-
74-64, Panel 9-3.

SAT UNSAT N/A COMMENTS:

Performance Step: Critical__Not Critical__X

8.8.22.5 **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 (OR STATED WOULD DISPATCH LATER) personnel to
verify 2B RHR Pump breaker closing spring recharged.

SAT__UNSAT__N/A__ COMMENTS: _____

**CUE: [IF DISPATCHED] AUO REPORTS 2B RHR PUMP BREAKER
CLOSING SPRING RECHARGED AS INDICATED BY ILLUMINATED
AMBER CHARGED LAMP AND CLOSING SPRING TARGET INDICATES
CHARGED.**

SAT___ UNSAT___ N/A___ COMMENTS: _____

CUE: ANOTHER OPERATOR IS PERFORMING 2-SR-3.4.9.5-7.

Performance Step: Critical X Not Critical

8.8.22.9 SLOWLY **THROTTLE** RHR HX 2B(2D) RHRSW OUTLET
VALVE, 2-FCV-23-46(52), to obtain desired
cooldown rate.

Standard:

THROTTLED 2-FCV-23-34 as required to obtain a cooldown rate of \leq
90°F/hr.

SAT UNSAT N/A COMMENTS:

**CUE: (AT EXAMINER'S DISCRETION) ANOTHER OPERATOR
WILL TAKE OVER COMPLETION OF THE PROCEDURE.**

Performance Step: Critical___ Not Critical_X__

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X__

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

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

END OF TASK

STOP TIME_____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 106

TITLE: MANUALLY START A D/G LOCALLY

TASK NUMBER: A-082-NO-03

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____

TRAINING

PLANT CONCURRENCE: _____ DATE: _____

OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0			NEW JPM
1		ALL	GENERAL REVISION
2	10/3/94	ALL	GENERAL REVISION
3	11/29/94	3	CHANGED PROCEDURE REV
4	10/31/95	4	GENERAL REVISION
5	8/2/96	ALL	PROCEDURE REV, ADDED CRITICAL STEPS ON TOUCH STAAR AND SAFETY, UNIT, AND DELETED UNDERSTAND
6	10/24/96	4, 18, 19	CHANGED CRIT. STEPS ON TOUCH STAAR AND SAFETY TO NON-CRIT.
7	11/18/96	ALL	PROCEDURE UPGRADE
8	8/4/97	ALL	FORMAT DOCUMENT, NEW REVISION, ADD NON-CRITICAL 3-WAY COMM.
9	10/1/97	3, 9, 12, 14	PROCEDURE UPDATE
10	10/27/98	3	PROCEDURE REVISION
11	10/26/99	ALL	PROCEDURE REVISION & NEW FORMAT, MGT. EXPECT TO PLANT WORK EXPECT.
12	05/19/00	ALL	PROCEDURE REVISION, UNID CHANGE.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 106

TASK NUMBER: A-082-NO-03

TASK TITLE: MANUALLY START A DIESEL GENERATOR LOCALLY

K/A NUMBER: 264000G9 K/A RATING: RO 3.8 SRO: 3.9

TASK STANDARD: SIMULATE PERFORMING ACTIONS REQUIRED TO START 'A'
D/G LOCALLY

LOCATION OF PERFORMANCE: SIMULATOR ____ PLANT X CONTROL ROOM ____

REFERENCES/PROCEDURES NEEDED: 0-OI-82, REV 72

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

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

PERFORMANCE TIME: _____ CONTROL ROOM ____ LOCAL ____

COMMENTS: _____

Additional comment sheets attached? YES ____ NO ____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

IN-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say "my task is complete" and I will acknowledge that your task is complete.

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

1. **PERFORMER** shall abide by all **SAFETY RULES** (hardhats, safety glasses, sashes, and hearing protection shall be worn **AS REQUIRED**). **Electrical Safety** shall also be in compliance: 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. **CAUTION IS WARRANTED** when utilizing a laser pointer to perform **TOUCH STAAR** around electrical components during plant JPM's.

2. **PERFORMER** shall demonstrate the use of **TOUCH STAAR** during this JPM.

3. **PERFORMER** shall demonstrate the use of **3-WAY COMMUNICATION**.

INITIAL CONDITIONS: You are an extra operator. D/G 'A' Special Test 2-82-1A is in progress. D/G 'A' is in standby readiness in accordance with Section 4.0 of 0-OI-82 and has been rolled in the last 24 hours.

INITIATING CUES: ❖ NAME❖ slow start D/G 'A' locally at the diesel engine control cabinet as directed by 0-OI-82.

5.5 Manual Slow Start at Diesel Engine Control Cabinet

Performance Step : Critical___ Not Critical X

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

Standard:

IDENTIFIED OR OBTAINED copy of 0-OI-82.

SAT___ UNSAT___ N/A___ COMMENTS:_____

NOTE:

The diesel generator will be made inoperable as a result of taking 0-BKR-254-000A(B,C,D)/06, DSL GEN A(B,C,D) logic relay panel, (logic breaker) in "OFF" for the purpose of a manual slow start. The diesel generator shall be considered operable when 0-BKR--254-000A (B,C,D)/06, DSL GEN A(B,C,D) LOGIC RELAY PANEL, (logic breaker) is returned in "ON". **REFER TO** Tech Spec 3.8.1 and 3.8.2, Operation with Inoperable Equipment.

Performance Step: Critical___ Not Critical X

5.5.1 **VERIFY** the following initial conditions:

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

Standard:

REVIEWED section 3.0 of 0-OI-82.

SAT___ UNSAT___ N/A___ COMMENTS:_____

START TIME_____

Performance Step: Critical___ Not Critical_X

5.5.1.2 Diesel Generator A(B,C,D) is in Standby
Readiness. **REFER TO** Section 4.0.

Standard:

None

SAT___UNSAT___N/A_X COMMENTS: Given in the Initial Conditions.

NOTE: All manipulations of the Diesel Generator Logic Breaker
shall be logged in the Narrative Log.

Performance Step: Critical_X Not Critical___

5.5.1.3 **IF** the Diesel Generator A(B,C,D) does **NOT**
need to be rolled OR has been rolled in the
last 24 hours, **THEN**

OPEN 0-BKR-254-000A(B,C,D)/06, DSL GEN A(B,
C,D) LOGIC RELAY PANEL (LOGIC BREAKER) and
DELETE Step 5.5.3.

Standard:

SIMULATED PLACING 0-BKR-254-000A/06 in the OFF position.

SAT___UNSAT___N/A___ COMMENTS:_____

**CUE: [WHEN SIMULATED] THE LOGIC BREAKER IS IN THE OFF
POSITION.**

Performance Step: Critical___ Not Critical_X_

5.5.2 OBTAIN an Illustration 2, for each diesel generator to be operated.

CUE: ANOTHER OPERATOR WILL PERFORM ILLUSTRATION 2.

Standard:

NONE.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X_

5.5.3 PERFORM Diesel Generator rolling per Section 5.6.

Standard:

None

SAT___UNSAT___N/A_X_ COMMENTS: Given in the Initial Conditions.

NOTE:

EECW pumps assigned to automatic service on the EECW headers will receive an automatic start signal when a diesel generator is started.

Performance Step: Critical___ Not Critical X

5.5.4 **VERIFY** the presence of EECW cooling water flow to the diesel.

Standard:

VERIFIED EECW cooling water flow to 'A' diesel generator by valve position and/or sound of flow through pipe.

SAT___UNSAT___N/A___ COMMENTS:_____

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

5.5.6 **DEPRESS** FUEL PRIMING PUMP pushbutton, 0-HS-18-49A (B,C,D), until fuel pressure exceeds 20 psig as indicated on PRIMING FUEL PRESS, 0-PI-18-51A(B,C,D).

Standard:

SIMULATED MOMENTARILY DEPRESSING fuel priming pump pushbutton 0-HS-18-49A and **INDICATED** position of 20 psig on 0-PI-18-51A.

CUE: THE PRIMING PUMP HAS STARTED.

IF EXAMINEE CHECKS PRIMING FUEL PRESSURE GAUGE 0-PI-18-51A INDICATES 26 PSIG.

SAT___ UNSAT___ N/A___ COMMENTS:_____

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

5.5.8 RECORD reason for start, type of start and
time/date started on Illustration 2.

CUE: ANOTHER OPERATOR WILL PERFORM ILLUSTRATION 2.

Standard:

NONE.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

5.5.9 ALLOW engine to idle at between 440 RPM and 460
RPM for at least 10 minutes.

Standard:

SIMULATED allowing the engine to idle.

**CUE: TEN MINUTES HAVE ELAPSED AND DIESEL ENGINE SPEED HAS
REMAINED UNCHANGED.**

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical__

5.5.10 HOLD GOVERNOR CONTROL 0-HS-082-000A(B,C, D)/3C
 switch in RAISE until engine speed stops rising
 (930 RPM) .

Standard:

SIMULATED HOLDING the governor control switch in the RAISE position and **INDICATED** position of 930 RPM speed indication on speed indicator located on diesel engine control cabinet.
SIMULATED RELEASING the governor control switch.

Evaluator Note: Only simulating holding the governor control switch in the raise position is a Critical Step.

CUE: THE DIESEL ENGINE SPEED IS RISING. [PAUSE] THE DIESEL ENGINE SPEED IS NOW CONSTANT.

IF EXAMINEE CHECKS THE SPEED INDICATOR ENGINE SPEED IS INDICATED AT 930 RPM.

SAT__ UNSAT__ N/A__ COMMENTS: _____

NOTE:

RIGHT BANK AIR CMP AC MOTOR control switch, 0-HS-086-0669A,B,C, or D and the LEFT BANK AIR CMP AC MOTOR control switch, 0-HS-086-0668A/AC,B,C,or D must remain in AUTO or MANUAL to allow for manual generator field flashing.

Performance Step: Critical X Not Critical__

- 5.5.11 **DEPRESS** FIELD FLASH push-button and **VERIFY** the following:
 - 5.5.11.1 Engine speed stabilizes at between 885 RPM and 915 RPM.
 - 5.5.11.2 Diesel generator voltage stabilizes between 4250 VOLTS and 4400 VOLTS as indicated on Diesel Generator A(B,C,D) Protective Relay Cabinet.

EVALUATOR NOTE: ONLY DEPRESSING THE FIELD FLASH PUSHBUTTON IS CRITICAL.

Standard:

SIMULATED MOMENTARILY DEPRESSING the field flash push-button.
INDICATED position of indicated engine speed of between 885 and 915 RPM as indicated on diesel engine speed indicator located on diesel engine control cabinet and position of indicated D/G voltage of between 4250 VOLTS and 4400 volts as indicated on D/G 'A' protective relay cabinet.

CUE: THE FIELD HAS BEEN FLASHED.

IF THE EXAMINEE CHECKS THE SPEED INDICATOR INDICATED ENGINE SPEED STABILIZED AT 905 RPM.

IF THE EXAMINEE CHECKS THE VOLTAGE INDICATOR INDICATED VOLTAGE IS 4325 VOLTS.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

5.5.12 STATION an operator at Panel 9-23.

Standard:

SIMULATED CONTACTING control room.

SAT___UNSAT___N/A___ COMMENTS:_____

CUE: AN OPERATOR IS STANDING BY AT PANEL 9-23.

NOTE: All manipulations of the Diesel Generator Logic Breaker shall be logged in the Narrative Log.

Performance Step: Critical X Not Critical___

5.5.13 PLACE 0-BKR-254-000A(B,C,D)/06, DSL GEN A(B,C,D) LOGIC RELAY PANEL, (LOGIC BREAKER) in ~~ON~~ on 0-BDGG-254-0000A(B,C,D), 125V DC DSL SYS BAT BOARD A (B,C,D).

Standard:

SIMULATED PLACING 0-BKR-254-000A/06 in the ON position.

SAT___UNSAT___N/A___ COMMENTS:_____

CUE: [WHEN SIMULATED] THE LOGIC BREAKER IS IN THE ON POSITION.

Performance Step: Critical___ Not Critical X

5.5.14 NOTIFY operator at Panel 9-23 that control of the diesel generator has been transferred to Panel 9-23.

Standard:

SIMULATED NOTIFYING Panel 9-23 operator.

SAT___ UNSAT___ N/A___ COMMENTS:_____

5.5.15 **PLACE** the associated Diesel Generator control switch to START at Panel 9-23:

Diesel	Handswitch Name	Handswitch No.	Panel
A	DG A CONTROL	0-HS-82-A/1A	0-9-23-7
B	DG B CONTROL	0-HS-82-B/1A	0-9-23-7
C	DG C CONTROL	0-HS-82-C/1A	0-9-23-8
D	DG D CONTROL	0-HS-82-D/1A	0-9-23-8

CUE: THE UNIT OPERATOR AT PANEL 9-23 HAS PERFORMED STEP 5.5.15 BY PLACING THE DIESEL GENERATOR 'A' ENGINE CONTROL SWITCH IN THE START POSITION.

Performance Step: Critical___ Not Critical X

5.5.16 **VERIFY** Diesel Generator A(B,C,D) Electrical
Control Cabinet Exhaust Fan is operating.

Standard:

SIMULATED VERIFYING control cabinet exhaust fan is operating
by holding sheet of paper next to louvers or looking at fan
shaft.

SAT___ UNSAT___ N/A___ COMMENTS:_____

**CUE: THE DIESEL GENERATOR 'A' ELECTRICAL CONTROL CABINET
EXHAUST FAN IS OPERATING PROPERLY.**

NOTE:

The "A" exhaust fan for each diesel generator room is normally selected for automatic operation. If the "A" fan fails to start, the "B" fan will automatically start if it has been previously selected for standby operation.

Performance Step: Critical___ Not Critical X

5.5.17 **VERIFY** Diesel Generator Room A(B,C,D) Exhaust Fan
A or B is running on Diesel Generator Building
elevation 583'.

Standard:

SIMULATED VERIFYING exhaust fan running by **SIMULATING**
OBSERVING illuminated RED motor breaker position indicating
switch above associated hand switch on elevation 583'.

**CUE: 'A' DIESEL GENERATOR ROOM 'A' EXHAUST FAN RED MOTOR
BREAKER POSITION INDICATING LAMP IS ILLUMINATED.**

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

5.5.18 MONITOR and **RECORD** diesel generator operating
parameters in accordance with Illustration 2.

CUE: ANOTHER OPERATOR WILL PERFORM ILLUSTRATION 2.

Standard:

NONE.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: THE CONTROL ROOM OPERATOR WILL COMPLETE THE TASK.

Performance Step: Critical___ Not Critical_X_

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT___ UNSAT___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X_

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

Standard:

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

SAT___ UNSAT___ COMMENTS:_____

Performance Step: Critical____ Not Critical X

PERFORMER complied with all safety rules and regulations.

Standard:

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

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

SAT____ UNSAT____ N/A____ COMMENTS:_____

END OF TASK

STOP TIME _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

IN-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say "my task is complete" and I will acknowledge that your task is complete.

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

1. **PERFORMER** shall abide by all **SAFETY RULES** (hardhats, safety glasses, sashes, and hearing protection shall be worn **AS REQUIRED**). **Electrical Safety** shall also be in compliance: 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. **CAUTION IS WARRANTED** when utilizing a laser pointer to perform **TOUCH STAAR** around electrical components during plant JPM's.

2. **PERFORMER** shall demonstrate the use of **TOUCH STAAR** during this JPM.

3. **PERFORMER** shall demonstrate the use of **3-WAY COMMUNICATION**.

INITIAL CONDITIONS: You are an extra operator. D/G 'A' Special Test 2-82-1A is in progress. D/G 'A' is in standby readiness in accordance with Section 4.0 of 0-OI-82 and has been rolled in the last 24 hours.

INITIATING CUES: ❖ NAME❖ slow start D/G 'A' locally at the diesel engine control cabinet as directed by 0-OI-82.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 311
TITLE: 3-EOI APPENDIX 1A - REMOVAL AND REPLACEMENT
OF RPS SCRAM SOLENOID FUSES
TASK NUMBER: U-000-EM-19

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____
TRAINING

PLANT CONCURRENCE: _____ DATE: _____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	10/17/95	ALL	NEW JPM
1	11/11/96	4, 11	ADDED NON-CRITICAL STEP ON TOUCH STAAR, CHANGED ASOS TO US.
2	11/04/99	4, 11	CHANGED MGT. EXPECT. TO PLANT WORK EXPECT., ADDED NON-CRITICAL STEP 3-WAY COMM., FORMAT DOCUMENT
3	05/20/00	4, 5, 9	CHANGED RC/Q-23 TO RC/Q-21 EOI 1 REF., UNIT SPECIFIC FOR EOI 3 APPENDIX-1A. DELETED PAGE NUMBER FOR PAGE 4.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 311

TASK NUMBER: U-000-EM-19

TASK TITLE: EOI APPENDIX 1A - REMOVAL AND REPLACEMENT OF RPS
SCRAM SOLENOID FUSES

K/A NUMBER: 212000A2.20 K/A RATING: RO 4.1 SRO: 4.2

*

TASK STANDARD: SIMULATE REMOVING EIGHT (8) SCRAM SOLENOID FUSES
AS DIRECTED BY APPENDIX 1A

LOCATION OF PERFORMANCE: SIMULATOR _____ PLANT X CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 3-EOI APPENDIX 1A, REV 0

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

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____

EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

IN-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

1. **PERFORMER** shall abide by all **SAFETY RULES** (hardhats, safety glasses, sashes, and hearing protection shall be worn **AS REQUIRED**). **Electrical Safety** shall also be in compliance: 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. **CAUTION IS WARRANTED** when utilizing a laser pointer to perform **TOUCH STAIR** around electrical components during plant JPM's.

2. **PERFORMER** shall demonstrate the use of **TOUCH STAIR** during this JPM.

3. **PERFORMER** shall demonstrate the use **3-WAY COMMUNICATION**.

INITIAL CONDITIONS: You are the Extra Operator. The Unit 3 reactor has scrammed and all control rods did not fully insert. All eight scram solenoid lights on Panel 9-5 are still illuminated. **EOI-1** has been entered and followed to **RC/Q-21**.

INITIATING CUES: The Unit 3 "UNIT SUPERVISOR" has directed you to remove the RPS scram solenoid fuses in accordance with 3-EOI Appendix 1A, **REMOVAL AND REPLACEMENT OF RPS SCRAM SOLENOID FUSES**, beginning at Step 2.a.

START TIME _____

Performance Step: Critical___ Not Critical X

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

Standard:

IDENTIFIED OR OBTAINED copy of 3-EOI Appendix 1A.

SAT___UNSAT___N/A___ COMMENTS:_____

1. **VERIFY CLOSED** Scram Discharge Volume Vent and Drain
Valves at the SCRAM DISCHARGE VOLUME VENT/DRAIN VLVS
display on Panel 3-9-5.
2. **DISPATCH** personnel to Unit 3 Auxiliary Instrument Room
to perform the following:

Performance Step: Critical___ Not Critical_X

- a. **REFER TO** Attachment 1 and **OBTAIN** fuse pullers from
EOI Equipment Storage box.

Standard:

REFERRED to Attachment 1 and **SIMULATED** unlocking the EOI
Storage Box and **OBTAINING** fuse pullers from EOI Equipment
Storage box.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: YOU HAVE A SMALL FUSE PULLER.

Performance Step: Critical___ Not Critical_X

- b. **LOCATE** Terminal Strip CC inside Panel 3-9-15, Bay
2, Rear.

Standard:

INDICATED location of terminal strip CC inside Panel 3-9-15.

SAT___ UNSAT___ N/A___ COMMENTS:_____

c. **REMOVE** the following fuses (located at the bottom of terminal strip CC, Panel 3-9-15):

BLOCKNUMBER	FUSE ID	REMOVED	REPLACED
CC	FOUR (4) 3-FU1-085-0037AA	_____	_____
CC	FIVE (5) 3-FU1-085-0039A/2	_____	_____
CC	SIX (6) 3-FU1-085-0039A/3	_____	_____
CC	SEVEN (7) 3-FU1-085-0039A/4	_____	_____

SIMULATED REMOVING listed fuses.

BLOCKNUMBER	FUSE ID	REMOVED	REPLACED
CC	FOUR (4) 3-FU1-085-0037AA	_____	_____
CC	FIVE (5) 3-FU1-085-0039A/2	_____	_____
CC	SIX (6) 3-FU1-085-0039A/3	_____	_____
CC	SEVEN (7) 3-FU1-085-0039A/4	_____	_____

SAT_____UNSAT_____N/A_____ COMMENTS:_____

CUE: [WHEN PROPER FUSES INDICATED] THE FUSES HAVE BEEN REMOVED.

Performance Step: Critical___ Not Critical X

- d. **LOCATE** terminal strip CC inside Panel 3-9-17, Bay 2, Rear.

Standard:

INDICATED location of terminal strip CC inside Panel 3-9-17.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical___

- e. **REMOVE** the following fuses (located at the bottom of terminal strip CC, Panel 3-9-17):

RPS BUS "B"

<u>BLOCKNUMBER</u>	<u>FUSE ID</u>		<u>REMOVED</u>	<u>REPLACED</u>
CC	FOUR (4)	3-FU1-085-0037BA	___	___
CC	FIVE (5)	3-FU1-085-0039B/2	___	___
CC	SIX (6)	3-FU1-085-0039B/3	___	___
CC	SEVEN (7)	3-FU1-085-0039B/4	___	___

Standard:

SIMULATED REMOVING listed fuses.

RPS BUS "B"

<u>BLOCKNUMBER</u>	<u>FUSE ID</u>		<u>REMOVED</u>	<u>REPLACED</u>
CC	FOUR (4)	3-FU1-085-0037BA	___	___
CC	FIVE (5)	3-FU1-085-0039B/2	___	___
CC	SIX (6)	3-FU1-085-0039B/3	___	___
CC	SEVEN (7)	3-FU1-085-0039B/4	___	___

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: [WHEN PROPER FUSES INDICATED] THE FUSES HAVE BEEN REMOVED.

Performance Step: Critical___Not Critical__X

- f. WHEN...ALL fuses are removed,
THEN...NOTIFY the Unit Operator.

Standard:

SIMULATED NOTIFYING Unit 3 Operator after all fuses removed.

SAT___UNSAT___N/A___ COMMENTS:_____

CUE: [UNIT OPERATOR REPEATS BACK] "ALL EIGHT RPS SCRAM SOLENOID FUSES HAVE BEEN REMOVED PER 3-EOI-APPENDIX 1A."
PAUSE
THE UNIT SUPERVISOR DOES NOT WANT THE FUSES REPLACED AT THIS TIME.

Performance Step: Critical___ Not Critical X

PERFORMER complied with all safety rules and regulations.

Standard:

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

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

—

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

—

Performance Step: Critical___ Not Critical X

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

Standard:

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

SAT___ UNSAT___ N/A ___ COMMENTS:_____

END OF TASK

STOP TIME _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

IN-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

1. **PERFORMER** shall abide by all **SAFETY RULES** (hardhats, safety glasses, sideshields, and hearing protection shall be worn **AS REQUIRED**). **Electrical Safety** shall also be in compliance: 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. **CAUTION IS WARRANTED** when utilizing a laser pointer to perform **TOUCH STAAR** around electrical components during plant JPM's.

2. **PERFORMER** shall demonstrate the use of **TOUCH STAAR** during this JPM.

3. **PERFORMER** shall demonstrate the use **3-WAY COMMUNICATION**.

INITIAL CONDITIONS: You are the Extra Operator. The Unit 3 reactor has scrammed and all control rods did not fully insert. All eight scram solenoid lights on Panel 9-5 are still illuminated. **EOI-1** has been entered and followed to **RC/Q-21**.

INITIATING CUES: The Unit 3 "UNIT SUPERVISOR" has directed you to remove the RPS scram solenoid fuses in accordance with 3-EOI Appendix 1A, **REMOVAL AND REPLACEMENT OF RPS SCRAM SOLENOID FUSES**, beginning at Step 2.a.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 101

TITLE: PLACE PSC SYSTEM IN SERVICE

TASK NUMBER: A-075-NO-05

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____

TRAINING

PLANT CONCURRENCE: _____ DATE: _____

OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
2	10/26/94	ALL	GENERAL REVISION
3	10/27/98	ALL	PROCEDURE REVISION
4	05/20/00	ALL	PROCEDURE REVISION, DELETE IN SIMULATOR ON GUIDE, ADDED TOUCH STAAR, 3-WAY COMM., SAFETY PLANT WORK EXPECTATIONS TO PAGE 4, ADDED 3-WAY COMM TO BODY OF JPM. UNID ADDITIONS THROUGHOUT

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 101

TASK NUMBER: A-075-NO-05

TASK TITLE: PLACE PSC SYSTEM IN SERVICE

K/A NUMBER: 209001K1.03 K/A RATING: RO 2.9 SRO: 3.0

*

TASK STANDARD: SIMULATE PERFORMING OUTSIDE CONTROL ROOM FUNCTIONS
REQUIRED TO PLACE THE PSC HEAD TANK SYSTEM IN
SERVICE

LOCATION OF PERFORMANCE: SIMULATOR _____ PLANT X CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-OI-75, REV 61

VALIDATION TIME: CONTROL ROOM: 21:00 LOCAL: 17:00

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____

EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

IN-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

1. **PERFORMER** shall abide by all **SAFETY RULES** (hardhats, safety glasses, sashes, and hearing protection shall be worn **AS REQUIRED**). **Electrical Safety** shall also be in compliance: 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. **CAUTION IS WARRANTED** when utilizing a laser pointer to perform **TOUCH STAAR** around electrical components during plant JPM's.

2. **PERFORMER** shall demonstrate the use of **TOUCH STAAR** during this JPM.

3. **PERFORMER** shall demonstrate the use **3-WAY COMMUNICATION**.

INITIAL CONDITIONS: You are an operator. Unit 2 Reactor is in cold shutdown. The PSC head tank system was previously removed from service IAW 2-OI-75, Section 8.8.

INITIATING CUES: _____ (NAME) _____, return the PSC head tank system to service to both loops of RHR and Core Spray as directed by 2-OI-75.

START TIME_____

Performance Step: Critical___ Not Critical_X

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

Standard:

IDENTIFIED OR OBTAINED current revision of 2-OI-75

SAT___ UNSAT___ N/A___ COMMENTS:_____

8.9 Returning the PSC Head Tank to Service

CAUTION

[NRC/C] The suppression pool water will be highly radioactive after a LOCA. Chemical Engineering input/advice should be considered when deciding where to pump the contaminated water. [NRC Inspection Report 89-16]

NOTE:

- (1) All operations are performed locally unless otherwise noted.
- (2) Whenever the associated injection system is required to be "OPERABLE" the operable pressure indicators on the discharge of the RHR and Core Spray pumps shall indicate not less than 48 psig (2-PI-75-20&48, 2-PI-74-51&65). To determine operability of an individual injection system REFER TO "REQUIRED ACTION" statement A of TRM 3.5.4.

8.9.1 VERIFY PSC Head Tank has been removed from
 service. REFER TO Section 8.8.

Performance Step : Critical X Not Critical__

8.9.2 DEPRESS local PSC WATER HEAD TANK PMP 2A and 2B
 RESET handswitches, 2-HS-075-0075B and 2-HS-075-
 0076B on Panel 25-256.

Standard:

SIMULATED DEPRESSING handswitches 2-HS-075-0075B and 2-HS-
075-0076B.

SAT__UNSAT__N/A__ COMMENTS:_____

**CUE: [WHEN SIMULATED] 2-HS-075-0075B AND 0076B HAVE BEEN
RESET.**

Performance Step: Critical__ Not Critical X

8.9.3 DEPRESS local PSC STN RESET handswitches, 2-HS-
 0075-0074 A and B on Panel 25-256.

Standard:

SIMULATED DEPRESSING 2-HS-0075-0074 A and B.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

8.9.4 If PSC Pump Suction Isolation Valves are closed,
THEN

OPEN PSC PUMP SUCTION INBD and OUTBD ISOL VALVES,
2-FCV-75-58 and 2-FCV-75-57, from Panel 2-9-3.

Standard:

SIMULATED CONTACTING Unit 2 Control room to verify 2-FCV-75-
58 and 57 OPEN.

CUE: UNIT 2 OPERATOR REPORTS THAT 2-FCV-75-58 AND 2-FCV-75-
57 ARE OPEN.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

- 8.9.5 VERIFY RESET the following annunciators on Panel 2-9-3
- PSC HEAD TANK LOW LEVEL (2-XA-55-3A, window 26)
 - PSC HEAD TANK LEVEL HIGH (2-XA-55-3A, window 19)

Standard:

SIMULATED CONTACTING Unit 2 control room to confirm annunciator PSC HEAD TANK LOW LEVEL (2-XA-55-3A, Window 26) and PCS HEAD TANK LEVEL HIGH (2-XA-55-3A, window 19) are clear.

CUE: PSC HEAD TANK LOW LEVEL ALARM IS CLEAR.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical_X Not Critical___

- 8.9.6 START PSC HEAD TANK PUMPS 2A and 2B, using 2-HS-75-75A and 2-HS-75-76A, on Panel 2-9-3.

Standard:

SIMULATED Contacting Unit 2 control to start PSC HEAD TANK Pumps 2A & 2B.

CUE: PSC HEAD TANK PUMPS STARTED.

NOTE: THE RHR SYSTEM I VALVES ARE LOCATED NEAR THE FUEL POOL COOLING PUMPS IN A C-ZONE. DUE TO ALARA CONSIDERATIONS IT WILL SUFFICE FOR THE EXAMINEE TO INDICATE THE GENERAL LOCATION OF THE VALVES.

Performance Step: Critical X Not Critical__

8.9.7 VERIFY LOCKED OPEN the appropriate valves to supply the individual headers from the PSC Head Tank:

- ❖ For Core Spray System I, PSC WATER TO CS SYSTEM I FILL SHUTOFF VALVE, 2-SHV-075-0608.
- ❖ For Core Spray System II, PSC WATER TO CS SYSTEM II FILL SHUTOFF VALVE, 2-SHV-075-0611.
- ❖ For RHR System I, RHR SYS FILL FROM PSC HEAD TANK, 2-74-801.
- ❖ For RHR System II, RHR SYS FILL FROM PSC HEAD TANK, 2-74-793.

Standard:

SIMULATED OPENING 2-SHV-075-0608, 2-SHV-075-0611, 2-74-801 and 2-74-793 by turning the valve handwheel in the COUNTERCLOCKWISE direction [CRITICAL]. **SIMULATED LOCKING** each valve handwheel [NOT CRITICAL].

FOR EACH VALVE, CUE: THE HANDWHEEL IS TURNING, THE STEM IS MOVING OUTWARD. [PAUSE] THE HANDWHEEL IS SNUG, THE STEM HAS STOPPED MOVING.
FOR EACH VALVE THAT IS LOCKED, CUE: THE CHAIN AND LOCKING TAB ARE IN PLACE.

SAT___UNSAT___N/A___ COMMENTS:_____

NOTE: THE RHR SYSTEM I VALVES ARE LOCATED NEAR THE FUEL POOL COOLING PUMPS IN A C-ZONE. DUE TO ALARA CONSIDERATIONS IT WILL SUFFICE FOR THE EXAMINEE TO INDICATE THE GENERAL LOCATION OF THE VALVES.

Performance Step: Critical X Not Critical__

8.9.8 VERIFY LOCKED CLOSED the appropriate CNDS FLUSH & FILL SHUTOFF VALVE to isolate the individual headers from the Condensate Transfer System:

- ❖ For Core Spray System I, 2-SHV-075-0582A.
- ❖ For Core Spray System II, 2-SHV-075-0582B.
- ❖ For RHR System I, 2-74-704.
- ❖ For RHR System II, 2-74-828.

Standard:

SIMULATED CLOSING 2-SHV-075-0582A, 2-SHV-075-0582B, 2-74-704 and 2-74-828 by turning the valve handwheel in the CLOCKWISE direction [CRITICAL]. SIMULATED LOCKING each valve handwheel.

FOR EACH VALVE, CUE: THE HANDWHEEL IS TURNING, THE STEM IS MOVING INWARD. [PAUSE] THE HANDWHEEL IS SNUG, THE STEM HAS STOPPED MOVING.
FOR EACH VALVE THAT IS LOCKED, CUE: THE CHAIN AND LOCKING TAB ARE IN PLACE.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step : Critical___ Not Critical_X

8.9.9 VERIFY LOCKED CLOSED CS SYSTEM I & II FILL FROM
CONDENSATE SHUTOFF VALVE, 2-SHV-075-0700.

Standard:

SIMULATED VERIFYING 2-SHV-075-0700 CLOSED AND LOCKED.

SAT___ UNSAT___ N/A___ COMMENTS:_____

**CUE: [WHEN LOCATED AND INDICATED] 2-SHV-075-0700 IS CLOSED
AND LOCKED.**

Performance Step : Critical___ Not Critical_X

8.9.10 LOCK OPEN PSC WATER HEAD TANK FILL & DRAIN SHUTOFF
VALVE, 2-SHV-75-616.

Standard:

SIMULATED VERIFYING 2-SHV-75-616 LOCKED OPEN.

SAT___ UNSAT___ N/A___ COMMENTS:_____

**CUE: [WHEN LOCATED AND INDICATED] 2-SHV-075-616 IS LOCKED
OPEN.**

CAUTION

Leakage of Suppression Pool quality water into the RPV may occur when Core Spray or RHR System pressure is above RPV pressure due to a 1/4 in. hole drilled into the outlet side disc face of CORE SPRAY SYS I(II) INBD INJECT VALVE, 2-FCV-75-25(53) AND RHR SYS I(II) INBD INJECTION VALVE, 2-FCV-74-53(67).

Performance Step: Critical___ Not Critical_X

8.9.11 CHECK appropriate system pressures indicates greater than 48 psig:

- CORE SPRAY SYS I DISCH PRESS, 2-PI-75-20.
- CORE SPRAY SYS II DISCH PRESS, 2-PI-75-48.
- RHR SYS I PRESS, 2-PI-74-51.
- RHR SYS II PRESS, 2-PI-74-65.

Standard:

SIMULATED CONTACTING Unit 2 control room to verify the above pressure indicators read above 48 psig.

CUE: EACH PRESSURE INDICATOR READS 52 PSIG.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

PERFORMER complied with all safety rules and regulations.

Standard:

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

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

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

Standard:

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

SAT___ UNSAT___ N/A ___ COMMENTS:_____

END OF TASK

STOP TIME _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

IN-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

1. **PERFORMER** shall abide by all **SAFETY RULES** (hardhats, safety glasses, sashes, and hearing protection shall be worn **AS REQUIRED**). **Electrical Safety** shall also be in compliance: 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. **CAUTION IS WARRANTED** when utilizing a laser pointer to perform **TOUCH STAAR** around electrical components during plant JPM's.

2. **PERFORMER** shall demonstrate the use of **TOUCH STAAR** during this JPM.

3. **PERFORMER** shall demonstrate the use **3-WAY COMMUNICATION**.

INITIAL CONDITIONS: You are an operator. Unit 2 Reactor is in cold shutdown. The PSC head tank system was previously removed from service IAW 2-OI-75, Section 8.8.

INITIATING CUES: _____ (NAME) _____, return the PSC head tank system to service to both loops of RHR and Core Spray as directed by _____ 2-OI-

FINAL SUBMITTAL

BROWNS FERRY 2000-301
50-259, 260, and 296/2000-301

JUNE 12 - 15, JUNE 27 - 29, AND
JUNE 30, 2000

NUREG-1021 - ES-501

FINAL AS GIVEN
OPERATOR ACTIONS

F.1.g - FORM ES-D-2
OPERATOR ACTIONS

Facility: Browns Ferry Scenario No.: 2 Op-Test No.: _____

Examiners: _____ Operators: _____

Initial Conditions: Rx Power 100% MOC

2A RHR out for preventative maintenance, 6 hours into a 7 day LCO.
 2-LI-3-58B is OOS for repair it has been 5 of 24 hours.
 IRM Channel C has failed downscale low and was bypassed for maintenance. It is expected to be repaired in approximately 8 hours.
 No other equipment is OOS.

Turnover: Maintain 100% reactor power.

Event No.	Malf. No.	Event Type*	Event Description
1		R/RO	Power Reduction due to rod adjustment.
2	SW02A	C/RO	Loss of 2B RBCCW pump. With a failure of FCV-70-48A to close automatically.
3		N/RO	Restores RWCU to service following RBCCW return to service.
4	ior an:2xa553c 10	I/BOP	ADS Permissive switch failure.
4A	th30v 0	I/RO	RPS low level Instrument Failure. 203A & 208A Requires Half Scram
5	eg05	C/BOP	Loss of stator coolant pump, not auto start of standby pump.
6		MT	Turbine trips at >80% Rx power
	tc02 0		Turbine bypass valves fail closed, requires alternate pressure control (SRVs)
	hp03 (e1 0)0		HPCI controller automatic controller failed. Will operate in manual.
	th21 (e1 8) 3 20:		Small LOCA in recirculation system causes increase in drywell pressure and temperature. Crew enters EOI-2
	impc16 a, e, m		Increase in containment temperature and pressure causes the Drywell to suppression chamber vac breakers failure to take place.
	Bat HLT/nrc02-2	C/BOP	Trips all DW blowers
	iorzdihs747 4a close, iorzdihs746	C/BOP	Both loop's spray valve will fail to open, preventing spraying the drywell.

Facility: Browns Ferry Scenario No.: 2 Op-Test No.: _____

Examiners: _____ Operators: _____

Initial Conditions: Rx Power 100% MOC

2A RHR out for preventative maintenance, 6 hours into a 7 day LCO.
2-LI-3-58B is OOS for repair it has been 5 of 24 hours.
IRM Channel C has failed downscale low and was bypassed for
maintenance. It is expected to be repaired in approximately 8 hours.
No other equipment is OOS.

Turnover: Maintain 100% reactor power.

	0a close		
	ypovfcv6432 (e1 2:00) fail_control_ power	C/BOP	Fails suppression chamber exhaust valve 84-19. Need to use an alternate path sequence.
			The crew will have to emergency depressurize based on pressure suppression curve and/or exceeding 280 degrees F.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Most of this scenario comes from OPL 177.049. Review and use necessary malfunctions to
complete this form.

Event Description: Reduce power for rod adjustment

[illegible]

Op-Test No.: _____ Scenario No.: 2 Event No.: 2

Event Description: Loss of 2B RBCCW pump. With failure of FCV-70-48A to automatically close.

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Reports "Motor trip out" "RBCCW Pump disch press low" 4C-12 alarms.
		Identifies 2 B RBCCW pump has tripped.
		Attempts to restart the pump. (Will not work)
		Reports FCV 70-48A fails to close.
	RO	Closes FCV 70-48A manually.
	SRO	Refers to 2-AOI-70-1
		Directs U 1 to start spare RBCCW pump
	RO	Reports RWCU isolation or removes from service prior to isolation
		Verifies auto action per AOI-64a if RWCU auto isolates.
	SRO	Refers to TRM 3.4.1
		Notifies Chemistry to begin samples
	ALL	Monitors containment parameters
	SRO	Directs BOP to monitor Recirc pump temperatures
	RO/BOP	Monitors Recirc. pump temperatures
	RO/BOP	After spare pump in service re-opens 70-48A
		Restores RWCU per OI-69

Event Description: Restores RWCW to service following RBCCW return to service

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Op-Test No.: _____ Scenario No.: 2 Event No.: 4

Event Description: ADS Permissive switch failure.

Time	Position	Applicant's Actions or Behavior
	BOP	Announce "RHR or CS pumps Running ADS Blowdown Permissive" Alarm and Consults ARP
		Dispatches AUO/US to Aux Inst room to verify if following relays energized: 2E-K4; 2E-K15 2E-K27; 2E-K31
	BOP	Relays report of relay 2E-K4 and 2E-K15 being energized
		Checks ADS prints to determine failure
ROLE PLAY: AS US, 4 minutes after he is sent to investigate the relay for ADS alarm, reports that relays 2E-K4,2E-K15 energized. If asked, 10A-K102A energized. As AUO/IM, 5 minutes after they are sent to investigate, report PS 74-8A is picked up. (2A RHR Pump)		
	SRO	Directs checking status of 10A-K102A
	RO/BOP	Reports 10A-K102A energized
	SRO	Directs IM's to investigate why relays 10A-K102A, 2E-K4, and 2E-K15 are energized
		Receives word that PS-74-8A closed
		Checks Technical Specifications 3.3.5.1, determines 8 days to repair or declare ADS logic inop (may direct System Engineer to inhibit pressure switch as 2A RHR Pump was tagged at the beginning of the scenario)
		Directs IMs to repair pressure switch
		Contact Shift Manager describe the problem.

Op-Test No.: _____ Scenario No.: 2 Event No.: 4A

Event Description: RPS Level Instruments Fail low (LT3-208A & LT 3-203A) Maintenance bumped these two instruments while working. Failure of RPS 2A to de-energize.

Time	Position	Applicant's Actions or Behavior
	RO	Refers to 2-9-4 window 2 ARP
		Check other level indications, note that 208A has failed low. Reports this to the SRO.
	SRO	Dispatches individual to Auxiliary Instrument Room to check LIS 3-203 A, B, C and D and LIS 3-208A.
ROLE PLAY: Wait 2 min, report LIS 3-203A about 8 inches in Aux. Inst. Room Due to maintenance bumping both 208A and 203A.		
		Consults Tech Specs, 3.3.1.1 determines Required actions are met at this time. (may address TS 3.3.6.1, PCIV's, no action required but crew may conservatively close and deactivate the in-line valve)
		Also Tech Spec. 3.3.2.2 (Feed Water MT high Trip) determines that Action A.1 requires a 7 day action to place it in a tripped condition.
		Also Tech Spec 3.3.5.2 (RCIC) 208 A Action Statement C 24 hour action to be placed in a tripped condition.
		Directs IMs to troubleshoot and repair.
		Conducts briefing on loss of instrumentation.
		Direct the RO to initiate a half scram in RPS "A" when determines it should be done. (This is an hour action statement, therefore may not be done during the scenario. May have to ask follow up question following the scenario.)
	RO	Places RPS "A" in a half scram condition.

Op-Test No.: _____ Scenario No.: 2 Event No.: 5

Event Description: LOSS OF STATOR COOLANT, Stator Coolant pump 2A pump trips, with a failure of the auto start of the 2B pump. Need to manually start the 2B pump. Then the pressure instrument fails and requires a reactor trip. Entry into MT 6		
Time	Position	Applicant's Actions or Behavior
	RO/BOP	Responds to annunciator 2-XA-55-7A #22 "Gen Stator Coolant Sys Abnormal by ARP: Gen Stator Cool Sys Failure 2-XA-57-139. ARP 9-8A
		Verifies stator coolant pump 2A is not running
		Checks temperature on 2-TR-57-59 on panel 9-8
		Dispatches AUO to check Stator Coolant Control Cabinet
		Starts the 2B stator water cooling water pump.
	SRO	Directs load reduction per ARP with recirc pumps. (On the first trip they should not do this, after the next trip they should use the core flow run back pushbuttons (Blue lights).
		Directs start of the standby stator 2B coolant pump.
ROLE PLAY: 1 minute after dispatched report low inlet flow, high outlet temp, and low inlet temp. alarms on local panel.		
	RO/BOP	Starts stator coolant pump 2B
	RO	Initiates a runback using the blue light runback pushbutton. May initiate the core flow runback using these blue light pushbuttons.
	RO/BOP	Reports that there is a problem again with the stator water system.
	SRO	Directs Manual Reactor Scram
	RO	Inserts a Manual reactor Scram

Op-Test No.: _____ Scenario No.: 2 Event No.: 6

Event Description: Main Transient. Scram/LOCA

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Scrams reactor manually or reports turbine trip and reactor scram
		Verifies all rods in by one or more of the following: <ul style="list-style-type: none"> - Blue one rod permissive light illuminated in Refuel mode - Verifies all rods have green backgrounds
		■ ICS
		Identifies and reports bypass valve failure, SRVs open
	SRO	Contacts IM's to troubleshoot BPVs
		Directs pressure band 800-1000 psig
	RO/BOP	Controls pressure with MSRVs, 800-1000 psig
	SRO	Enters EOI-1 on high RPV pressure and/or Low Level
		Directs water level be maintained +12" to +51" using available systems
		Directs alternate pressure control systems <ul style="list-style-type: none"> - HPCI, Appendix 11C - RCIC, Appendix 11B - RFPT's Appendix 11F - Main Steam Line Drains, Appendix 11D
		Directs enter AOI-100-1 for scram subsequent actions
	RO/BOP	Operates available injection systems to maintain level +12" to +51"
	I/RO/BOP	If water level decreases to -45" or HPCI is used to restore water level/or pressure control, recognizes automatic function of HPCI controller failed and takes manual control
	RO/BOP	Carries out AOI-100-1 actions: Inserts nuclear instrumentation Changes recorders from APRMs to IRMs Ranges down to follow power

Op-Test No.: _____ Scenario No.: 2 Event No.: 6

Event Description: Main Transient. Scram/LOCA

Time	Position	Applicant's Actions or Behavior
		Removes unnecessary equipment If RPV water level >+12" gets permission to reset scram and PCIS
		Resets scram and PCIS if >+12" and <2.45 psig DW pressure
		Restores RB ventilation and DW control air
		Controls pressure as directed
		Establishes alternate pressure control with one or more of the following: - Main Steam Line Drains per Appendix 11D - RFPTs per Appendix 11F - HPCI per Appendix 11C - RCIC per Appendix 11B
	SRO	Enters EOI-3 if steam tunnel temperature exceeds 160_DEG F.
		Directs appendix 8E (if PCIS not reset) and appendix 8F
	BOP	Restores R.B. vent system
	SRO	Directs cooldown on SRVs, alternate pressure control
		Directs Suppression pool cooling be placed in service
	RO/BOP	Commences cooldown
		Places suppression pool cooling in service per appendix 17a or OI 74
	ALL	Recognize Drywell Pressure and/or temperature increase
	SRO	At 2.45 psig DW pressure enters EOI-2 & EOI-1
	ALL	Verifies Diesels/HPCI start
		Dispatches AUO to the diesels
	SRO	Directs all available DW coolers be placed in service
		Directs venting suppression chamber per Appendix 12 and perform 8G

Op-Test No.: _____ Scenario No.: 2 Event No.: 6

Event Description: Main Transient. Scram/LOCA

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Monitors suppression pool temperature
		Monitors suppression pool level
	SRO	Directs H2/O2 analyzer placed in service using keylock switches
		Directs following actions if not previously accomplished in EOI-1 (after 2.45 psig DW pressure)
		CAD to DW Control air Appendix 8G
	RO/BOP	Places all available DW blowers in service
		Attempts to vent suppression chamber and recognizes failure of FCV 84-19
		Vents Suppression Chamber through 84-20
		Places keylock bypass switches for H2O2 analyzers in bypass
		Carries out actions for Appendix 8G
	SRO	Directs Suppression Chamber Sprays be placed in service
	RO/BOP	Places suppression chamber sprays in service per Appendix 17C
	SRO	When suppression chamber pressure exceeds 12 psig: OR Based on DW temperature not being maintained less than 280 degrees F
		Directs DW blowers and recirc pumps shutdown
	RO/BOP	Shuts down drywell blowers and recirc pumps
		Attempts to Spray drywell and reports spray valve failure to open
		Dispatches AUO to manually open drywell spray valve
	SRO	Directs DW blowers be placed back in service
		Determines either DW temperature cannot be maintained less than 280 degrees F or inside safe area of PSP curve and enters C-2
		Directs emergency depressurization
	RO/BOP	Closes feedpump discharge valves; if not, must shutdown condensate booster pumps to keep from flooding steam lines
		Opens 6 ADS valves Verifies 6 ADS valves open Stabilizes water level +12" to +51" after depressurization
		Places all available suppression pool cooling in service after

Event Description: Main Transient. Scram/LOCA

Critical Tasks

1. Emergency depressurizes RPV based either upon drywell temperature cannot be maintained <280 F or exceeding safe area of PSP curve (but prior to 55 psig).
2. Sprays drywell when sprays are available.

Facility: Browns Ferry Scenario No.: 3 Op-Test No.: _____

Examiners: _____ Operators: _____

Initial Conditions: RWCU Pump 2B is under clearance for pump seal replacement and is expected to be under clearance until next shift.

CRD 1B pump is out of service for breaker maintenance (PM).

IRM Channel C is failed downscale and has been placed in the tripped condition IAW OI-92A.

Turnover: The plant is operating at 49% power. Plant startup is in progress. Currently at Step 5.118 of GOI-100-1A, Unit Start Up and Power Operations.

Event No.	Malf. No.	Event Type*	Event Description
1		R	Increase Power to 100% power.
2	rd07r0231	C/RO	Control Rod Drift (Rod 26-39)
3	RD02	I/RO	CRD Flow control Valve Fails Closed. FCV-85-11
4	mrf rdx	N/RO	Swap CRD Flow Control Valves
4a	an:2xa55 5b20 alarm_on zlohs636a l1 off	C/BOP	Loss of operating EECW pump North header (C3)
5		C/RO	2B RECIRC PUMP GENERATOR LOCKOUT
6	HP01	I/BOP	Inadvertent HPCI Pump Start.
7		MT <i>146</i>	Fuel Failure , Main Steam line leak, RCIC Break, HPCI inverter failure, CRD pump failure. FRV fails open

- (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

[illegible]

Op-Test No.: _____ Scenario No.: 3 Event No.: 2

Event Description: Control Rod Drift, rod drift is deleted after 8 steps, then place the malfunction back in to have a - - value vice 00.

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Announces "Rod Drift" alarm, 5A window 28
		Identifies rod 26-39 as drifting in
	SRO	Directs actions per 2-AOI-85-5, Rod Drift In
		Directs rod 26-39 be continuously inserted to 00
		Informs Reactor Engineer
	RO	Verifies Rod 26-39 is fully inserted Checks Thermal Limits Verifies CRD operating parameters within limits Adjust rod pattern as directed by RE
		Directs AUO to check the following: - scram pilot air header aligned - check scram outlet valve for leakage - check scram inlet valve for leakage
ROLE PLAY: 3 minutes after being sent, AUO sent to HCU for Control Rod 26-39 reports scram outlet riser warm to the touch all other risers at normal temperature.		
		Directs charging water to 26-39 be closed
ROLE PLAY: If requested to close 85-588 for rod 26-39, report that 85-588 is closed after one minute.		
	SRO	Declares accumulator inoperable per Tech Spec 3.1.5 and addresses actions (when charging water is isolated)
		Directs scrambling of affected rod from panel 9-16 in Aux. Inst. Room
		Directs operator to Aux. Inst. Room for rod scram
	RO/BOP	Establishes communication with operator and AUO Directs operator to scram rod by taking scram switch to "down" position Verifies rod Full In Direct operator to return scram switch to 'up' position

Event Description: Control Rod Drift, rod drift is deleted after 8 steps, then place the malfunction back in to have a - - value vice 00.

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Op-Test No.: _____ Scenario No.: 3 Event No.: 3/4

Event Description: FCV 85-11, CRD Flow control Valve Fails Closed. Shift CRD flow Control Valves

Time	Position	Applicant's Actions or Behavior
	RO	CRD ACCUM CHG WTR HDR PRESS HIGH alarm 9-5A window 10
		Recognize/ announce that the CRD Flow Control Valve has failed closed
	SRO	Refer to 2-ARP-9-5A-10, 2-AOI-85-3, and 2-OI-85.
	RO	Attempt to manually open in service FCV. Report attempt unsuccessful. Directs NLO to inspect in service CRD FCV.
NOTE: Simulator Operator should when asked, that the FCV indicates closed locally and no other abnormalities were noted.		
	SRO	Direct shifting of standby FCV.
	RO	Direct NLO to perform section 6.3.3 of 2-OI-85.
		Balance controller and shift to standby FCV.
		Adjust CRD system for normal values Clg water dp is 20 Drive water dp is 250-270 Flow 40-65 gpm
	SRO	Initiate maintenance action to repair failed FCV.
	BOP	Assist RO.

Event Description: Loss of operating EECW pump North header (C3)

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Op-Test No.: _____ Scenario No.: 3 Event No.: 5

Event Description: 2B RECIRC PUMP GENERATOR LOCKOUT

Time	Position	Applicant's Actions or Behavior
	RO	Recognizes and reports decrease in "2B" Recirc. Pump speed
	SRO	Directs the following actions per AOI-68-1: Power to flow map checked for Region Reactor Engineer to control room
	RO/BOP	Checks power to flow map
		Recognizes power oscillations
	SRO	Directs rods inserted to dampen oscillations (conditional)
	RO/BOP	Inserts control rods as directed (conditional)
	SRO	Directs maintenance to investigate loss of "2B" Recirc Pump
	ALL	Consults Tech Specs and determines 24 hour LCO to satisfy requirements of SLO
	SRO	Directs RE to perform 2-SR-3.4.1(SLO)
	RO/BOP	Closes 2B Recirc pump discharge valve
	RO	Maintains operating pump flow less than 46,600 gpm and Jet pump flow greater than 41 million lbm/hr. RO will have to increase RCP speed in the "A" pump to have Jet pump speed greater than 41 million lbm/hr.
		Opens Recirc pump discharge valve after ~ 5 minutes

Op-Test No.: _____ Scenario No.: 3 Event No.: 6

Event Description: Inadvertent HPCI Pump Start.

Time	Position	Applicant's Actions or Behavior
	BOP	Annunciator HPCI Pump Discharge Flow Low 2-FA-73-33 window 5 Recognize/Announce that HPCI has started.
	SRO	Refer to 2-OI-73, Section 7.1 (Shutdown and Return to Standby Readiness)
	BOP	Reset auto initiation
		Depress and hold HPCI Turbine Trip pushbutton. 2-HS-73-18A
		Close Steam Supply Valve, 2-FCV-73-16.
		When Turbine speed indicates zero, release HPCI Turbine Trip Pushbutton.
		Verify Closed Min flow valve , FCV-73-30
		Take Aux Oil pump to Pull To Lock
		Close HPCI Injection Valve. FVC 73-44
	SRO	Consult Tech Specs. , Enter Appropriate LCO. 3.5.1.C and verifies RCIC operable and enters a 14 day LCO
		Take action to start maintenance, notify SS and operations manager.
	RO	Monitor plant parameters and take action as necessary.

Op-Test No.: _____ Scenario No.: 3 Event No.: 7

Event Description: Fuel Failure, Main Steam line leak, RCIC Break, HPCI inverter failure, CRD pump failure. (FROM OPL 177.064), SRV fails open

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Announces alarms as follows: - OG Avg. Annual Release limit exceeded.
		- OG Pre Trt. Rad High
		- Main steam line high radiation Turbine Bldg area radiation high Note: Condenser Corridor > 1000 mr/hr
		Evacuates TB/RB area
		Check instruments as follows, reporting increase in radiation RR-90-157 (OG Prett) RR-90-135 (MSL Rad)
		Notifies Rad. Con.
		Checks off-gas flow
		Announce Rx Bldg area Rad. High (RM 90-21A and 90-20A)
		Notifies Chem Lab to Sample
	SRO	Directs power reduction via reduction in core flow
	ALL	Recognizes Group 6 isolation on Hi rad
		Evacuates Reactor Building
	SRO	Declares NOUE (1.4-U or 6.1-U) [If time permits]
		Enters 2-EOI-3
		Directs manual scram (Steam Temperature rising)
	RO/BOP	Manually scrams and verifies all rods inserted
	RO/BOP	Carries out 2-AOI-100-1 actions
		- Trips main turbine - Trips 2 RFPS - Verify recirc pumps at minimum

Op-Test No.: _____ Scenario No.: 3 Event No.: 7

Event Description: Fuel Failure, Main Steam line leak, RCIC Break, HPCI inverter failure, CRD pump failure. (FROM OPL 177.064), SRV fails open

Time	Position	Applicant's Actions or Behavior
		- Verifies Gp 2 and 3 isolations
	All	Reports MSIVs not closed on MSL high temp (187 F) on panel 9-5 alarms. (Failure of MSIVs to Automatically close.)
	SRO	Directs Manual MSIV closure
		Enters EOI-4
		NOUE 4.2-U
	RO/BOP	Closes MSIVs
		Announces CRD Pump Trip
	SRO	Enters 2-EOI-1
		Directs pressure control <1043 psig
		Directs level control > -162"
	RO/BOP	Controls pressure as directed using SRVs;
		Controls level as directed using HPCI
		Reports reactor pressure decrease or response to MSRV open alarm
		Reports PCV 1-179 open
		Cycles PCV 1-179
	US	Directs actions to close PCV 1-179 per AOI-1-1 outside control room
	RO/BOP	Reports PCV 1-179 does not close, Monitors torus temperature
	SRO	Enters EOI-2 at 95 degrees F
		Directs available RHR placed in suppression pool cooling.
		Directs available RHR placed in suppression pool cooling.
	RO/BOP	Places both loops in suppression pool cooling.

Op-Test No.: _____ Scenario No.: 3 Event No.: 7

Event Description: Fuel Failure, Main Steam line leak, RCIC Break, HPCI inverter failure, CRD pump failure. (FROM OPL 177.064), SRV fails open

Time	Position	Applicant's Actions or Behavior
	US	Directs HPCI placed in Press and/or level control
	RO/BOP	Reports HPCI failure (120V Power Alarm)
		Reports RCIC high temp and/or isolation lights and failure to isolate
	SRO	Directs RCIC isolation
	RO/BOP	Closes FCV 71-2 and 3
	SRO	Directs Appendix 8G
	RO/BOP	Announce Recirc Trip at -45"
	SRO	Directs Appendix 7B
	RO/BOP	Performs Appendix 7B
	SRO	Directs preventing flooding vessel via Condensate system by closing RFP discharge valves
	RO/BOP	Closes RFP discharge valves
	SRO	Directs H2O2 analyzers placed in service
	RO/BOP	Places H2O2 analyzers in service, performs Appendix 8G
	ALL	Announces loss of "C" Unit Bd
	SRO	Directs outside US to check Board
		Enters C1, Directs ADS inhibited

Op-Test No.: _____ Scenario No.: 3 Event No.: 7

Event Description: Fuel Failure, Main Steam line leak, RCIC Break, HPCI inverter failure, CRD pump failure. (FROM OPL 177.064), SRV fails open

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Inhibits ADS
		Reports SRV closed
	SRO	When level decreases to TAF directs Emergency depressurization
	RO/BOP	Opens 6 ADS Valves, verifies open
	SRO	Renters EOI-1 and 2 at 2.45 psig DWP (Conditional)
		Declares Alert 2.1-A. (Conditional)
	RO/BOP	Restores water level +12 to +51 with LPCI, Condensate, Core Spray
	SRO	Classifies event as Site Area Emergency (1.1-S1)
Critical Tasks		
1	Isolates MSIVs prior to 2 Area Radiations/Temperatures reaching Max Safe	
2	Isolates RCIC prior to 2 Area Radiations/Temperatures reaching Max Safe	
3	Emergency depressurizes when RPV water level decreases below TAF, but prior to -200"	
4	Restores and maintains RPV water level above TAF after emergency depressurization.	

Facility: Browns Ferry Scenario No.: 4 Op-Test No.: _____

Examiners: _____ Operators: _____

Initial Conditions: Both 2B and 2D RHR pumps inoperable. A unit shut down is in progress. 2A RPS is on alternate for repairs to the 2A MG set.

Turnover: Shut down Unit 2 based on RHR pumps inoperable. ~91% and decreasing power.

Event No.	Malf. No.	Event Type*	Event Description
1		R/RO	Decrease power to Cold Shutdown
2	imfth20r	I/RO	Jet Pump failure
3		N/RO	Perform Jet Pump operability test per 2-SI-4.6.E.1/ Continue with Plant shutdown.
4	FW05B	C/BOP R/RO	"B" Feedwater heater string isolates - High Pressure Heater String
5	custom made	I/BOP	EHC Pump 2A discharge pressure decreases with a failure of automatic start of the 2B EHC pump.
6	RD01A	C/RO	"A" CRD pump trip
7	imf ed09d imf rc 09 imf rc10	MT	Loss of 4 KV Shutdown Board D, Loss of both RPS buses
		C	RCIC Steam Line Break, failure of RCIC to automatically isolate
		C	Low Suppression Pool Water Level, torus level leak
		C	ADS Valve failure
		C	HPCI autostart failure.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Op-Test No.: _____ Scenario No.: _____ Event No.: __½__

Event Description: Lower power to 85% power using recirculation flow, with, Jet pump failure.

Time	Position	Applicant's Actions or Behavior
	SRO	Direct RO to lower reactor power using recirculation flow.
	RO	Adjusts recirculation flow to lower reactor power
		Observe reactor power - monitor for power oscillations
		observe that reactor power has lowered.
		Recognize jet pump 16 has failed, notice: A decrease in Generator Mwe due to a decrease in core flow. Core plate delta p will drop corresponding to the core flow decrease.
		Report this to the SRO
	SRO	Directs BOP to perform SR 3.4.2.1, Jet pump operability
		Refer to TS section 3.4.2 concerning operability of the jet pump.
	BOP	Observes the loss of turbine megawatts
		Monitors other steam plant indications for problems.
		Performs SR 3.4.2.1
		Review the surveillance procedure
		Review precautions and ensure the prerequisites are met

Event Description: Perform Jet Pump operability test per 2-SI-4.6.E.1

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Op-Test No.: _____ Scenario No.: 4 Event No.: 4

Event Description: "B" Feedwater heater string isolates - High Pressure Heater String with failure of HS-5-21A and 5-9A, Hp heater 2B1/2B2 extraction isolation valves.

Time	Position	Applicant's Actions or Behavior
	BOP	Observes: Feedwater temperature lowers Reactor power rises Speed of the operating reactor feed pump turbines rises
		May receive on panel 2.9.5: LPRM High (2-XA-55-5A, Window 11) RBM High/ INOP (2-XA-55-5a, Window 24) ADD ADDITIONAL ANNUNCIATORS THAT MAY COME IN. Bypass valve to condenser not Closed. 6A window 18 Heater B2 level High 6A window 9.
		Diagnose that "B" HP feedwater heater string has isolated.
	BOP	Take actions in accordance with 2 AOI-6-1A: VERIFY AUTOMATIC ACTIONS OCCUR: The High Pressure Heater Extraction Isolation Valves close, the Moisture Separator Drain Pump Suction Valve closes and the Moisture Separator Drain Pumps Trip. Identify that HS-5-21A and 5-9A, Hp heater 2B1/2B2 extraction isolation valves did not close. Report to the SRO and tell SRO that the closing these valves.
	SRO	Direct operator actions in accordance with 2 AOI-6-1A, Feedwater Heater String/Extraction Steam Isolation.
		Direct RO to reduce reactor power using recirc flow and rods as necessary. Will use the Mid power runback (2HS-68-43) to reduce power to less than 79%.
		NOTIFY Reactor Engineer of feedwater heater isolation and power reduction

Op-Test No.: _____ Scenario No.: 4 Event No.: 4

Event Description: "B" Feedwater heater string isolates - High Pressure Heater String with failure of HS-5-21A and 5-9A, Hp heater 2B1/2B2 extraction isolation valves.

Time	Position	Applicant's Actions or Behavior
	RO	ADJUST reactor power and flow as directed by Reactor Engineer/Unit Supervisor to stay within required thermal and feedwater temperature limits. REFER TO 2-GOI-100-12 or 2-GOI-100-12A for the power reduction.
	BOP	ISOLATE heater drain flow from the feedwater heater string by closing the appropriate FEEDWATER HEATER A2(B2)(C2) DRAIN TO HTR A3(B3)(C3), 2-FCV-6-94(95)(96)
	SRO	REFER TO <u>2-OI-6</u> for turbine load restrictions
	BOP	<p>Verify the following valves closed: The following valves must be manually closed: 2-FCV-3-31, HP HTR 2B2 FW INLET ISOL VALVE 2-FCV-3-76, HP HTR 2B1 FW OUTLET ISOL VALVE</p> <p>The following valves and pumps AUTO Isolate 2-FCV-6-74, MSR DR PMP 2B1 SUCTION VALVE 2-FCV-6-172, MSR DR PMP 2B2 SUCTION VALVE MSR Drain Pumps 2B1 and 2B2 trip</p> <p>These two valves should have auto isolated and must be manually closed.</p> <p>2-FCV-5-9, HP HEATER 2B1 EXTR ISOL VLV 2-FCV-5-21, HP HEATER 2B2 EXTR ISOL VLV</p>

Op-Test No.: _____ Scenario No.: __4__ Event No.: __5__		
Event Description: EHC Pump 2A discharge pressure decreases with a failure of automatic start of the 2B EHC pump.		
Time	Position	Applicant's Actions or Behavior
	BOP	Recognize/announce the discharge pressure is decreasing. EHC HYD Fluid Hdr Press Low 2-PA-47-1 , 7B window 1
		Recognize that the 2B EHC pump has not automatically started. Manually start the 2B EHC pump.
	SRO	Acknowledge the failure of the 2A EHC pump.
		Direct the BOP to manually start the 2B EHC pump. Dispatch an operator to the 2A EHC pump to investigate failure and dispatch an IM tech to identify why the 2B pump did not auto start.
	BOP	Reports the 2B started manually and discharge pressure is normal.
	SRO	Direct repair of the EHC pumps
	RO	Monitor reactor pressure and primary systems. Support BOP if necessary.

Op-Test No.: _____ Scenario No.: 4 Event No.: 6

Event Description: "2A" CRD pump trip.

Time	Position	Applicant's Actions or Behavior
	RO	Recognize "A" CRD pump has tripped.
		Review annunciators/indications: CRD Pump A breaker tripped _CRD PUMP A SUCT PRESS LOW annunciator, (2-XA-55-5A, Window 2) in alarm. CRD DRIVE WTR HDR DP, 2-PDI-85-17A, less than 250 psid
		Report to SRO
	SRO	Acknowledge the report of loss of CRD "A" pump trip. Direct actions of 2-AOI-85-3, CRD system Failure
	RO	4.1.1 IF operating CRD Pump has tripped and Standby CRD Pump is AVAILABLE, THEN PERFORM the following at Panel 2-9-5: 4.1.1.1 PLACE CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, in MAN at minimum setting. 4.1.1.2 START associated standby CRD Pump using one of the following: — CRD PUMP 1B, using 2-HS-85-2A. — CRD Pump 2A, using 2-HS-85-1A. 4.1.1.3 IF CRD Pump 1B was started, THEN OPEN CRD PUMP 1B DISCH TO U2, using 2-HS-85-8A. 4.1.1.4 ADJUST CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, to establish the following conditions: — CRD CLG WTR HDR DP, 2-PDI-85-18A, approx 20 psid. — CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, between 40 and 65 gpm. 4.1.1.5 BALANCE CRD SYSTEM FLOW CONTROL, 2-FIC-85-11,

Event Description: "2A" CRD pump trip.

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Op-Test No.: _____ Scenario No.: 4 Event No.: 7

Event Description: Loss of 4 KV Shutdown Board D, RCIC Steam Line Leak

Time	Position	Applicant's Actions or Behavior
	RO/BOP	
	ALL	Identifies/Reports a loss of 4kV Shutdown Board "D" (Remember the bus is on alternate power)
	RO	Verifies all rods in by:
		- one rod permissive - green backgrounds - ICS
	Crew	Identifies/reports MSIV closure
	RO/BOP	Transfers 480V Shutdown Board 2B and 'B' Diesel Aux Bd to alternate
		Loss of Loop II core spray valves, RHR loop II valves lost.
	SRO	Enters EO1 1 and directs the following:
		- UOs to enter AOI-100-1 for power control
		Pressure be maintained 800 to 1000 psig with one or more of the following *MSRV's (App 11A) *HPCI (App 11C) *RCIC (App 11B)
		- RPV level maintained +12" to +51" with one or more of the following *HPCI *RCIC *CRD
	RO/BOP	Carries out the following actions
		- Inserts SRM's and IRM's
		- Changes recorders from APRM's to IRM's
		- Mode switch to shutdown
	RO/BOP	Ranges down to follow power

Op-Test No.: _____ Scenario No.: 4 Event No.: 7

Event Description: Loss of 4 KV Shutdown Board D, RCIC Steam Line Leak

		Maintains RPV pressure between 800 to 1000 psig with SRVs
		Maintains RPV level between +12" and +51"
		Restores RPS power
		Verifies PCIS isolations
		When HPCI used for pressure or level control, recognizes automatic control on controller failed, and operates in manual
		Places RCIC in service for level control
	SRO	Directs App 8G be performed (if necessary)
	RO/BOP	Performs App 8G (if necessary)
	CREW	Monitors containment parameters
	RO/BOP	Identifies/reports "RCIC Steam line Leak Detection Temp. High"
	SRO	Enters EOI 3 and directs the following: - Rx Bldg be evacuated - RCIC area temperature be monitored - verify RCIC is isolated - Radcon be notified
	RO/BOP	Evacuates affected area of the Reactor Building Monitors RCIC room temperature Identifies/reports RCIC failure to isolate
	SRO	Directs RCIC be isolated
	RO/BOP	Isolates RCIC
	SRO	Direct SP/C placed in service per OI-74 or EOI-2 as necessary

Op-Test No.: _____ Scenario No.: 4 Event No.: 8

Event Description: LOW SUPPRESSION POOL LEVEL/EMERGENCY DEPRESSURIZATION

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Announces alarm "Core Spray Loop I/RCIC Pump Room Flood Level High"
	SRO	Enters EOI 3 on flood alarms
		Directs investigation of area for level and leakage source
	RO/SRO	Announces alarm "Suppr Chamber Water Level Abnormal"
		Reports level < 6.25"
		Reports abnormal operation of Loop I RHR pumps (Pressure and Amps swinging)
	SRO	Directs Cooldown at <100°F
		Enters EOI 2 on Suppression Pool Level
		Direct Appendix 18 for Suppression Pool level control
		Directs opening 71-34 at breaker
		Directs Loop I RHR pumps be secured
	RO/BOP	Secure RHR pumps 'A' and 'C'
	SRO	Directs App. R switches transferred to "shutdown" and closure of RHR 'A' and 'C' Suppression pool suction valves (possible)
	CREW	Monitors cntmt parameters
		Re-enters EOI 2 on SP/T when SP/T reaches 95 F
	SRO	Directs HPCI locked out when SP level reaches 12.75 feet
		Initiate cooldown with MSRVs

Event Description: LOW SUPPRESSION POOL LEVEL/EMERGENCY DEPRESSURIZATION

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FINAL SUBMITTAL

**BROWNS FERRY 2000-301
50-259, 260, and 296/2000-301**

**JUNE 12 - 15, JUNE 27 - 29, AND
JUNE 30, 2000**

NUREG-1021 - ES-501

ES-301-1 - ADMIN TOPICS OUTLINE

**ES-301-2 - CONTROL ROOM SYSTEMS
AND FACILITY WALK-THROUGH TEST
OUTLINE**

Facility: Browns Ferry Date of Examination: 6/15-16/26-29

Examination Level (circle one): RO / SRO

Operating Test Number: 1

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification (2)	RO- NRC JPM - 03, Evaluate Recombiner Performance.
		SRO-NRC JPM - 03, Evaluate Recombiner Performance
	Shift Staffing Requirements (1)	RO - NRC-JPM-02 (NEW), Evaluate Overtime Eligibility
		SRO - NRC-JPM-02 (NEW), Evaluate Overtime Eligibility
A.2	Equipment Operability Requirements	RO-NRC - 04, Review of Core Spray MOV Operability Test
		SRO-NRC - 04, Review of Core Spray MOV Operability Test
A.3	Control of Radiation Releases	Determine Stack Noble Gas Release Rate, <u>JPM #130</u> , KA 271000A4.05, 3.2/3.9
		Determine Stack Noble Gas Release Rate, <u>JPM #130</u> , KA 271000A4.05, 3.2/3.9
A.4	Emergency Plan	RO - 1. Emergency Class Levels . 2. Evaluation of reportable event. 3. Time frame for reporting. 4. Determination of reportable events.
		SRO - <u>JPM # 180</u> , Classify the Event Per the REP (Loss of All Power to 4 KV S/D Boards > 3 hours). The JPM needs to be adjusted to make the actual time requirements ie.,
		State notification within 15 minutes, Step 1 requires ODS notified with in 5 minutes.

Developed for the Browns Ferry, June 2000, Initial Examination
Examination Report # 2000-301



U. S. Nuclear Regulatory Commission

Region II

A-1 Administrative Section RO

NRC-JPM-03

Title:

Evaluate Recombiner Performance

IAW

2-OI-66, Off-Gas System

Section 6.1

Candidate Hand Out

SAFETY CONSIDERATIONS:

NONE:

EVALUATOR NOTES:

1. The applicable procedure section will not be provided to the candidate.
 2. If this is the first JPM of the JPM set, read the JPM briefing contained in NUREG-1021, Appendix E, or similar to the candidate.
-

Read the following to the Candidate.

TASK CONDITIONS:

The plant is in the following condition: Obtain from facility to get proper terminology.

The Shift Manager asks you to evaluate Recombiner 2As performance.

The HWC (Hydrogen Water Chemistry) System is shutdown.

Candidate Hand Out

STEP 1. Obtain a current copy of OI-66, Off-Gas System, Section 6.1 Recombiner Performance Evaluation.

Current Revision of OI-66 obtained and verified IAW _____ if applicable.

SAT/UNSAT _____*

STEP 2. (6.1.1.1) DETERMINE the in-service recombinder inlet temperature as indicated on RECOMBINER 2A(2B), INLET TEMP 2-TI-66-75A(B), Panel 2-9-53.

Determined the temperature of Recombiner, 2A(2B) INLET TEMP 2-TI-66-75A(B), Panel 2-9-53.

CUE: 2-TI-66-75A is reading 38.2 degrees Fahrenheit

Critical Task SAT/UNSAT _____*

STEP 3. (6.1.1.2) DETERMINE the in-service recombinder operating (center) temperature as indicated on RECOMBINER 2A/2B TEMPERATURE recorder, 2-TRS-66-77, Panel 2-9-53.

Determined the in-service recombinder operating (center) temperature as indicated on RECOMBINER 2A/2B TEMPERATURE recorder, 2-TRS-66-77, Panel 2-9-53.

degrees CUE: 2A recombinder center temperature on 2-TR-66-77 is reading 618 Fahrenheit

Critical Task SAT/UNSAT _____*

STEP 4. (6.1.1.3) CALCULATE the temperature difference (delta T) between the values obtained in Steps 1 and 2.

Calculated the temperature difference (delta T) between the values obtained in Steps 1 and 2. (236 degrees Fahrenheit)

Critical Task SAT/UNSAT _____*

Candidate Hand Out

STEP 5. (6.1.1.4) DETERMINE the reactor thermal power (MWt) from process computer.

Determined reactor thermal power (MWt) from process computer.

CUE : Reactor Thermal power 3430 MWt

SAT/UNSAT* _____

STEP 6. (6.1.1.5) OBTAIN from Illustration 1 the delta T value corresponding to the reactor power.

Obtained the delta T value corresponding to the reactor power from Illustration 1. (240.1)

SAT/UNSAT* _____

NOTE:

Illustration 1 is based on operating conditions with HWC shutdown. Additional curve(s) will be required to reflect normal operating conditions when the HWC system's nominal operating condition(s) is determined.

STEP 7. (6.1.1.6) VERIFY the calculated delta T is greater than or equal to the value obtained from the table.

VERIFIED the calculated delta T is greater than or equal to the value obtained from the table. The Candidate determines that the delta T is **NOT** greater than or equal to the value obtained in Illustration 1.

Stop the performance of this task and inform the SRO that the acceptance criteria is NOT met

Candidate Hand Out

SAT/UNSAT* _____

6.1 Recombiner Performance Evaluation (continued)

STEP 8. (6.1.2) IF the in-service recombiner performance is below the minimum allowable, THEN:

PERFORM the following:

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

CHECKS Off-Gas Preheater, Recombiner and SJAES are in operation in accordance with Section 5.0.

CUE: Another Operator will check that the Preheater, Recombiner and SJAES are in operation in accordance with Section 5.0.

.....SAT/UNSAT* _____

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

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

SAT/UNSAT* _____

CUE: Acknowledge report of delta T not meeting the acceptance criteria. Tell the candidate to continue in the procedure.

CUE: Both Offgas Hydrogen Analyzers are operable

Candidate Hand Out

STEP 10. (6.1.2.3) IF both hydrogen analyzers are inoperable, THEN REQUEST Chem Lab to obtain a grab sample to determine hydrogen concentration. REFER TO TRM 3.3.9.

Determine step is NA

SAT/UNSAT*_____

STEP 11. (6.1.2.4) IF a malfunction of the SJAE is suspected, THEN

REFER TO Section 8.4 and TRANSFER SJAEs.

DETERMINES a malfunction of the SJAE is NOT suspected.

SAT/UNSAT*_____

STEP 12. (6.1.3) IF off-gas hydrogen rises above 1%, THEN

REFER TO 2-AOI-66-1.

DETERMINES Hydrogen did not rise above 1%.

CUE: Hydrogen concentration is 0.35%

SAT/UNSAT*_____

Candidate Hand Out

STEP 13. (6.1.4) Only IF analysis or hydrogen analyzers show hydrogen concentration is below 4%, THEN

PLACE standby recombiner in operation. REFER TO Section 8.3.

DETERMINES that the standby recombiner need to be placed in operation. Reports this to the SRO.

CUE: Another operator will place the standby recombiner in operation. This ends the JPM.

SAT/UNSAT*_____

Candidate Hand Out

RELATED TASKS:

K/A REFERENCE:

GEN 2.1.7, Ability to evaluate plant performance and make operational judgments based on operating characteristics / reactor behavior / and instrument interpretation.

REFERENCES:

OFF Gas System, OI-66, Revision 60

TOOLS AND EQUIPMENT:

Simulator

SAFETY FUNCTION (from NUREG 1123, Rev. 2.)

A-1 Conduct Of Operations

NEW JPM FOR BROWNS FERRY 2000 EXAMINATION. NRC JPM -03

Candidate Hand Out

TASK CONDITIONS:

The plant is in the following condition: 100% power. The HWC (Hydrogen Water Chemistry)

System is shutdown.

The Shift Manager asks you to evaluate Recombiner 2As performance.

Developed for the Browns Ferry, June 2000, Initial Examination
Examination Report # 2000-301



U. S. Nuclear Regulatory Commission

Region II

A-1 Administrative Section

NRC-JPM-02

Title:

Evaluate Overtime Eligibility

Evaluate Over time Eligibility

SAFETY CONSIDERATIONS:

NONE:

EVALUATOR NOTES:

1. The applicable procedure section will not be provided to the candidate.
 2. If this is the first JPM of the JPM set, read the JPM briefing contained in NUREG-1021, Appendix E, or similar to the candidate.
-

Read the following to the Candidate.

TASK CONDITIONS:

1. A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup.
2. The following is the work history (excluding shift turnover time) of the available reactor operators on shift. A break of at least 8 hours occurred between all work periods. All operators began their shift at the same time each day.

Evaluate Over time Eligibility

TASK CONDITIONS:

1. A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup.
2. The following is the work history (excluding shift turnover time) of the available reactor operators on shift. A break of at least 8 hours occurred between all work periods. All operators began their shift at the same time each day.

DAY	1	2	3	4	5	6	7	8 (Today)
Operator #1	0	0	12	12	12	8	14	10
Operator #2	0	0	12	12	12	12	8	14
Operator #3	0	0	12	12	12	8	8	15
Operator #4	0	8	12	10	10	8	10	12
Operator #5	0	4	12	10	10	14	10	12

INITIATING CUE:

Evaluate the work history for all 5 operators. Determine which operator(s), if any, can be held over for two hours without prior overtime approval, and determine which operators CANNOT be held over for two hours without prior overtime approval.

Evaluate Over time Eligibility

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the Comments.

STEP 1. Obtain a current copy of Technical Specifications or SPP - 1.5, Overtime Restrictions (Regulatory)

Current Revision of TS or SPP 1.5 obtained and verified latest rev ____ if applicable.

SAT/UNSAT* ____

STEP 2. Determine Operator #1 would exceed 24 hours in a 48 hour period.

Determined that Operator #1 would exceed 24 hours in a 48 hour period. (Day 7 and 8 already have 24 hours, if worked 2 more hours it would be 26 hours in a 48 hour period.)

Critical StepSAT/UNSAT* ____

STEP 3. Determine Operator #2 would not exceed any overtime restrictions.

Determined Operator #2 would not exceed any overtime restrictions.

SAT/UNSAT* ____

STEP 4. Determine Operator #3 would exceed 16 hours straight.

Determined Operator #3 would exceed 16 hours straight.

Critical StepSAT/UNSAT* ____

Evaluate Over time Eligibility

STEP 5. Determine Operator #4 would not exceed any overtime restrictions.

Determined Operator #4 would not exceed any overtime restrictions.

SAT/UNSAT* _____

STEP 6. Determine Operator #5 would exceed 72 hours in a 7 day period.

Determined Operator #5 would exceed 72 hours in a 7 day period.(day 2 thru day 8 72+2=74)

Critical StepSAT/UNSAT* _____

<p>TERMINATING CUE: When the candidate has evaluated overtime restrictions, this JPM is complete.</p>

* Comments required for any step evaluated as unsat.

Evaluate Over time Eligibility

RELATED TASKS:

Conduct shift turnover and relief

K/A REFERENCE:

GEN 2.1.5

REFERENCES:

TS 5.2.2, SPP - 1.5, Overtime Restrictions (Regulatory)

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev. 2.)

A-1 Conduct Of Operations

NEW JPM FOR BROWNS FERRY 2000 EXAMINATION.

Evaluate Over time Eligibility

Time required for Completion: 10 minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ☒ Actual ☐ Unit ☐
Setting: Control Room ☒ Simulator ☐ (Not applicable to In-Plant JPMS)
Time Critical: Yes ☐ No ☒ Time Limit NA
Alternate Path: No ☐ No ☒

EVALUATION

CANDIDATE's NAME: _____

JPM: PASS ☐ FAIL: ☐

Comments: _____

Examiners Name. _____ Date: _____

Candidate's Handout

Candidate's Name _____

TASK CONDITIONS:

1. A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup.
2. The following is the work history (excluding shift turnover time) of the available reactor operators on shift. A break of at least 8 hours occurred between all work periods. All operators began their shift at the same time each day.

DAY	1	2	3	4	5	6	7	8 (Today)
Operator #1	0	0	12	12	12	8	14	10
Operator #2	0	0	12	12	12	12	8	14
Operator #3	0	0	12	12	12	8	8	15
Operator #4	0	8	12	10	10	8	10	12
Operator #5	0	4	12	10	10	14	10	12

INITIATING CUE:

Evaluate the work history for all 5 operators. Determine which operator(s), if any, can be held over for two hours without prior overtime approval, and determine which operators CANNOT be held over for two hours without prior overtime approval.

Developed for the Browns Ferry, June 2000, Initial Examination
Examination Report # 2000-301



U. S. Nuclear Regulatory Commission

Region II

A-2 Administrative Section

NRC-JPM-04

Title:

Review of Core Spray MOV Operability Test

IAW

2-SR-3.6.1.3.5 (CS II), Core Spray MOV Operability Test

Developed for the Browns Ferry, June 2000, Initial Examination
Examination Report # 2000-301

Read the Following to the Candidate

Initial Conditions:

1. Unit 2 is in MODE 1.
2. 2-SR-3.6.1.3.5 (CS II), "Core Spray MOV Operability Test," has just been completed.

Initiating Cues:

Review the procedure and determine the acceptability of the test.

Candidate Hand Out

Candidate's Name _____

START TIME _____

STEP 1. Obtain the completed copy of 2-SR-3.6.1.3.5(CSII), "Core Spray MOV Operability Test."

Candidate receives completed SR.

SAT/UNSAT* _____

STEP 2. The candidate reviews the procedure.

The candidate REVIEWS 2-SR-3.6.1.3.5(CSII), "Core Spray MOV Operability Test."

SAT/UNSAT* _____

STEP 3. The candidate evaluates the CLOSING stroke time data for 2-FCV-75-51.

(7.6.2) Closing stroke time for 2-FCV-75-51 recorded.

The candidate evaluates and determines that step 7.6.2 is Satisfactory.

SAT/UNSAT* _____

STEP 4. The candidate evaluates the OPEN stroke time for 2-FCV-75-53.

(7.6.3) Open stroke time for 2-FCV-75-53.

(7.6.3.1) Stroke time recorded and less than maximum value.

The candidate evaluates and determines that steps 7.6.3 and 7.6.3.1 are completed satisfactorily and meet the acceptance criteria.

SAT/UNSAT* _____

Candidate Hand Out

Candidate's Name _____

STEP 5. (7.6.4) The candidate evaluates step 7.6.4 and determines the step was signed off properly.

The candidate determined that the annunciator did not come in and that step 7.6.4 was signed off properly.

SAT/UNSAT* _____

STEP 6. The candidate evaluates the CLOSE stroke time data for 2-FCV-75-53.

(7.6.5) CLOSE 2-FCV-75-52 stroke time recorded and less than maximum value.

The candidate determined that the CLOSE stroke time was within limits and was properly recorded.

SAT/UNSAT* _____

STEP 7. (7.6.6) The candidate evaluates acceptance criteria. The candidate evaluates that steps 7.6.6.1 and 7.6.6.2 do not have to be performed.

The candidate determined that stroke times in 7.6.3 and 7.6.5 are less than maximum values listed.

The candidate also determines that the valves do not need to be re-stroked and steps 7.6.6.1 and 7.6.6.2 need to be N/A ed.

SAT/UNSAT* _____

Candidate Hand Out

Candidate's Name _____

STEP 8. The candidate evaluates the OPEN Stroke time for 2-FCV-75-51.

(7.6.7) Open stroke time testing for. 2-FCV-75-51.

The candidate Evaluates the OPEN stroke time data for 2-FCV-75-51 and Determined that the valve data is UNSATISFACTORY in the OPEN direction. The valve must be declared INOP or retested.

The candidate Determined that the person performing the SR did not perform steps 7.6.8 thru 7.6.8.1 & 7.6.8.2. As should have been required since the open time was out of specification.

The candidate Determined that Attachment 3 should have been filled out for valve 2-FCV-75-51.

The Candidate should report this information to the UO and the US.

CUE: US acknowledges this finding, continue with the review.

Critical Step SAT/UNSAT* _____

STEP 9. (7.6.9) If the CS System Loop II was declared inoperable ONLY because of 2-FCV-75-51 closure, THEN

EXIT CS System LCO and RECORD time; otherwise, N/A.

CUE: CSS II is INOP until flow rate test has been completed
SAT

The candidate determines that this closure was correct.

SAT/UNSAT* _____

Candidate Hand Out

Candidate's Name _____

STEP 10. (7.7) The candidate evaluates the CLOSE stroke time for 2-FCV-75-37.

The candidate should determine the CLOSE stroke time is greater than the maximum closure time.

The candidate determined the CLOSE stroke time exceeds the maximum closure time and that the performer incorrectly signed this step without retest.

CUE: US acknowledges this finding, continue with the review.

Critical Step SAT/UNSAT* _____

STEP 11. (7.7.2) The candidate evaluates the OPEN stroke time for 2-FCV-75-37.

The candidate should determine the OPEN stroke time is outside the band for normal operations

CUE: US acknowledges this finding, continue with the review.

Critical Step SAT/UNSAT* _____

STEP 12. (7.7.3) The candidate evaluates that valve, 2.-FCV-75.37 should not of been re-stroked in accordance with steps 7.7.3.1 and 7.7.3.2. and should be declared INOP

The candidate determined that Attachments 2 and 3 were improperly performed for valve 2.-FCV-75.37.

Candidate Hand Out

Candidate's Name _____

SAT/UNSAT* _____

Candidate Hand Out

Candidate's Name _____

STEP 13. (7.8 thru 7.12) The candidate evaluates the completed steps.

The candidate evaluated steps 7.8-7.12 and determined they were completed and documented satisfactorily.

SAT/UNSAT* _____

JPM NUMBER: 130

TITLE: DETERMINE STACK NOBLE GAS RELEASE RATE

TASK NUMBER: U-090-SU-02

SUBMITTED BY: _____ DATE: _____
 VALIDATED BY: _____ DATE: _____
 APPROVED: _____ DATE: _____
 _____ TRAINING
 PLANT CONCURRENCE: _____ DATE: _____
 _____ OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
2	10/4/94	ALL	GENERAL REVISION
3	5/2/96	2,3,7	PROCEDURE UPDATE, ADDED WRGERMS DATA TO STEP 7.9.4.2 AND ADDED STEP 7.9.4.3
4	05/22/00	ALL	PROCEDURE REVISION, DELETE SIMULATOR GUIDE (PAGE 4), ADDED PLANT WORK EXPECTATIONS TOUCH STAAR AND 3-WAY COMM., ADDED U-3 ON LINE, FORMAT DUE TO PROCEDURE CHANGE.

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 130

TASK NUMBER: U-090-SU-02

TASK TITLE: PERFORM AIRBORNE EFFLUENT RELEASE RATE SI

K/A NUMBER: 271000A4.05 K/A RATING: RO 3.2 SRO: 3.9

*

TASK STANDARD:

LOCATION OF PERFORMANCE: SIMULATOR ____ PLANT ____ CONTROL ROOM X

REFERENCES/PROCEDURES NEEDED: 0-SI-4.8.B.1.a.1, REV 42

VALIDATION TIME: CONTROL ROOM: _____ LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM 8:00 LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES ____ NO ____

RESULTS: SATISFACTORY ____ UNSATISFACTORY ____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

IN-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say "my task is complete" and I will acknowledge that your task is complete.

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

1. **PERFORMER** shall demonstrate the use of TOUCH STAAR during this JPM.
2. **PERFORMER** shall demonstrate the use of 3-WAY COMMUNICATION.

INITIAL CONDITIONS: You are the Log AUO. Unit 2 and 3 are operating at power. Units 1 is defueled. 0-SI-4.8.B.1.a.1, Airborne Effluent Release Rate, is in progress.

INITIATING CUES: Determine the elevated (stack) noble gas release rate and release fraction per 0-SI-4.8.B.1.a.1. Alternative sampling is NOT necessary.

START TIME _____

Performance Step: Critical X Not Critical _____

7.9 **DETERMINE** the elevated (stack) noble gas release rates once per shift by completing the following steps:

7.9.1 **RECORD** the highest noble gas count rates (counts per second, cps) for the 0-RM-90-147 and 0-RM-90-148 monitors in the appropriate columns of Attachment 6 in accordance with one of the following steps:

7.9.1.1 If both the 0-RR-90-147 and at least one of the radiation monitors are operable, **OBTAIN** the necessary information from 0-RR-90-147 on Panel 9-2. If applicable, **RECORD** "OOS" in the appropriate column of Attachment 6 if one of the monitors is out of service.

7.9.1.2 If 0-RR-90-147 is inoperable and at least one of the radiation monitors is operable, **OBTAIN** the necessary data from the 0-RM-90-147B and/or 0-RM-90-148B monitors located on Panel 1-9-10. If applicable, **RECORD** "OOS" in the appropriate column of Attachment 6 if one of the monitors is out of service.

7.9.1.3 If both monitors are inoperable, **CONTACT** the Chemical Laboratory and **ENSURE** that manual sampling has been initiated in accordance with 0-SI-4.8.B.1.a.2. **RECORD** "OOS" in the appropriate columns of Attachment 6.

Standard:

RECORDED highest noble gas count rate for 0-RM-90-147 and 0-RM-90-148 on Attachment 6.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

CUE: 0-SI-4.8.B.1.a.2 IS NOT IN EFFECT.

Note:

If 0-SI-4.8.B.1.a.2 is in effect for the stack monitors, the Chemical Laboratory will report the stack release rate in uCi/sec for each grab sample. The reported release rate will assume a maximum flow rate and will yield a conservative (high) release value. In this case, Steps 7.9.2 through 7.9.5 are not applicable.

Performance Step: Critical X Not Critical

7.9.2 **DETERMINE** the stack flow rate and **RECORD** in the appropriate column of Attachment 6.

7.9.2.1 If 0-FI-90-271 on Panel 1-9-53 is operable, RECORD the stack flow in standard cubic feet per minute (scfm).

7.9.2.2 If 0-FI-90-271 on Panel 1-9-53 is inoperable, the flow can be determined from 0-FI-90-348 on Panel 25-412 in the WRGERMS building. If 0-FI-90-348 is used for the flow, **MAKE** a note in the remarks log that 0-FI-90-348 was used.

7.9.2.3 If 0-FI-90-271 on Panel 1-9-53 is inoperable and 0-FI-90-348 is not used,

ESTIMATE the stack flow every four hours using Attachment 7. **RECORD** the total stack flow in scfm on Attachment 7. **RECORD** on Attachment 6 the most current value of the 4 hour observations from Attachment 7.

Standard:

DETERMINED stack flow rate from 0-FI-90-271 and **RECORDED** on Attachment 6.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical X Not Critical___

7.9.3 **DETERMINE** the stack release rate by using the gross count rate and total stack flow in accordance with the following equation. When there are two gross count rate reading, **USE** the highest gross count rate. **IF** both monitors (0-RM-90-147/8) **are INOP CONTINUE** with Step 7.9.4.

Total Stack Flow x Gross Count Rate x 1.23 E-03 uCi/sec
(scfm) (cps) cps-scfm

7.9.4 **RECORD** in the appropriate column of Attachment 6 either the release rate calculated in Step 7.9.3 or as reported by the Chemical Laboratory for an inoperable monitor.

Standard:

CALCULATED stack release rate using the equation and **RECORDED** result on Attachment 6

SAT___ UNSAT___ N/A___ COMMENTS: _____

NOTE:

Alternative sampling for the WRGERM monitor is satisfied by taking readings from the normal stack release monitors, 0-RM-90-147 and/or 0-RM-90-148, when operable or by manual sampling in accordance with 0-SI-4.8.B.1.a.2 when the normal stack monitors are inoperable. This alternate sampling succession satisfies the requirement for a preplanned alternate method as required in TABLE 3.3.5-1 of the TRM.

7.9.5 Wide Range Gaseous Effluent Radiation Monitor (WRGERM), 0-RM-90-306, Panel 2-9-10.

7.9.5.1 If the monitor is inoperable, **RECORD** "INOP" in the appropriate column of Attachment 6 and **CONTINUE** with Step 7.9.6. Otherwise, **CONTINUE** with Step 7.9.5.2.

Performance Step : Critical__ Not Critical_X

7.9.5.2 **ENSURE** 0-RM-90-306 is in the Sample Mode.

Standard:

VERIFIED 0-RM-90-306 in the Sample Mode.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical_X Not Critical__

7.9.5.3 **RECORD** the noble gas release rate in uCi/sec in the appropriate column of Attachment 6. **RECORD** results to two decimal places (e.g. 2.95E 00).

Standard:

RECORDED the noble gas release rate obtained from 0-RM-90-306 in Attachment 6.

SAT____UNSAT____N/A____ COMMENTS:_____

- 7.9.6 If the WRGERM monitor is inoperable for a period greater than one day, **CONTACT** the Chemistry Manager. If the monitor remains inoperable for a period of seven days, a special report must be submitted to the NRC in accordance with the ODCM.
- 7.9.7 If all release streams to the stack are isolated, **USE** a release rate factor of 0.00. Otherwise, **USE** 1.00. **RECORD** the release rate factor in the appropriate column of Attachment 6.

Performance Step : Critical X Not Critical__

- 7.9.8 **CALCULATE** the actual release rate by multiplying the highest release rate (0-RM-90-147/148 or 0-RM-90-306) by the release factor. **RECORD** the information in the Actual Release Rate column on Attachment 6.

Standard:

CALCULATED actual release rate and **RECORDED** result on Attachment 6.

SAT____UNSAT____N/A____ COMMENTS:_____

NOTE:

For reporting purposes, the release fractions should only be recorded to three decimal places. For example, a release fraction of 0.12345 should be recorded only as 0.123.

Performance Step : Critical X Not Critical

7.9.9 **CALCULATE** the stack release fraction by dividing the actual release rate by 1.44 E+07 (or 14,400,000) uCi/sec. **RECORD** this information on both Attachment 2 and Attachment 6.

Standard:

CALCULATED stack release fraction and **RECORDED** result on Attachments 2 AND 6.

SAT UNSAT N/A COMMENTS:

Performance Step : Critical Not Critical X

7.9.10 **VERIFY** the acceptance criteria as given in Step 6.2.2 has been met. The stack release fraction must be less than or equal to 0.10. If the acceptance criteria has failed, immediately **CONTACT** the Shift Unit Supervisors. (AC)

Standard:

VERIFIED stack release fraction ≤ 0.10 .

SAT____ UNSAT____ N/A____ COMMENTS:_____

Performance Step: Critical____ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT____ UNSAT____ COMMENTS:_____

Performance Step: Critical____ Not Critical X

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

Standard:

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

SAT____ UNSAT____ COMMENTS:_____

JPM NO. 130
REV. NO. 4
PAGE 12 OF 13

END OF TASK

STOP TIME: _____

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

IN-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say "my task is complete" and I will acknowledge that your task is complete.

NON-CRITICAL STEPS: At the end of this JPM, **PERFORMER** will be evaluated on **PLANT WORK EXPECTATIONS:**

1. **PERFORMER** shall demonstrate the use of TOUCH STAAR during this JPM.
2. **PERFORMER** shall demonstrate the use of 3-WAY COMMUNICATION.

INITIAL CONDITIONS: You are the Log AUO. Unit 2 and 3 are operating at power. Units 1 is defueled. 0-SI-4.8.B.1.a.1, Airborne Effluent Release Rate, is in progress.

INITIATING CUES: Determine the elevated (stack) noble gas release rate and release fraction per 0-SI-4.8.B.1.a.1. Alternative sampling is NOT necessary.

JSM 7-
JSM 131
TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

SURVEILLANCE INSTRUCTION

0-SI-4.8.B.1.a.1

AIRBORNE EFFLUENT RELEASE RATE

REVISION-42

PREPARED BY: Dale Nix

PHONE: 2682

RESPONSIBLE ORGANIZATION: RADCHEM, CHEMISTRY

APPROVED BY: MIKE GREEN

DATE: 07-15-99

EFFECTIVE DATE: 07-16-99

LEVEL OF USE: REFERENCE USE

VALIDATION DATE: 03/04/91

QUALITY-RELATED

REVISION LOG

Procedure Number: 0-SI-4.8.B.1.a.1

Revision Number: 42

Pages Affected: 10, 22, 27, 36, 37, 43, 44, 49, and 50.

Pagination Pages: none.

Description of Change:

NIC-51 - Deleted one step (7.6.2). Corrected step references in attachments. These are corrections which were inadvertently missed during the previous revision. The screening review for IC-50 covered removing background steps including step 7.6.2.

1.0 INTRODUCTION

1.1 Purpose

This Surveillance Instruction (SI) is used by Browns Ferry Operations and Radiochemical Laboratory personnel to satisfy the following Technical Requirements Manual (TRM) requirements and ODCM:

- 1.1.1 Airborne effluent release rates in accordance with ODCM Surveillance Requirement 2.2.2.1.1.a.
- 1.1.2 The instrumentation checks required by ODCM Table 2.1-2.
- 1.1.3 The Wide Range Gaseous Effluent Radiation Monitor (WRGERMS), 0-RM-90-306, inoperability requirements in accordance with TABLE 3.3.5-1 of the TRM.
- 1.1.4 The WRGERMS instrumentation check required by TABLE 3.3.5-1 of the TRM.

1.2 Scope

- 1.2.1 ODCM Control 1.2.2.1 requires that the general public dose rate from noble gas effluents to be limited to less than 500 mRem per year to the total body and less than 3000 mRem per year to the skin. The Off site Dose Calculation Manual (ODCM) describes the methodology by which the dose rate limits are converted to plant process variables such as the stack noble gas radioactive release rate limit. The limiting release rates for the authorized effluent release points have been calculated as 0.15 curies (Ci) per second for the building level release points and 14.4 Ci per second for the stack.
- 1.2.2 To ensure compliance with ODCM Control 1.2.2.1, each airborne effluent release point is required to be continuously monitored while actively releasing an airborne stream. This is usually accomplished by in-line process instrumentation which has Control Room alarm capabilities. If a monitor is inoperable, releases via that gas stream may continue provided compensatory sampling measures are initiated. Compensatory sampling is accomplished by having the Radiochemical Laboratory personnel obtain and analyze grab samples at a prescribed frequency.
- 1.2.3 Technical Instruction (TI) 15 provides the engineering basis for establishing instrumentation alarm set points, monitor sampling rates, and release point allocation factors for the various plant radiation monitors. The conservative parameters prescribed by TI-15 ensures that the ODCM Control 1.2.2.1 limits are satisfied.

1.2 Scope (Continued)

- 1.2.4 Instrumentation checks will be used to provide a reasonable assurance that an unmonitored release does not go undetected. The instrument checks will be performed on the required monitoring instrumentation at a frequency such that a failed monitor is readily detected. The instrument checks will usually consist of data acquisition/instrument readings of such a detail that they will permit the calculation of the total site release rate.

NOTE:

The source check formerly in this SI (Rev. 40 and previous Revs) are now in 0-SI-2.1-2.

- 1.2.5 Additionally, this SI provides the preplanned alternate monitoring instructions for the WRGERMS instrumentation, 0-RM-90-306 and 0-RR-90-360, in the event that the minimum number of operable instrument channels is less than the required number as given in TABLE 3.3.5-1 in the TRM.

1.3 Frequency

- 1.3.1 The normal performance band for this SI is one week. The procedure will typically start at 0700 Friday and end 0659 the following Friday.
- 1.3.2 Once per shift, the following checks will be made:
- 1.3.2.1 Release rate information will be obtained for each effluent stream having continuous monitoring capabilities.
 - 1.3.2.2 The overall site release rate will be calculated from the release rate information.
 - 1.3.2.3 Offgas pretreatment and post-treatment monitors, offgas flow rate, and offgas hydrogen concentration will be recorded during main condenser and offgas treatment systems operations.
 - 1.3.2.4 The WRGERMS instrumentation operability will be demonstrated by an instrumentation check.
- 1.3.3 Once per day, each effluent radiation monitor shall demonstrate the operability of its sampling rate instrumentation and associated sample flow alarms.

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0

0-SI-4.8.B.1.a.1

2.0 REFERENCES

2.1 Browns Ferry Nuclear Plant Technical Requirements Manual (TRM).

2.2 Updated Final Safety Analysis Report (UFSAR)

Section 7.12, Process Radiation Monitoring.

Section 9.5, Gaseous Radwaste System (Modified).

2.3 Operating Instructions (OI)

1-, 2-, and 3-OI-90, Radiation Monitoring System

2.4 Surveillance Instructions (SI)

0-SI-2.1-2, Airborne Effluent Radiation Monitor Source Checks.

0-SI-4.8.B.1.a.2, Airborne Effluent Release Rate by Manual Sampling when a Gaseous Effluent Monitor is Inoperable.

1-, 2-, and 3-SI-4.8.B.1.a.3, Off Gas Post-Treatment Release Rate by Manual Sampling.

1-, 2-, and 3-SI-4.8.B.5.a, Off Gas Hydrogen Concentration by Manual Sampling.

2.5 Technical Instructions (TI)

TI-15, Radioactive Gaseous Effluent Engineering Calculations and Measurements.

0-TI-336, Continuous Air Monitor Flow Regulator Adjustment.

2.6 Offsite Dose Calculation Manual (ODCM).

2.7 Part 302 to Title 40 of the Code of Federal Regulations (40 CFR 302), Designation, Reportable Quantities, and Notification.

2.8 Memorandum from John W. Sabados to Masoud Bajestani, Subject: Sampling Set points for the Eberline Continuous Air Monitor (R46 901116 823).

2.9 Controlled Vendor Manuals (CVM)

Technical Manual for the 250 CAM Monitoring System, BFN-CVM-2083.

Technical Manual for the 252 CAM Monitoring System, BFN-CVM-2084.

Technical Manual for the 249-251 CAM Monitoring System, BFN-CVM-2085.

Technical and Operating Manual for the CT-2B(s) Control Terminal, BFN-CVM-2090.

2.10 Memorandum from M. Bajestani to J. W. Sabados, Subject: Steam Packing Exhauster flow (R40 911018 914).

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0

0-SI-4.8.B.1.a.1

2.0 REFERENCES (Continued)

- 2.11 Stack Post Mod. Test for DCN W17999 (PMT-256) 20 April, 1993.
- 2.12 Technical Requirements Manual
- 2.13 Memorandum from Rick Givens to Phil Chadwell, Subject: Stack Flow Requirements (R70 980730 843) [BFPER980545].

3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 [NRC/C] Radiation monitors may be removed from service for maintenance, calibration, or testing for periods not to exceed 4 hours. If it becomes apparent that a monitor cannot be returned to service within the 4 hours, the Unit Supervisor shall be immediately notified to ensure compensatory sampling has been initiated. [LER 260/89021]
- 3.2 The night shifts and day shifts are defined by the day on which the shift begins. (i.e. Friday dayshift is Friday 0700-1900, Friday night shift is Friday 1900 to Saturday 0700.)

4.0 PREREQUISITES

This SI must be verified as the most current approved revision with all approved urgent changes attached.

5.0 SPECIAL TOOLS AND EQUIPMENT RECOMMENDED

NONE

6.0 ACCEPTANCE CRITERIA

- 6.1 Responses which fail to meet the acceptance criteria constitute unsatisfactory surveillance instruction results and require immediate notification of the Unit Supervisor at the time of failure. Failure of release rate acceptance criteria requires notification of the Chemistry Manager. Failure of release rate acceptance criteria will require a National Response Center reportability determination in accordance with Part 302 to Title 40 of the Code of Federal Regulation (40 CFR 302).
- 6.2 The noble gas release rate must be limited such that the off site dose and dose rates are in compliance with ODCM Control 1.2.2.1. This will be accomplished by establishing release rate limits for the building/ground and the stack/elevated release points. The corresponding release rate limits will be checked in accordance with the values listed below.
- 6.2.1 The sum of the building release rate fraction must be less than or equal to 0.90. The building release rate fraction is defined as the radioactive noble gas release rate at each monitored building release point divided by the ODCM building release limit of $1.50 \text{ E}+05 \text{ } \mu\text{Ci/sec}$.
- 6.2.2 The stack release rate fraction must be less than or equal to 0.10. The stack release rate fraction is defined as the radioactive noble gas release rate at the stack divided by the ODCM release rate limit of $1.44 \text{ E}+07 \text{ } \mu\text{Ci/sec}$.
- 6.2.3 The total site release rate fraction must be less than or equal to 1.00. The total site release rate fraction is defined as the sum of the building and stack release rate fractions.
- 6.2.4 Compensatory sampling measures must be initiated whenever a radiation monitor is out of service and effluent releases are continuing via that release point.

6.3 The radioactive gaseous effluent instrumentation operability shall be demonstrated by performance of shiftly and/or daily instrument checks as noted below.

6.3.1 Shiftly Checks. The following instrumentation checks must be accomplished at least once per shift during the noted periods of required operability. These instrumentation checks will be used to satisfy ODCM Surveillance Requirements in 2.2.2.1.1.a, Table 2.1-2, TRM Table 3.3.5-1, and TRM TSR 3.3.9.1 (noble gas monitor and hydrogen analyzer daily requirements only).

Monitor(s)	Required Period of Operability
1-, 2-, 3-RM-90-249, 1-, 2-, 3-RM-90-250, 1-, 2-, 3-RM-90-251, and 0-RM-90-252	When actively releasing an airborne effluent stream (i.e., vents are open and the ventilation fans are on).
0-RM-90-147 and/or 148	When actively releasing an airborne effluent stream.
0-RM-90-306, and 0-RR-90-360	When one or more of the site units are in either MODES 1 or 2.
1-, 2-, 3-RM-90-265, and/or 1-, 2-, 3-RM-90-266	When actively processing an off gas stream (i.e., unit FCV-66-28 is open).
1-, 2-, 3-H2R-66-96 (Channels A and B)	During main condenser offgas treatment system operations.

The shiftly checks shall be accomplished by recording the release rates or release concentrations as displayed on the appropriate control room recorders. If a monitor is out of service during a required period of operability, compensatory sampling measures will be initiated in accordance with the instructions given in Steps 7.7.5, 7.8.1.3, and/or 7.9.1.3.

6.3 (Continued)

6.3.2 Daily Checks. The following instrumentation checks must be accomplished at least once per day during the noted periods of required operability. These instrumentation checks will be used to satisfy ODCM surveillance requirements in Table 2.1-2 (sample flow instrumentation and sample flow annunciators only).

Instrumentation	Required Period of Operability
1-, 2-, 3-RM-90-249, 1-, 2-, 3-RM-90-250, 1-, 2-, 3-RM-90-251, and 0-RM-90-252 sample flow instrumentation	When actively releasing an airborne effluent stream (i.e., vents are open and the ventilation fans are on).
0-RM-90-147/148 sample flow rate and 0-FA-90-150 flow abnormal alarm	When actively releasing an airborne effluent stream.
1-, 2-, 3-PA-90-262 sample pressure abnormal alarm	When actively processing an off gas stream (i.e., unit FCV-66-28 is open).

The daily checks shall be accomplished by recording the sample flow rates from the appropriate control room instrumentation and/or testing the alarm annunciator condition. Satisfactory sample flow rate checks must fall within the range specified in the following table. Satisfactory annunciator test results will consist of a simple "go/no-go" test.

If a monitor is out of service during a required period of operability, compensatory sampling measures will be initiated in accordance with the instructions given in Steps 7.7.5, 7.8.1.3, and/or 7.9.1.3. Compensatory sample flow rate measurements are required to be made every four hours, but are not required to satisfy the sample rate limits in the following table.

Monitor	Sample Flow (scfm)	
	Low	High
1-, 2-, 3-RM-90-249 1-, 2-, 3-RM-90-251	1.73	2.27
0-RM-90-252	1.12	1.87
1-, 2-, 3-RM-90-250	3.6	4.4
0-RM-90-147/148	1.1	1.5

- 6.4 The concentration of hydrogen gas in the off gas shall be less than or equal to 4 percent by volume (TRM LCO 3.7.2) as measured by the applicable unit H2R-66-96 Hydrogen Analyzer or as determined from off gas grab samples.
- 6.5 Acceptance criteria determination steps will be designated by (AC).
- 6.6 The off gas pretreatment radiation levels (2-, and 3-RM-90-157) and the off gas flow rate (2-FR-66-111, and 3-FR-66-111) instrumentation readings are required for monitoring system performance and for failed fuel performance calculations. There are no Technical Specification surveillance requirements associated with these observations. The observation will be made shiftly during periods of main condenser/offgas treatment system operation.

Date _____

7.0 PROCEDURE STEPS

INITIALS

NOTES:

- (1) All notes, remarks, and comments are to be recorded on Attachment 1. Each statement is to be numbered and cross-referenced to the appropriate attachment or SI step.
- (2) Attachments not used in the performance of this SI do not need to be included in the completed SI package.

- 7.1 **OBTAIN** permission from the Unit 2 and Unit 3 Supervisors to perform this instruction.

U2

- 7.2 [NRC/C] **NOTIFY** the Unit Operator (U2) of the intent to begin this instruction. [RPT 82-16, LER 259/8232]

U3

- 7.3 **RECORD** the date/time started and the plant conditions on Attachment 1, Surveillance Instruction Review Form.

NOTE:

SI step performance and acceptance criteria verification are to be noted on the appropriate SI attachments for Steps 7.4 through 7.13.

- 7.4 **REVIEW** the Precautions and Limitations in Section 3.0. **INITIAL** on Attachment 2.

- 7.5 **ENSURE** that all Prerequisites in Section 4.0 have been met. **INITIAL** on Attachment 2.

7.6 **OBTAIN** the following information.

- 7.6.1 Once per shift, **RECORD** on Attachment 2 each unit's 8 hour average power level in megawatts thermal (MWT). If shutdown enter 0.

NOTE:

Due to variations in required performance frequency and to minimize impact on personnel, Steps 7.7 and 7.8, 7.9 through 7.13 can be completed independently. If the stack flow instrumentation (0-FI-90-271) is inoperable or out of service and 0-FI-90-348 is not used, Attachment 7 must be completed before Step 7.9 can be completed.

7.7 **Fan Status Determination**

7.7.1 RM-90-249

- 7.7.1.1 Once per shift: **RECORD** on Attachment 3 the operating status of each ventilation fan monitored by this CAM. The status shall be indicated with "X" in the appropriate ON/OFF column.

- 7.7.1.2 Once per day (night shift): If all fans serviced by this CAM are off and the monitor is out of service, **VERIFY** the exhausts' fan control switches are tagged out of service and **VERIFY** the fan dampers are closed.

7.7.2 RM-90-250

Once per shift: **CHECK** the status of each fan contributing flow to the ventilation path monitored by the RM-90-250 CAM. **USE** an "A" or "B" to denote which fan is operating. **INDICATE** the fan status by using the "O" column for all fans off (if applicable), the "S" column for fans on slow, or the "F" column for fans on fast.

7.7 Fan Status Determination (Continued)

7.7.3 RM-90-251

7.7.3.1 Once per shift: RECORD on Attachment 3 the operating status of each ventilation fan monitored by this CAM. The status shall be indicated with "X" in the appropriate ON/OFF column.

7.7.3.2 Once per day (Night shift): If all fans serviced by this CAM are off and the monitor is out of service, ENSURE the exhausts' fan control switches are tagged out of service and VERIFY the fan dampers are closed.

7.7.4 0-RM-90-252 (Unit 1 Only)

Once each shift: RECORD the operating status of fans monitored by this CAM with an "X" in the appropriate column of Attachment 3. USE column "0" for all fans off, column "1" for one fan on, or column "2" for two fans on.

7.7 Fan Status Determination (Continued)

7.7.5 If any of the indicated fans (stack dilution or CAM) are operating and the corresponding monitor is declared inoperable, **CONTACT** the Chemical Laboratory and **ENSURE** that compensatory sampling in accordance with 0-SI-4.8.B.1.a.2 is being conducted.

7.7.6 Prior to 0659 Friday morning, **TOTAL** the number of shifts each column of Attachment 3 was marked. **RECORD** the totals at the bottom of Attachment 3.

7.8 **DETERMINE** the building ventilation noble gas release rate once per shift by completing the following steps and VERIFY that all monitors with an open release path are not in standby:

7.8.1 For each monitor listed on Attachment 4, **COMPLETE** one of the following four steps:

7.8.1.1 From the CONTINUOUS AIR MONITORING SYSTEM OPERATOR CONSOLE, 0-CONS-90-361A or 0-CONS-90-362A, Panel 1-9-44, **OBTAIN** the noble gas release rate by entering the keystrokes shown below. **RECORD** the noble gas release rate ($\mu\text{Ci/sec}$) in the appropriate columns of Attachment 4 for each operable building ventilation radiation monitor. If the release rate is negative, **RECORD** 0.000.

NOTE:

Leading zeros do not have to be entered for CAM code.

Keystrokes:

[DATA], 3-Digit CAM Code, [-], [1], [ENTER],
[PRINT], [FILE], [ENTER]

CAM	Code	CAM	Code
0-RM-90-252	001	2-RM-90-251	006
1-RM-90-249	002	3-RM-90-251	007
2-RM-90-249	003	3-RM-90-250	008
3-RM-90-249	004	1-RM-90-250	009
1-RM-90-251	005	2-RM-90-250	010

7.8 (Continued)

- 7.8.1.2 If the operator consoles 0-CONS-90-361A or 0-CONS-90-362A are not available and the CAMs are operating, OBTAIN the release rate data from the local display on each CAM by selecting channel 1 with the CAM thumb wheel. If the release rate is negative, RECORD 0.000.

NOTE:

If 0-SI-4.8.B.1.a.2 is in effect for the CAMs, the Chemical Laboratory will report the release rate in $\mu\text{Ci/sec}$ for each grab sample. The reported release rate will assume a maximum flow rate and will yield a conservative (high) release value.

- 7.8.1.3 For out of service and/or inoperable CAMs with ventilation system in service, CONTACT the Chemical Laboratory and ENSURE that manual sampling is being accomplished in accordance with 0-SI-4.8.B.1.a.2. RECORD on Attachment 4 the release rate for each inoperable CAM as reported by the Chemical Laboratory.
- 7.8.1.4 If the ventilation system for a CAM is totally isolated (i.e., no environmental releases occurring), RECORD "OOS" in all three columns on Attachment 4.
- 7.8.2 For each monitor, USE Attachments 3 and 5 and DETERMINE the release factor based on fan status. RECORD the release factors in the appropriate columns on Attachment 4.
- 7.8.3 MULTIPLY the release rate by the release factor and RECORD the answer under the column labeled "Actual Rate" on Attachment 4.
- 7.8.4 For each unit, SUM the actual rates for the RM-90-249, RM-90-250, and RM-90-251 monitors. RECORD the unit total release rates in the appropriate columns on Page 4 of Attachment 4.

7.8 (Continued)

- 7.8.5 SUM the three unit total release rates and the 0-RM-90-252 actual rate. RECORD the building ventilation release rate on Page 4 of Attachment 4.

NOTE:

For reporting purposes, the release fraction should only be recorded to three decimal places. For examples:

1. A release fraction of 0.12345 should be recorded as 0.123.
2. A release fraction of 0.00012 should be recorded as 0.000.

- 7.8.6 DETERMINE the building ventilation release fraction by dividing the total building ventilation release rate by 1.50 E+05 (or 150,000) $\mu\text{Ci/sec}$. RECORD the fraction on both Attachment 2 and Attachment 4.

- 7.8.7 VERIFY the acceptance criteria as given in Step 6.2.1 has been met. The building ventilation release fraction must be less than or equal to 0.90. If the acceptance criteria has failed, immediately CONTACT the Unit Supervisors. (AC)

- 7.9 DETERMINE the elevated (stack) noble gas release rate once per shift by completing the following steps:

- 7.9.1 RECORD the highest noble gas count rates (counts per second, cps) for the 0-RM-90-147 and 0-RM-90-148 monitors in the appropriate columns of Attachment 6 in accordance with one of the following steps:

- 7.9.1.1 If both the 0-RR-90-147 and at least one of the radiation monitors are operable, OBTAIN the necessary information from 0-RR-90-147 on Panel 9-2. If applicable, RECORD "OOS" in the appropriate column of Attachment 6 if one of the monitors is out of service.

7.9 (Continued)

- 7.9.1.2 If 0-RR-90-147 is inoperable and at least one of the radiation monitors is operable, OBTAIN the necessary data from the 0-RM-90-147B and/or 0-RM-90-148B monitors located on Panel 1-9-10. If applicable, RECORD "OOS" in the appropriate column of Attachment 6 if one of the monitors is out of service.
- 7.9.1.3 If both monitors are inoperable, CONTACT the Chemical Laboratory and ENSURE that manual sampling has been initiated in accordance with 0-SI-4.8.B.1.a.2. RECORD "OOS" in the appropriate columns of Attachment 6.

NOTE:

If 0-SI-4.8.B.1.a.2 is in effect for the stack monitors, the Chemical Laboratory will report the stack release rate in $\mu\text{Ci/sec}$ for each grab sample. The reported release rate will assume a maximum flow rate and will yield a conservative (high) release value. In this case, Steps 7.9.2 and 7.9.3 are not applicable.

- 7.9.2 DETERMINE the stack flow rate and RECORD in the appropriate column of Attachment 6.
- 7.9.2.1 If 0-FI-90-271 on Panel 1-9-53 is operable, RECORD the stack flow in standard cubic feet per minute (scfm).
- 7.9.2.2 If 0-FI-90-271 on Panel 1-9-53 is inoperable, the flow can be determined from 0-FI-90-348 on Panel 25-412 in the WRGERMS building. If 0-FI-90-348 is used for the flow, MAKE a note in the remarks log that 0-FI-90-348 was used.
- 7.9.2.3 If 0-FI-90-271 on Panel 1-9-53 is inoperable and 0-FI-90-348 is not used, ESTIMATE the stack flow every four hours using Attachment 7. RECORD the total stack flow in scfm on Attachment 7. RECORD on Attachment 6 the most current value of the 4 hour observations from Attachment 7.

7.9 (Continued)

- 7.9.3 **DETERMINE** the stack release rate by using the gross count rate and total stack flow in accordance with the following equation. When there are two gross count rate readings, **USE** the highest gross count rate. **IF** both monitors (0-RM-90-147/8) **are INOP** **CONTINUE** with Step 7.9.4.

$$\begin{array}{ccc} \text{Total Stack Flow} & \times & \text{Gross Count Rate} & \times & 1.23 \text{ E-03 } \mu\text{Ci/sec} \\ (\text{scfm}) & & (\text{cps}) & & \text{cps-scfm} \end{array}$$

- 7.9.4 **RECORD** in the appropriate column of Attachment 6 either the release rate calculated in Step 7.9.3 or as reported by the Chemical Laboratory for an inoperable monitor.

NOTE:

Alternative sampling for the WRGERM monitor is satisfied by taking readings from the normal stack release monitors, 0-RM-90-147 and/or 0-RM-90-148, when operable or by manual sampling in accordance with 0-SI-4.8.B.1.a.2 when the normal stack monitors are inoperable. This alternate sampling succession satisfies the requirement for a preplanned alternate method as required in TABLE 3.3.5-1 of the TRM.

- 7.9.5 Wide Range Gaseous Effluent Radiation Monitor (WRGERM), 0-RM-90-306, Panel 2-9-10.
- 7.9.5.1 If the monitor is inoperable, **RECORD** "INOP" in the appropriate column of Attachment 6 and **CONTINUE** with Step 7.9.6. Otherwise, **CONTINUE** with Step 7.9.5.2.
- 7.9.5.2 **ENSURE** 0-RM-90-306 is in the Sample Mode.
- 7.9.5.3 **RECORD** the noble gas release rate in $\mu\text{Ci/sec}$ in the appropriate column of Attachment 6. **RECORD** results to two decimal places (e.g. 2.95E 00).
- 7.9.6 If the WRGERM monitor is inoperable for a period greater than one day, **CONTACT** the Chemistry Manager. If the monitor remains inoperable for a period of seven days, a special report must be submitted to the NRC in accordance with the ODCM.

7.9 (Continued)

- 7.9.7 If all release streams are isolated, USE a release rate factor of 0. RECORD the release rate factor in Attachment 6.
- 7.9.8 CALCULATE the actual release rate (0-306) by multiplying the highest release rate factor. RECORD the result in the Actual Release Rate column on Attachment 6.

NOTE:

For reporting purposes, the release fractions should only be recorded to three decimal places. For example, a release fraction of 0.12345 should be recorded only as 0.123.

- 7.9.9 CALCULATE the stack release fraction by dividing the actual release rate by $1.44 \text{ E}+07$ (or 14,400,000) $\mu\text{Ci/sec}$. RECORD this information on both Attachment 2 and Attachment 6.
- 7.9.10 VERIFY the acceptance criteria as given in Step 6.2.2 has been met. The stack release fraction must be less than or equal to 0.10. If the acceptance criteria has failed, immediately CONTACT the Unit Supervisors. (AC)
- 7.10 CALCULATE the total site release fraction by adding the building ventilation and stack release fractions on Attachment 2. VERIFY the site release fraction acceptance criteria as given in Step 6.2.3 has been met. If the acceptance criteria has failed, immediately CONTACT the Unit Supervisors. (AC)

- 7.11 Once per shift, RECORD the Unit 2, and 3 offgas instrumentation readings on Attachment 8. (Unit 1 log has been deleted.)
- 7.11.1 In the "FCV-66-28" column PLACE an "X" in the appropriate box (open or closed).
- 7.11.2 If the unit's FCV-66-28 is CLOSED, RECORD all other offgas readings as "NA" (not applicable). CONTINUE with Step 7.11.6.
- 7.11.3 If the unit is not under main condenser/offgas treatment system operations, RECORD the offgas flowrate recorder, offgas pretreatment radiation monitor, and the offgas recombiner readings as "NA" (not applicable, i.e., not required). CONTINUE with Step 7.11.5.
- 7.11.4 RECORD the offgas flowrate recorder [Readings from FR-66-20 (Units 2 and 3) should be recorded if FR-66-111 is inoperable. If readings are taken from FR-66-20 on Units 2 or 3, MAKE a note in the remarks log that readings were taken from FR-66-20], offgas pretreatment radiation monitor, the offgas post-treatment radiation monitors, and the offgas recombiner readings. If the instrumentation is inoperable, RECORD the readings as "INOP". For the FR-66-111, if the narrow range is saturated (upscale; most readings are greater than 30 scfm), use the wide range recorder; otherwise use the narrow range.
- 7.11.5 If both of the offgas post-treatment monitors (RM-90-265 and RM-90-266) for a particular unit are inoperable and the unit FCV-66-28 valve is OPEN, CONTACT the Chemical Laboratory and ENSURE that manual sampling has been initiated in accordance with the applicable units 1-, 2-, 3-SI-4.8.B.1.a.3.
- 7.11.6 If the observations have been complete for all units, CONTINUE with Step 7.12. Otherwise, CONTINUE with the next unit.

7.12 Once per day (day shift), **RECORD** on Attachment 9 the various radiation monitor's sample flow rate and/or the abnormal sampling annunciator response in accordance with the following instructions:

7.12.1 GE Stack Gas Monitor: **RECORD** the sample flow rate from the STACK GAS SAMPLE FLOW indicator/transmitter, 0-FIT-90-153.

7.12.2 Continuous Air Monitors:

7.12.2.1 From the CONTINUOUS AIR MONITORING SYSTEM OPERATOR CONSOLE, 0-CONS-90-361A or 0-CONS-90-362A, Panel 1-9-44, **OBTAIN** the noble gas sampling rate by entering the keystrokes shown below. **RECORD** the noble gas sampling rate (scfm) in the appropriate columns of Attachment 9 for each operable building ventilation radiation monitor.

7.12.2.2 If the operator consoles 0-CONS-90-361A or 0-CONS-90-362A are not available and the CAMs are operating, **OBTAIN** the sampling rate data from the local display on each CAM by selecting channel 15 with the CAM thumb wheel.

7.12.2.3 If the sampling flow rate data is not available, **REQUEST** the US to declare the CAM inoperable, CONTACT the Chemical Laboratory, and **ENSURE** manual sampling has been initiated in accordance with 0-SI-4.8.B.1.a.2.

Keystrokes:

[DATA], 3-Digit CAM Code, [-], [15], [ENTER],
[PRINT], [FILE], [ENTER]

CAM	Code	CAM	Code
0-RM-90-252	001	2-RM-90-251	006
1-RM-90-249	002	3-RM-90-251	007
2-RM-90-249	003	3-RM-90-250	008
3-RM-90-249	004	1-RM-90-250	009
1-RM-90-251	005	2-RM-90-250	010

7.12 (Continued)

NOTE:

The following alarm annunciators will be tested during the performance of Steps 7.12.3 and 7.12.4. Appropriate communications must be established with the unit control room(s) prior to initiating the alarm.

0-FA-90-150	STACK GAS SAMPLE FLOW ABNORMAL (1-XA-55-3A, Window 27)
1-PA-90-262	OFFGAS SAMPLE LINE PRESSURE ABNORMAL (1-XA-55-4C, Window 28)
2-PA-90-262	OG POST TRTMT SAMPLE LINE PRESS ABNORMAL (2-XA-55-4C, Window 28)
3-PA-90-262	OFFGAS SAMPLE LINE PRESSURE ABNORMAL (3-XA-55-4C, Window 28)

7.12.3 Stack Sample Flow Abnormal

NOTE:

All manipulations are performed from the Stack unless noted otherwise.

- 7.12.3.1 **ESTABLISH** communications with Unit 1 Operator.
- 7.12.3.2 **VERIFY** 0-FA-90-150, STACK GAS SAMPLE FLOW ABNORMAL on 1-XA-55-3A window 27 on Panel 1-9-3 RESET.
- 7.12.3.3 **OBSERVE** 0-FIT-90-153, STACK GAS SAMPLE FLOW indication.
- 7.12.3.4 **PLACE** 0-FC-90-153, STACK GAS SAMPLE FLOW CONTROLLER to MAN.
- 7.12.3.5 **PLACE** 0-FC-90-153, STACK GAS SAMPLE FLOW CONTROLLER valve positioner to OPEN.
- 7.12.3.6 **WHEN** 0-FIT-90-153, STACK GAS SAMPLE FLOW indicates 3.0 SCFM or greater, THEN
VERIFY 0-FA-90-150, STACK GAS SAMPLE FLOW ABNORMAL IN ALARM.
- 7.12.3.7 **PLACE** 0-FC-90-153, STACK GAS SAMPLE FLOW CONTROLLER valve positioner to STOP.
- 7.12.3.8 **PLACE** 0-FC-90-153, STACK GAS SAMPLE FLOW CONTROLLER to AUTO.

7.12 (Continued)

- 7.12.3.9 **OBSERVE** 0-FIT-90-153, STACK GAS SAMPLE FLOW indication returns to approximately the value observed in Step 7.12.3.3.
- 7.12.3.10 **VERIFY** 0-FA-90-150, STACK GAS SAMPLE FLOW ABNORMAL will RESET.
- 7.12.3.11 IF 0-FA-90-150, STACK GAS SAMPLE FLOW ABNORMAL fails to alarm or reset and 0-RM-90-147/148 are operable, THEN
- PERFORM** Attachment 10 to record sample flow readings every four hours.

7.12.4 Offgas Post-Treatment Sample Flow Abnormal

- 7.12.4.1 **NOTIFY** the Unit UOs that they will receive annunciation on the following alarms:
- | | |
|-------------|---|
| 1-PA-90-262 | OFFGAS SAMPLE LINE PRESSURE ABNORMAL
(1-XA-55-4C, Window 28) |
| 2-PA-90-262 | OG POST TRTMT SAMPLE LINE PRESS
ABNORMAL (2-XA-55-4C, Window 28) |
| 3-PA-90-262 | OFFGAS SAMPLE LINE PRESSURE ABNORMAL
(3-XA-55-4C, Window 28) |
- 7.12.4.2 On Panel 25-94 in the Offgas Post-Treatment Building, **CLOSE** the unit 90-319A valve.
- 7.12.4.3 **VERIFY** with the UO that the annunciator is in ALARM. (AC)
- 7.12.4.4 **OPEN** the unit 90-319A valve.
- 7.12.4.5 **VERIFY** with the UO that the annunciator will CLEAR when reset. (AC)
- 7.12.4.6 If PA-90-262 fails the AC and RM-90-265/266 are operable with the FCV-66-28 valve open, **USE** Attachment 10 to record the sample flow readings every 4 hours.
- 7.12.4.7 **CONTINUE** with the next unit, until all three unit offgas post-treatment system have been completed.

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0

0-SI-4.8.B.1.a.1

Date _____

INITIALS

7.13 PERFORM the following reviews at the completion of each shift or as stated:

7.13.1 Unit Supervisor: PERFORM Independent Verification of calculations and Acceptance Criteria on Attachments 2, 4, 6, 7, 8, and 9.

7.13.2 STA: REVIEW the data for Technical Requirements Manual and ODCM compliance.

7.14 PERFORM the following during night shift:

7.14.1 MAKE a copy of the up-to-date Attachments 3, 6, and 8. PLACE the copies in a folder marked for the Radiochemical Laboratory pickup. KEEP the folder at the log AUO's desk until picked up by a Chemistry person.

NOTE:

The following steps are to be performed and initialed at the end of the SI performance week.

7.15 REVIEW all applicable attachments and VERIFY they are complete. _____

7.16 ENSURE all initials which appear in this instruction have been properly recorded and identified as required on Attachment 1. This includes, but is not limited to AUOs, Unit Supervisors, Shift Manager, and STAs. _____

7.17 ENSURE all Acceptance Criteria listed in Step 6.0 were met. _____

7.18 For each Acceptance Criteria failure, ENSURE test deficiency packages have been initiated. ENSURE each TD has been identified in the Remarks Log. NA if no TDs have been identified. _____

7.19 COMPLETE Attachment 1 up to the Unit Supervisor review. _____

7.20 NOTIFY the Unit 2 UO and the Unit Supervisors that this instruction is complete. _____

8.0 ILLUSTRATIONS/ATTACHMENTS

- 8.1 Attachment 1, Surveillance Instruction Review Form
- 8.2 Attachment 2, Site Effluent Release Rate Summary
- 8.3 Attachment 3, Fan Status Report
- 8.4 Attachment 4, Building Effluent Release Rate Log
- 8.5 Attachment 5, Building Ventilation System Release Factors
- 8.6 Attachment 6, Elevated Effluent Release Rate Log
- 8.7 Attachment 7, Airborne Effluent for Total Stack Flow Rates
- 8.8 Attachment 8, Offgas Instrumentation Log
- 8.9 Attachment 9, Monitor Sample Flow Rate and Annunciator Log
- 8.10 Attachment 10, Sample Flow Abnormal Log
- 8.11 Attachment 11, EPIP Release Rate Log

END OF TEXT

SURVEILLANCE INSTRUCTION REVIEW FORM

REASON FOR TEST: _____ DATE/TIME STARTED _____

Scheduled Surveillance _____ DATE/TIME COMPLETED _____

System Inoperable (Explain in Remarks) _____ PLANT CONDITIONS U1: _____

Maintenance (WO/WR# _____) _____ U2: _____

Other (Explain in Remarks) _____ U3: _____
PRE-TEST REMARKS: _____

PERFORMED BY: _____

Initials _____ Name (Print) _____ Name (Signature) _____

Delays or Problems (If yes, explain in post-test remarks) _____ Yes _____ No
Acceptance Criteria Satisfied. _____ Yes _____ No
If the above answer is no, the Unit Supervisors shall
determine if an LCO exists LCO _____ Yes _____ No

U2 Unit Supervisor - _____ Date _____
U3 Unit Supervisor - _____ Date _____
=====

Signature attests that I understand the scope and purpose of this instruction and that, to the best of my knowledge, it was properly performed in accordance with instruction in that: the recording, reduction, and evaluation of data is complete and correct; acceptance criteria is met or justification for exceptions is provided; portions of test performed were appropriate for specified test conditions or reasons for test; deficiencies were evaluated and dispositioned; reportability was evaluated; marginal results were evaluated with respect to potential for future problems based on operating experience and regulatory requirements; and instruction was complete except as noted in post-test remarks.

INDEPENDENT QUALIFIED REVIEWER (OPS) - _____ Date _____
=====

SCHEDULING COORDINATOR - _____ Date _____
=====

POST-TEST REMARKS: _____

FREQ - 0/W
FREQ IN RO -
KEY -

Week From _____ To _____

STA DAILY REVIEW (INITIALS/TIME)

Day Shift	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Shift Technical	___/___	___/___	___/___	___/___	___/___	___/___	___/___
Advisor (STA)							

Night Shift	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Shift Technical	___/___	___/___	___/___	___/___	___/___	___/___	___/___
Advisor (STA)							

Continued from Attachment 1, Page 1:

PERFORMED BY: (List All Persons Whose Initials Appear in Instruction)

[illegible]

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
0-SI-4.8.B.1.a.1
ATTACHMENT 1
(Page 3 of 3)

Remarks Log

Week From _____ To _____

Remark Number	Attachment or Step	Remarks	Time	Date	Initials

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
 0-SI-4.8.B.1.a.1
 ATTACHMENT 2
 (Page 1 of 1)

Site Effluent Release Rate Summary

Week From _____ To _____

D A Y	S H I F T	SI STEP		Reactor Power (MWT)			Building Ventilation Release Rate Fraction (7.8.6)	Stack Release Rate Fraction (7.9.9)	Total Site Release Rate Fraction (7.10)	Acceptance Criteria	Initials	
		7.4	7.5	Unit 1 (7.6.1)	Unit 2 (7.6.1)	Unit 3 (7.6.1)					A U O	Unit Super- visor
FRI	D									≤ 1.00		
	N									≤ 1.00		
SAT	D									≤ 1.00		
	N									≤ 1.00		
SUN	D									≤ 1.00		
	N									≤ 1.00		
MON	D									≤ 1.00		
	N									≤ 1.00		
TUE	D									≤ 1.00		
	N									≤ 1.00		
WED	D									≤ 1.00		
	N									≤ 1.00		
THU	D									≤ 1.00		
	N									≤ 1.00		

*Initials added as a result of BFPER960634.

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
 0-SI-4.8.B.1.a.1
 ATTACHMENT 3
 (Page 1 of 3)

Fan Status Report**Unit 1 Fan Status**

Week From _____ To _____

D A Y	S H I F T	REACTOR BUILDING									TURBINE BUILDING																RADWASTE BUILDING			AUO INIT.		
		1-RM-90-250									1-RM-90-251								1-RM-90-249								0-RM-90-252					
		Refuel			Reactor			Turbine			A		B		C		D		E		F		G		H		J		0		1	2
		O	S	F	O	S	F	O	S	F	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	0		1	2
FRI	D																															
	N																															
SAT	D																															
	N																															
SUN	D																															
	N																															
MON	D																															
	N																															
TUE	D																															
	N																															
WED	D																															
	N																															
THU	D																															
	N																															
TOTAL																																

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
 0-SI-4.8.B.1.a.1
 ATTACHMENT 3
 (Page 2 of 3)

Fan Status Report**Unit 2****Fan Status**

Week From _____ To _____

D A Y	S H I F T	REACTOR BUILDING									TURBINE BUILDING																AUO INIT.		
		2-RM-90-250									2-RM-90-251								2- RM-90-249										
		Refuel			Reactor			Turbine			A		B		C		D		E		F		G		H			J	
		O	S	F	O	S	F	O	S	F	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF		ON	OFF
FRI	D																												
	N																												
SAT	D																												
	N																												
SUN	D																												
	N																												
MON	D																												
	N																												
TUE	D																												
	N																												
WED	D																												
	N																												
THU	D																												
	N																												
TOTAL																													

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
 0-SI-4.8.B.1.a.1
 ATTACHMENT 3
 (Page 3 of 3)

Fan Status Report

Unit 3 Fan Status

Week From _____ To _____

D A Y	S H I F T	REACTOR BUILDING									TURBINE BUILDING																AUO INIT.		
		3-RM-90-250									3- RM-90-251								3-RM-90-249										
		Refuel			Reactor			Turbine			A		B		C		D		E		F		G		H			J	
		O	S	F	O	S	F	O	S	F	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF		ON	OFF
FRI	D																												
	N																												
SAT	D																												
	N																												
SUN	D																												
	N																												
MON	D																												
	N																												
TUE	D																												
	N																												
WED	D																												
	N																												
THU	D																												
	N																												
TOTAL																													

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
0-SI-4.8.B.1.a.1
ATTACHMENT 4
(Page 1 of 4)Building Effluent Release Rate Log - Unit 1

Week From _____ To _____

Unit 1

D A Y	S H I F T	Reactor Building			Turbine Building						Initials	
		1-RM-90-250 [009]			1-RM-90-249 [002]			1-RM-90-251 [005]				
		Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	A U O	Unit Super- visor
FRI	D											
	N											
SAT	D											
	N											
SUN	D											
	N											
MON	D											
	N											
TUE	D											
	N											
WED	D											
	N											
THU	D											
	N											

TITLE: AIRBORNE EFFLUENT RELEASE RATE

 UNIT 0
 0-SI-4.8.B.1.a.1
 ATTACHMENT 4
 (Page 2 of 4)
Building Effluent Release Rate Log - Unit 2

Week From _____ To _____

Unit 2

D A Y	S H I F T	Reactor Building			Turbine Building						Initials	
		2-RM-90-250 [010]			2-RM-90-249 [003]			2-RM-90-251 [006]				
		Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	A U O	Unit Super- visor
FRI	D											
	N											
SAT	D											
	N											
SUN	D											
	N											
MON	D											
	N											
TUE	D											
	N											
WED	D											
	N											
THU	D											
	N											

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
0-SI-4.8.B.1.a.1
ATTACHMENT 4
(Page 3 of 4)Building Effluent Release Rate Log - Unit 3

Week From _____ To _____

Unit 3

DAY	SHIFT	Reactor Building			Turbine Building						Initials	
		3-RM-90-250 [008]			3-RM-90-249 [004]			3-RM-90-251 [007]				
		Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	A U O	Unit Super- visor
FRI	D											
	N											
SAT	D											
	N											
SUN	D											
	N											
MON	D											
	N											
TUE	D											
	N											
WED	D											
	N											
THU	D											
	N											

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0

0-SI-4.8.B.1.a.1

ATTACHMENT 4

(Page 4 of 4)

Building Effluent Release Rate Log - Unit 0

Week From _____ To _____

D A Y	S H I F T	Radwaste Building			Unit Total Release Rates			Building Ventilation Release Rate (μCi/sec) (7.8.5)	Building Ventilation release Fraction (7.8.6)		Initials	
		0-RM-90-252 [001]			(μCi/sec)						A U O	Unit Super- visor
		Release Rate (μCi/sec) (7.8.1)	Release Factor (7.8.2)	Actual Rate (μCi/sec) (7.8.3)	Unit 1 (7.8.4)	Unit 2 (7.8.4)	Unit 3 (7.8.4)					
FRI	D									≤ 0.90		
	N									≤ 0.90		
SAT	D									≤ 0.90		
	N									≤ 0.90		
SUN	D									≤ 0.90		
	N									≤ 0.90		
MON	D									≤ 0.90		
	N									≤ 0.90		
TUE	D									≤ 0.90		
	N									≤ 0.90		
WED	D									≤ 0.90		
	N									≤ 0.90		
THU	D									≤ 0.90		
	N									≤ 0.90		

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0

0-SI-4.8.B.1.a.1

ATTACHMENT 5

(Page 1 of 1)

Building Ventilation System Release Factors

1-, 2-, and 3- RM-90-250					
Fan Status (Note 1)			Release Factor		
Refuel	Reactor	Turbine	Unit 1	Unit 2	Unit 3
Off	Off	Off	0.00	0.00	0.00
Slow	Slow	Slow	0.49	0.53	0.49
Fast	Slow	Slow	0.63	0.60	0.59
Slow	Fast	Slow	0.64	0.73	0.69
Slow	Slow	Fast	0.72	0.73	0.71
Fast	Fast	Slow	0.77	0.80	0.78
Fast	Slow	Fast	0.86	0.80	0.81
Slow	Fast	Fast	0.87	0.94	0.91
Fast	Fast	Fast	1.00	1.00	1.00

0-RM-90-252			
Number Fans On	0	1	2 Fans
Release Factor	0.00	0.62	1.00

1-RM-90-249, 2-RM-90-249, and 3-RM-90-251					
Number Fans On	0	1	2	3	4
Release Factor	0.00	0.25	0.50	0.75	1.00

1-RM-90-251, 2-RM-90-251, and 3-RM-90-249						
Number Fans On	0	1	2	3	4	5
Release Factor	0.00	0.20	0.40	0.60	0.80	1.00

NOTE 1:

If one or more of the fans are off and one or more of the fans are on, assume off fans are on "slow". (This will cover the case where the fans are off, off, slow; off, slow, off; etc.)

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
0-SI-4.8.B.1.a.1
ATTACHMENT 6
(Page 1 of 2)Elevated Effluent Release Rate Log

Week From _____ To _____

		0-RM-90-147	0-RM-90-148		STACK			NOTES FOR PAGE 1
	S	Red Pen	Green Pen		FLOW RATE		STACK	NOTE 1: MINIMUM ACCEPTABLE FLOWRATE
D	H	GROSS	GROSS	HIGHEST	0-FI-90-271		RELEASE	FOR 0-FI-90-271 OPERABILITY IS
A	I	COUNT	COUNT	GROSS	INOP<16,366		RATE	16,366 SCFM (SEE NOTE 5)
Y	F	RATE	RATE	COUNT	(NOTES 1 & 5)	CONVER-	(NOTE 2)	NOTE 2: DATA FROM MANUAL SAMPLING
	T	(CPS)	(CPS)	RATE	-OR-	SION	(μ Ci/SEC)	RESULTS OR 0-90-147/148[(STACK FLOW) X
		(7.9.1)	(7.9.1)	(CPS)	ATTACH 7	FACTOR	(7.9.3 &	(HIGHEST GROSS COUNT RATE) X 1.23E-03].
-	-	-----	-----	-----	(7.9.2)	-----	7.9.4)	NOTE 5: THE MINIMUM STACK FLOW RATE WAS
F	D					1.23E-03		REVISED TO 16,366 SCFM (BFPER980545).
R	N					1.23E-03		
S	D					1.23E-03		NOTES FOR PAGE 2
A	N					1.23E-03		NOTE 3: USE THE HIGHER OF THE STACK
S	D					1.23E-03		RELEASE RATE OR THE WRGERMS RELEASE
U	N					1.23E-03		RATE.
M	D					1.23E-03		NOTE 4: DIVIDE ACTUAL STACK RELEASE RATE
O	N					1.23E-03		(μ Ci/SEC) BY 1.44E+07 μ Ci/SEC.
T	D					1.23E-03		
U	N					1.23E-03		
W	D					1.23E-03		
E	N					1.23E-03		
T	D					1.23E-03		
H	N					1.23E-03		

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
 0-SI-4.8.B.1.a.1
 ATTACHMENT 6
 (Page 2 of 2)

Building Effluent Release Rate Log - Unit 0

Week From _____ To _____

DAY	SHIFT	DATA RECORDED IN STEP 7.9.4	WRGERMS Noble Gas Release Rate 0-RM-90-306 ($\mu\text{Ci/sec}$) (7.9.5)	Highest Stack Release Rate ($\mu\text{Ci/sec}$) (Note 3. Page 1)	Release Rate Factor (0.00 or 1.00) (7.9.7)	Actual Release Rate ($\mu\text{Ci/sec}$) (7.9.8)	Stack Release Fraction (Note 4. Page 1) (7.9.9)	Acceptance Criteria	Initials	
									A U O	Unit Super- visor
FRI	D							≤ 0.10		
	N							≤ 0.10		
SAT	D							≤ 0.10		
	N							≤ 0.10		
SUN	D							≤ 0.10		
	N							≤ 0.10		
MON	D							≤ 0.10		
	N							≤ 0.10		
TUE	D							≤ 0.10		
	N							≤ 0.10		
WED	D							≤ 0.10		
	N							≤ 0.10		
THU	D							≤ 0.10		
	N							≤ 0.10		

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
0-SI-4.8.B.1.a.1
ATTACHMENT 7
(Page 1 of 1)AIRBORNE EFFLUENT
FOR TOTAL STACK FLOW RATES

WEEK FROM		TO	Date:									
			Time:									
	1	SGTS A = 9145 scfm (m) B = 9048 scfm (m) C = 9500 scfm (m)										
	2	FC Exhaust A = 3600 scfm (m) B = 4775 scfm (m)										
	3	Off Gas Flow Rate Rate () scfm (m) 1-FR-66-20										
UNIT I	4	Dilution Fan A = 7370 scfm (m) B = 7033 scfm (m)										
	5	Steam Packing Exhauster Flow = 1410 scfm (o)										
UNIT II	6	Off gas Flow Rate () scfm (m) 2-FR-66-20										
	7	Dilution Fan A = 6594 scfm (m) B = 6766 scfm (m)										
	8	Steam Packing Exhauster Flow = 1410 scfm (o)										
UNIT III	9	Off Gas Flow Rate () scfm (m) 3-FR-66-111										
	10	Dilution Fan A = 6375 scfm (m) B = 6055 scfm (m)										
	11	Steam Packing Exhauster Flow = 1410 scfm (o)										
	12	Off Gas Treatment Building ExhaustFlow = 1708scfm(m)										
	13	Total (scfm) (1-12)										
		AUO Initials										
		Unit Supervisor's Initials										

Remarks:

Directions: ENTER given flow rate values for individual equipment in operation into blank columns. Total stack flow rate equals sum of values in Columns 1 through 12.

NOTES:	(m) Measured Flows
	(o) Based on average flow measurements

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0

0-SI-4.8.B.1.a.1

ATTACHMENT 8

(Page 1 of 2)

Offgas Instrumentation Log

Week From _____ To _____

UNIT 2

D A Y	S H I F T	Unit 2 Off Gas Instrumentation Readings (SI Step 7.11)									Initials	
		Pretreat- Monitor RM-90-157 (mR/hr)	FCV-66-28 Position		Off Gas Flow rate FR-66-111 (scfm)	Post Treatment Monitor (cps)		Hydrogen Recombiner (Percent H2)		Acceptance Criteria for Percent H2	A U O	Unit Super- visor
			X appr col			RM-90-266 Red Pen	RM-90-265 Green Pen	H2R-66-96 Red Pen	H2R-66-96 Green Pen			
			Open	Closed								
FRI	D									≤ 4.0%		
	N									≤ 4.0%		
SAT	D									≤ 4.0%		
	N									≤ 4.0%		
SUN	D									≤ 4.0%		
	N									≤ 4.0%		
MON	D									≤ 4.0%		
	N									≤ 4.0%		
TUE	D									≤ 4.0%		
	N									≤ 4.0%		
WED	D									≤ 4.0%		
	N									≤ 4.0%		
THU	D									≤ 4.0%		
	N									≤ 4.0%		

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0

0-SI-4.8.B.1.a.1

ATTACHMENT 8

(Page 2 of 2)

Offgas Instrumentation Log**UNIT 3**

Week From

To

D A Y	S H I F T	Unit 3 Off Gas Instrumentation Readings (SI Step 7.11)									Initials	
		Pretreat- Monitor RM-90-157 (mR/hr)	FCV-66-28 Position		Off Gas Flow rate FR-66-111 (scfm)	Post Treatment Monitor (cps)		Hydrogen Recombiner (Percent H2)		Acceptance Criteria for Percent H2	A U O	Unit Super- visor
			X appr col			RM-90-266 Red Pen	RM-90-265 Green Pen	H2R-66-96 Red Pen	H2R-66-96 Green Pen			
			Open	Closed								
FRI	D									≤ 4.0%		
	N									≤ 4.0%		
SAT	D									≤ 4.0%		
	N									≤ 4.0%		
SUN	D									≤ 4.0%		
	N									≤ 4.0%		
MON	D									≤ 4.0%		
	N									≤ 4.0%		
TUE	D									≤ 4.0%		
	N									≤ 4.0%		
WED	D									≤ 4.0%		
	N									≤ 4.0%		
THU	D									≤ 4.0%		
	N									≤ 4.0%		

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0

0-SI-4.8.B.1.a.1

ATTACHMENT 9

(Page 1 of 1)

Week From _____ To _____

BFN Unit	Radiation Monitor or Annunciator	AC Range*		Units	Day of the Week							Notes
		Low	High		Fri	Sat	Sun	Mon	Tue	Wed	Thu	
U-0	RM-90-147	1.1	1.5	scfm								1
	RM-90-252 [001]	1.12	1.87	scfm								2
	FA-90-150	Yes		NA								3
U-1	RM-90-249 [002]	1.73	2.27	scfm								2
	RM-90-250 [009]	3.6	4.4	scfm								2
	RM-90-251 [005]	1.73	2.27	scfm								2
	PA-90-262	Yes		NA								4
U-2	RM-90-249 [003]	1.73	2.27	scfm								2
	RM-90-250 [010]	3.6	4.4	scfm								2
	RM-90-251 [006]	1.73	2.27	scfm								2
	PA-90-262	Yes		NA								4
U-3	RM-90-249 [004]	1.73	2.27	scfm								2
	RM-90-250 [008]	3.6	4.4	scfm								2
	RM-90-251 [007]	1.73	2.27	scfm								2
	PA-90-262	Yes		NA								4
Acceptance Criteria		AUO Initials										
Satisfied		Unit Supervisor Init										

NOTES:

1. Reference SI Step 7.12.1. Actual reading from 0-FIT-90-153. If 0-FIT-90-153 is inoperable, compensatory sampling must be initiated in accordance with 0-SI-4.8.B.1.a.2.
 2. Reference SI Step 7.12.2. If the sample flow rate is not available for any CAM, compensatory sampling must be initiated in accordance with 0-SI-4.8.B.1.a.2.
 3. Reference SI Step 7.12.3. If the annunciator fails and 0-RM-90-147/148 is operable, the sample flow rate must be recorded every four hours on Attachment 10.
 4. Reference SI Step 7.12.4. If the annunciator fails and RM-90-265/266 is operable, the sample rate must be recorded every four hours on Attachment 10.
- * Acceptance range changed for BFPER960679.

MONITOR ID: _____

[illegible]

0-SI-4.8.B.1.a.1

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0

0-SI-4.8.B.1.a.1

ATTACHMENT 11

(Page 1 of 8)

EPIP RELEASE RATE LOG

NOTES:

1. This attachment is used to record data during EOIs and REP conditions. Page 2 of 8 is similar to Attachment 2. 3 of 8 through 6 of 8 is similar to Attachment 4, and 7 of 8 and 8 of 8 is similar to Attachment 6.
2. Pages from this attachment may be used to document plant release data on as frequent a basis as needed.
3. Multiple copies of forms from this attachment may be used as needed.
4. Any entries on this form may be NA'ed as needed.

Special Instructions for this attachment.

- 1.0 **RECORD** the "From To" dates.
- 2.0 **RECORD** the day of the month (under DAY) and time on each line as needed.
- 3.0 Instructions for recording the data for each item is as given in the main body of the SI.

From _____ To _____

0-SI-4.8.B.1.a.1

From Unit 1 To _____

[illegible]

TITLE: AIRBORNE EFFLUENT RELEASE RATE

UNIT 0
0-SI-4.8.B.1.a.1
ATTACHMENT 11
(Page 4 of 8)

Building Effluent Release Rate Log - Unit 2

From _____ To _____
Unit 2 _____

[illegible]

From _____ To _____

[illegible]

NOTES FOR PAGE 7 OF 8	
NOTE 1: MINIMUM ACCEPTABLE FLOWRATE	
FOR 0-FI-90-271 OPERABILITY IS 16,366	
SCFM (SEE NOTE 5)	
NOTE 2: DATA FROM MANUAL SAMPLING	
RESULTS OR 0-90-147/148[(STACK FLOW) X	
(HIGHEST GROSS COUNT RATE) X 1.23e-03].	
NOTE 5: THE MINIMUM ACCEPTABLE FLOW RATE	
WAS REVISED TO 16,366 SCFM (BPPER980545).	
NOTES FOR PAGE 8 OF 8	
NOTE 3: USE THE HIGHER OF THE STACK	
RELEASE RATE OR THE WRGERMS	
RELEASE RATE.	
NOTE 4: DIVIDE ACTUAL STACK RELEASE	
RATE ($\mu\text{Ci}/\text{SEC}$) BY $1.44\text{E}+07 \mu\text{Ci}/\text{SEC}$.	

From _____ To _____

[illegible]

Page 50 of 50

Examiners COPY

RO A.4

Question #1: No Reference allowed.

List in order of severity the Emergency Classification Levels.

Answer:

General Emergency

Site Area Emergency

Alert

Unusual Event

Question not
used.

Reference: SPP - 3.5, Regulatory Reporting Requirements p. 33

KA 2.4.29, Knowledge of the Emergency plan. 2.6/4.0

Question # 2: No Reference allowed.

Who is (are) responsible for evaluating if a event is reportable?

Answer:

SM or STA

Reference: OPL171.092, Regulatory Reporting Requirements, Lesson plan.

KA 2.4.29, Knowledge of the Emergency plan. 2.6/4.0

Question # 3:

When does the one or four hour time frame for reporting an event begin?

Answer:

When the SM becomes aware of/or should have been made aware of the existing condition.

Reference: OPL171.092, Regulatory Reporting Requirements, Lesson plan

KA 2.4.29, Knowledge of the Emergency plan. 2.6/4.0

Question # 4:

Determine from the following examples if the area identified should or should not be a reportable event:

- a. HPCI system isolates during the performance of a surveillance.
- b. Single low water level instrument failure
- c. Loss of power or air to a fail-safe component that causes the component to go to the required position.
- d. HPCI removed from service during scheduled maintenance.

Answer:

- a. Reportable
- b. Not reportable
- c. Not reportable
- d. Not reportable

Question not used.

Reference: OPL171.092, Regulatory Reporting Requirements, Lesson plan

Candidate Handout

Candidate's Name _____

RO A.4

Question #1: No Reference allowed.

List in order of severity the Emergency Classification Levels.

Question not
used

Question # 2: No Reference allowed.

Who is (are) responsible for evaluating if a event is reportable?

Question # 3:

When does the one or four hour time frame for reporting an event begin?

Question # 4:

Question not used.

Determine from the following examples if the area identified should or should not be a reportable event:

- a. HPCI system isolates during the performance of a surveillance.
 - b. Single low water level instrument failure
 - c. Loss of power or air to a fail-safe component that causes the component to go to the required position.
 - d. HPCI removed from service during scheduled maintenance.
-

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 180

TITLE: CLASSIFY THE EVENT PER THE REP (LOSS OF ALL PWR TO
4KV S/D BDS >3 HOURS)

TASK NUMBER: S-000-EM-21

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____
TRAINING

PLANT CONCURRENCE: _____ DATE: _____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	6/03/96	ALL	INITIAL ISSUE
1	8/29/96	2,4,5,7-15	CHANGED SOS TO SM, ASOS TO US, DELETED CUE ON NOTIFYING STATE DIRECTLY.
2	12/10/96	2,3,7,10,14	PROCEDURE REVISION
3	09/11/97	ALL	FORMAT AND PROCEDURE REVISION
4	12/10/97	4	ADDED WIND SPEED & DIRECTION
5	10/28/98	3,5,7,11,12,14,15	PROCEDURE REVISION AND GENERAL UPDATE
6	11/02/99	2,3,5,17	PROCEDURE REVISION
7	11/08/99	2,3	PROCEDURE REVISION ON 11/03/99
8	05/20/00	ALL	PROCEDURE REVISION EPIP-1, 5, AND 8

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO X DATE: _____

JPM NUMBER: 180

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

TASK TITLE: CLASSIFY THE EVENT PER THE REP (LOSS OF ALL PWR TO
ALL UNIT SPECIFIC 4KV S/D BDS >3 HOURS)

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

*

TASK STANDARD: THE EVENT IS CLASSIFIED AS A GENERAL EMERGENCY
BASED ON LOSS OF ALL POWER TO UNIT SPECIFIC 4KV
SHUTDOWN BDS ON ANY UNIT FOR >3 HOURS

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: EPIP 1, REV 29; EPIP 5, REV 28A;
EPIP 8, REV 12

VALIDATION TIME: CONTROL ROOM: 23:00 LOCAL: N/A

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL N/A

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

INITIAL CONDITIONS: You are the SHIFT MANAGER. Unit 2 was in MODE 2 at 2% power when a severe storm caused damage to the switchyard with loss of ALL OFFSITE POWER at 1300 hours. Also, an unisolable rupture occurred in the EECW system for Unit 1/2 Diesels and cannot be repaired for 4 hours. All Unit 1/2 Diesels are lost due to the loss of cooling water. Unit 1/2 shutdown boards cannot be crosstied to Unit 3. EOI-1 has been entered and all rods inserted on the scram; SBT C is operating and no elevated radiological stack release is predicted.

INITIATING CUES: The UNIT SUPERVISOR has informed you of the EECW line rupture causing loss of all Unit 1/2 Diesels and an estimated time of repair being 4 hours. Using the following parameters provided to you by the Control Room operating crew, **Classify** the event and carry out all your actions (All notifications will be done on the Simulator).

Reactor Level	+40 inches on Normal Range, controlled by RCIC
Reactor Pressure	950 controlled by SRV's (MSIV's isolated)
DW Pressure	1.38 psig
DW Temperature	145 °F
DW Radiation	RR-90-256 reading normal prior to isolation
Torus Temperature	91 °F
PSC Pressure	1.0 psig
Torus Level	-2 inches
Wind Speed 5 mph	Wind Direction/North

NOTE: Unit 2 conditions are fairly stable.
No abnormal radiological releases offsite.

START TIME:_____

Performance Step : Critical X Not Critical_____

Refers to EPIP 1 to classify emergency event.

Standard:

SHIFT MANAGER/SED refers to EPIP 1, Section II, 5.0, Loss of AC Power and declares a GENERAL EMERGENCY (5.1-G) based on Loss of voltage to ALL unit specific 4KV Shutdown Boards from Table 5.1 **AND** restoration of at least one 4KV Shutdown Board is **NOT** likely within three hours.

SAT_____UNSAT_____N/A_____ COMMENTS:_____

Performance Step : Critical X Not Critical_____

Implements EPIP-5 GENERAL EMERGENCY.

Standard:

SHIFT MANAGER/SED recognizes/implements a GENERAL EMERGENCY per EPIP-5.

SAT_____UNSAT_____N/A_____ COMMENTS:_____

GENERAL
EMERGENCY

EPIP-5

BROWNS FERRY
NUCLEAR PLANT

-
=====

3.0 INSTRUCTIONS

- 3.1 IF all Emergency Centers ARE STAFFED, Then notify the following that a **GENERAL EMERGENCY** Emergency Classification has been issued and EPIP 5 is being implemented, and continue in this procedure at Step 3.4. If all Emergency Centers **ARE NOT STAFFED**, Then N/A this step and continue in this procedure.

CECC	_____	Control Rooms	_____	_____	_____
TSC	_____	Plant PA Announcement	_____	Initials	Time
OSC	_____	This is <u>NAME</u> , Site Emergency Director, an GE has been declared at BFN, we are currently implementing EPIP-5. Standby for further updates.			

CUE: EMERGENCY CENTERS ARE NOT STAFFED AT THIS TIME.

3.2 Notification of the Operations Duty Specialist (ODS) & Emergency Responders

NOTE: The ODS should be notified within 5 minutes after the emergency event is declared.

Performance Step : Critical X Not Critical

3.2.1 Complete Attachment A (Notification Information).

Standard:

ATTACHMENT A is complete with EAL Designator 5.1-G GENERAL EMERGENCY status. (EXCEPT PROTECTIVE ACTION RECOMMENDATION WHICH WILL BE PERFORMED IN STEP 3.6) EOI-1 has been entered and all rods inserted on the scram. Loss of ALL OFFSITE power and EECW piping rupture causing loss to Unit 1/2 Diesel Generators--estimated time of repair for leak is 4 hours. Unable to crosstie 4KV Shutdown Boards with Unit 3. Reactor level +40 inches on Normal Range controlled by RCIC (MSIV's are isolated). Reactor pressure 950 controlled by SRV's, DW pressure 1.38 psig, DW temperature 145 °F, Torus temperature 91 °F, Torus level -2 inches, Torus pressure 1.0 psig. Wind speed is 5 MPH and direction is North. Unit 2 conditions are fairly stable with no abnormal radiological releases offsite. (INFORMATION GIVEN IN INITIAL CONDITIONS & INITIATING CUES EXCEPT EAL DESIGNATOR) NOTE: THIS IS GENERIC INFORMATION FOR DESCRIPTION OF EVENT--ALL THIS EXACT INFORMATION IS NOT REQUIRED FOR ACCEPTANCE UNDER BRIEF DESCRIPTION OF EVENT.

SAT____UNSAT____N/A____ COMMENTS:_____

Day Shift 8 a.m. - 5 p.m.
9-1-334-206-5391
Holidays-Weekends-Offshifts

JPM NO. 180
REV. NO. 8
PAGE 9 OF 19

9-1-334-242-4378

Standard:

NOTIFIES the ODS and **provides** the information from Attachment A.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical____ Not Critical X

3.2.4 **Fax** a copy of Attachment A to the ODS for confirmation of information or the state if contacted directly.

ODS Fax:
5-751-8620

AL Rad Health
9-1-334-206-5387

CUE: THE FAX TO ODS WILL BE SIMULATED.

Standard:

SIMULATE faxing a copy of Attachment A to the ODS.

SAT____UNSAT____N/A____ COMMENTS:_____

3.2.5 **Receive** confirmation call from the ODS (to verify notification of the State of Alabama),
(N/A this step if the State was
contacted directly).

**CUE: REQUEST SIMULATOR CONSOLE OPERATOR TO CALL AND
CONFIRM THAT ODS HAS NOTIFIED THE STATE OF ALABAMA.**

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical____Not Critical__X__

3.4 ACCOUNTABILITY AND EVACUATION OF NON-EMERGENCY
RESPONDERS

3.4.1 Prior to sounding the Evacuation Alarm Notify
Nuclear Security. If the TSC is staffed
notify the TSC Security Manager.

If the TSC is not staffed or the TSC
Security Manager position has not been
filled then call 3150 or 2219.

CUE: THE TSC IS NOT STAFFED AT THIS TIME. THE TSC
SECURITY MANAGER POSITION HAS NOT BEEN FILLED.

Standard:

Prior to sounding the Evacuation Alarm the SHIFT MANAGER/SED
notifies Nuclear Security by dialing 3150 or 2219.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical X Not Critical

not 3.4.1 Activate the Accountability Alarm, if
previously sounded. (Reference EPIP-8)
(N/A STEP IF NOT APPLICABLE)

Standard:

SHIFT MANAGER/SED **ACTIVATES** the **Site Assembly and Accountability** by sounding the 3 minute undulating siren utilizing **OPERATOR AID 0-CNTL-244-6378** on Unit 2 Simulator.

SAT UNSAT N/A COMMENTS:

CUE: INFORM THE SHIFT MANAGER/SED THAT ACCOUNTABILITY IS COMPLETE

Performance Step : Critical X Not Critical

3.4.2 When accountability is complete, Conduct
evacuation of non-emergency
responders by activating the Evacuation
Alarm, if not previously sounded. (N/A
STEP IF NOT APPLICABLE)

Standard:

SHIFT MANAGER/SED **ACTIVATES** the **SITE EVACUATION ALARM** by sounding the Site Evacuation Alarm (3-Minute steady siren) utilizing the **OPERATOR AID 0-CNTL-244-6378** on Unit 2 Simulator.

SAT UNSAT N/A COMMENTS:

JPM NO. 180
REV. NO. 8
PAGE 14 OF 19

Performance Step : Critical___ Not Critical_X_

3.5 DOSE ASSESSMENT

3.5.1 Evaluate the need for offsite dose
assessment. (N/A STEP IF NOT APPLICABLE)

3.5.1.1 When offsite dose assessment is
required Obtain the information
from the CECC when operational.

3.5.1.2 If the CECC is not operational,
Contact the TSC, when staffed or
the RADCON Shift Supervisor and Request
the implementation of EPIP 14,
for dose assessment.

**CUE: INFORM SHIFT MANAGER/SED THAT CECC AND TSC IS NOT
STAFFED AT THIS TIME.**

Standard:

IF SHIFT MANAGER/SED elects to perform offsite dose
assessment, then he/she contacts RADCON SHIFT SUPERISOR and
request implementation of EPIP-14 for dose assessment .
(OTHERWISE, N/A)

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical_X Not Critical__

3.6 NOTIFICATION OF THE NRC

3.6.1 Notify the NRC immediately or within 1 hour and if requested by the NRC maintain an open and continuous communications channel.

Note: Utilize the Emergency Notification System (ENS) when making this notification. Dial the first number listed on the sticker affixed to the ENS telephone, using all 10 digits. If the number is busy, Then select in order, the alternate numbers until a connection is achieved.

Note: If the ENS phones are out-of-service, Then dial direct utilizing the TVA phone system by dialing 9-1-the number listed on the ENS telephones. No access codes are required.

Standard:

PERFORMER notified NRC on the Simulator by calling the console operator and requesting NRC. Informing NRC that the SHIFT MANAGER/SED has declared a GENERAL EMERGENCY (5.1.G).

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step : Critical X Not Critical

3.7 PROTECTIVE ACTION RECOMMENDATION

3.7.1 If the CECC is not staffed, Then make a
Protective Action Recommendation (PAR) using
Attachment C. (This PAR shall be made only
by the SED.) (N/A STEP IF NOT APPLICABLE)

**CUE: THE CECC IS NOT STAFFED AND NO OFFSITE DOSE
ASSESSMENTS ARE AVAILABLE AT THIS TIME.**

Standard:

SHIFT MANAGER/SED refers to EPIP-5, Attachment C, and
declares a RECOMMENDATION 4 based on lack of information, no
offsite dose assessment information available.

SAT UNSAT N/A COMMENTS:

3.8 PERIODIC EVALUATION OF THE EVENT

as 3.8.1 Continue to Evaluate the event using EPIP-1
conditions warrant.

3.8.2 If plant conditions warrant the need for
follow up information, Complete the
Follow Up Notification Form, Attachment D.

Note: Conditions that warrant this
evaluation are as a minimum when
other EAL conditions exist indicating
the current emergency classification
or significant changes in plant
conditions have occurred.

**CUE: THE EMERGENCY CENTERS ARE STAFFED AND THE PLANT
MANAGER (SITE EMERGENCY DIRECTOR) IS HERE TO RELIEVE
YOU—**

THAT WILL BE ALL FOR NOW

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.

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Torus Temperature	91 °F
PSC Pressure	1.0 psig
Torus Level	-2 inches
Wind Speed 5 mph	Wind Direction/North

NOTE: Unit 2 conditions are fairly stable.
No abnormal radiological