

INITIAL SUBMITTAL

**BROWNS FERRY EXAM
50-259, 260, 296/2001-301**

SEPTEMBER 17-21, 2001

INITIAL SUBMITTAL JPMS

**ADMINISTRATIVE JPMs/QUESTIONS
SIMULATOR JPMs,
IN-PLANT JPMs, AND
INITIAL ADMIN TOPICS OUTLINE
(ES-301-1),
CONTROL ROOM SYSTEMS &
FACILITY WALK-THROUGH OUTLINE
(ES-301-2)**

A1.1a SRO ONLY

It is 3:00am on January 1. Following a declaration of an unusual event, several people are responding to the event. You are the shift manager, security has informed you that they have a reasonable belief that an NRC resident inspector, may have recently used alcohol and may be unfit for duty. In addition a deputy sheriff, TVA pipe fitter and a contract pipe fitter that are responding onsite to the NOUE have stated that they consumed alcohol at midnight although the three of them appeared to be unimpaired. All the above individual have unescorted access (badged) with the exception of the deputy sheriff.

In reference to allowing these individual onsite, what action are required?

Solution:

K/A 2.1.6 CFR43.5 (2.1/4.3) Ability to supervise and assume a management role during plant transients and upset conditions. SRO ONLY Reference allowed.

NRC employee must be granted escorted access, the regional administrator must be called and the NRC Operations Center must be notified. (2.0 B. TVA may not deny access but shall escort the individual. In any instance of this occurrence, the NRC Region II Administrator must be notified immediately by telephone. During other than normal working hours, the NRC Operations Center must be notified)

Deputy Sheriff (This SPP does not apply to NRC employees, law enforcement personnel, or non-TVA offsite emergency response personnel while responding onsite.) Law enforcement while not covered by this SPP, should not be allowed to enter the protected area. There are no statutory requirements to allow local law enforcement onsite. It would be permissible to escort these individuals if their presence were actually necessary.

TVA employee - must have saliva test administered. (*SPP-1.2, Fitness for Duty, section 3.14, Call-in for Unscheduled Work, 3.14.1.A.4, if the answer to the alcohol consumption question is "yes" then Nuclear Security on site should be notified and be requested to administer a saliva test to the employee. This test must be administered as soon as the person arrives on site.)

Contract Employee - must have saliva test administered or access denied. Typically, these contractors, if badged, will participate in the TVA FFD program, and the requirements are the same as for a TVA employee.

Handout to Applicant

It is 3:00am on January 1. Following a declaration of an unusual event, several people are responding to the event. You are the shift manager, security has informed you that they have a reasonable belief that an NRC resident inspector, may have recently used alcohol and may be unfit for duty. In addition a deputy sheriff, TVA pipe fitter and a contract pipe fitter that are responding onsite to the NOUE have stated that they consumed alcohol at midnight although the three of them appeared to be unimpaired. All the above individual have unescorted access (badged) with the exception of the deputy sheriff.

In reference to allowing these individual onsite, what action are required?

NRC Resident Inspector

Deputy Sherrif

TVA Pipe Fitter

Contract Pipe Fitter

A1.1a SRO ONLY

It is 3:00am on January 1. Following a declaration of an unusual event, several people are responding to the event. You are the shift supervisor, security has informed you that they have a reasonable belief that an NRC resident inspector, may have recently used alcohol and may be unfit for duty. In addition a deputy sheriff, TVA pipe fitter and a contract pipe fitter that are responding onsite to the NOUE have stated that they consumed alcohol at midnight although the three of them appeared to be unimpaired.

What action are required?

Solution:

K/A 2.1.6 CFR43.5 (2.1/4.3) Ability to supervise and assume a management role during plant transients and upset conditions. SRO ONLY Reference allowed.

NRC employee must be granted escorted access, the regional administrator must be called and the NRC Operations Center must be notified. (2.0 B. TVA may not deny access but shall escort the individual. In any instance of this occurrence, the NRC Region II Administrator must be notified immediately by telephone. During other than normal working hours, the NRC Operations Center must be notified)

Deputy Sheriff must be granted access. (This SPP does not apply to NRC employees, law enforcement personnel, or non-TVA offsite emergency response personnel while responding onsite.)

TVA employee - must have saliva test administered. (*SPP-1.2, Fitness for Duty, section 3.14, Call-in for Unscheduled Work, 3.14.1.A.4, if the answer to the alcohol consumption question -is "yes" then Nuclear Security on site should be notified and be requested to administer a saliva test to the -employee. This test must be administered as soon as the person arrives on site.)

Contract Employee - whatever part of the FFD program applies must be administered - (TVAN may, at its discretion, accept, either whole or in part, FFD programs administered by contractor, vendors, or industry groups. All such programs must meet the minimum requirements of 10 CFR 26. Corporate Nuclear Security shall be responsible for review and approval of any such programs.)

ES-301

Administrative Topics Outline

Form ES-301-1

Facility: <u>Browns Ferry</u> 5454		Date of Examination: <u>9/17-9/21/2001</u>
Examination Level (circle one): RO / <u>SRO</u>		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	K/A 2.1.6	Question on FFD. Determine the Condition Classification for JPM #4.
	Shift Staffing Requirements (1)	SRO - NRC-JPM-02 (NEW), Evaluate Overtime Eligibility
A.2	Equipment Operability Requirements	SRO - JPM A.2 Determine Component Positions for Valve Line-ups and Tag Order Performance.
A.3	Control of Radiation Releases	Determine Building Ventilation Noble Gas Release Rate. <u>JPM #131</u> , KA 271000A4.05, 3.2/3.9
A.4	Emergency Plan	JPM -181 Classify the Event per the REP (Gaseous Release Rate-OSI-4.8.B.1.a.1)

ES-301

Control Room Systems and Facility Walk-Through Test Outline

Form ES-301-1

DRAFT

RO

ES-301

Administrative Topics Outline

Form ES-301-1

Facility: <u> Browns Ferry </u>		Date of Examination: <u> 9/17-9/21/2001 </u>
Examination Level (circle one): RO / SRO		Operating Test Number: <u> 1 </u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	G2.1.28 (3.2/3.3)	RO- JPM NRC A.1a Determine Reactor Vessel Water Level.
	Shift Staffing Requirements (1)	RO - NRC-JPM-02 (NEW), Evaluate Overtime Eligibility
A.2	Equipment Operability Requirements	RO - JPM A.2 Determine Component Positions for Valve Line-ups and Tag Order Performance.
A.3	Control of Radiation Releases	Determine Building Ventilation Noble Gas Release Rate. JPM #131 , KA 271000A4.05, 3.2/3.9
A.4	Emergency Plan	1. Question K/A G2.4.11 Knowledge of abnormal condition procedures
		2. Question K/A G2.4.39 Knowledge of the RO's responsibilities in emergency plan implementation.

ES-301 Control Room Systems and Facility Walk-Through Test Outline

Form ES-301-1

A1.1b SRO ONLY

In accordance with SPP 3.1 Determine the Condition Classification (PER Level) for the following condition. Procedure reference is allowed.

Unit 2 is in Mode 1

During a board walkdown, it is discovered that the RCIC flow controller indicates downscale. Subsequent investigation reveals that the automatic function of the flow controller is failed, manual function is still working. Determine the PER Level that should be assigned.

Solution

Classification is C since LCO is involved.

KA Generic 2.1.33 SRO-4.0

Handout to Applicant

Unit 2 is in Mode 1

During a board walkdown, it is discovered that the RCIC flow controller indicates downscale. Subsequent investigation reveals that the automatic function of the flow controller is failed, manual function is still working. Using SPP 3.1, Determine the PER Level that should be assigned.

DRAFT.

Give conditions

A1.1b SRO ONLY

B.I.G.

In accordance with SSP3-1 Determine the Condition Classification for ~~JMP # 4 (MOD #18)~~

Solution

KA

c

Classification is ~~D~~ if no LCO is involved.
BFN REVIEWER - please verify classification

LCO APPLIES

DRAFT

A1^a RO ONLY

During the past 36 hours the Unit 2 has cooled down from 212 degrees F to 100 degrees F.

The indicated reactor water level was as follows:

At beginning of cooldown:

Narrow Range Compensated

2-LIS-3-53, 60, 206, and 253 indicated 44 inches

Narrow Range Uncompensated

2-LIS-3-184, 185, 203(A-D), and 208 (A-D) indicated 51 inches

Following the cooldown

Narrow Range Compensated

2-LIS-3-53, 60, 206, and 253 indicated 41 inches

Narrow Range Uncompensated

2-LIS-3-184, 185, 203(A-D), and 208 (A-D) indicated 48 inches

Calculate the net change in reactor water level during the coolddown?

Assuming the rate of change reactor water level stays constant for the next 36 hours, what will be the final reactor water level?

Solution - Rate of change is zero, water level will remain 35 inches.
 KA 2.1.28 (3.2/3.3) Knowledge of major system components and controls.

The Reactor Water Level Instrumentation tables in Attachment 2 are arranged such that only instruments in the same compensation group are compared. However, determination of corrected level indication may be required during operation at off-normal conditions or if desired to compare instruments from different compensation groups.

Corrected level indication may be used for satisfying MAX DEV criteria provided the following are observed:

The parameter correction is appropriately applied to all instruments being compared.

Both the indicated and corrected level indications are recorded and annotated in Attachment 2 along with the bases for the corrected level indication.

Corrected level indication can be determined from the following table which provides commonly needed corrections or from Technical Instruction 2-TI-149. The following table presents Reactor Water Level as: indicated, corrected for Reactor Vessel Temperature 100°F, and corrected for Reactor Vessel Temperature 212°F for various water level instruments. Enter the indicated Rx water level and find the correct instrument column and use the closest Rx vessel temperature. (Matching corrected levels between instruments and subtracting the associated indicated levels will yield an approximate deviation value in inches between those instruments. i.e. If the Narrow Range Compensated instrument is reading 38", the corrected level would be 34.5". Also, using a corrected value of 35.5" in the Narrow Range Uncompensated column shows the instrument should be reading 46". Therefore, a deviation of approximately 8" would be expected between the Narrow Range Compensated instrument and the Narrow Range Uncompensated instrument.)

INDICATED LEVEL		CORRECTED LEVEL									
Indicated Reactor Water Level	Narrow Range Compensated 2-LIS-3-53(60)(206) (253) Level		Narrow Range Uncompensated 2-LIS-3-184, 185,203(A-D), 208(A-D) Level		Wide Range 2-LI-3-58A (B), 2-LIS-3-56A (D) Level		Post Accident 2-LR-3-62 2-LI/LIS-3-52 2-LI/LIS-3-62A Level		Floodup 2-LI-3-55 Level		Wide Range 2-LI-3-46A (B) Level
	100°	212°	100°	212°	100°	212°	100°	212°	100°	212°	
50	39	42	34.5	37	Note 1	Note 2	No Calculated Correction Value		49	50.5	No Calculated Correction Value
48	38	40	33	35					47	48.5	
46	36.5	39	31.5	34					45	46.5	
44	35	37	30	32.5					43	44	
42	33.5	36	29	31					41	42	
40	32	34	27.5	29.5					39	40	
38	31	33	26	28					37	38	
36	29.5	31.5	24.5	26.5					35	36	
34	28	30	23	25					33	34	
32	26.5	28.5	22	23.5					31	32	
30	25	27	20.5	22					29	30	
28	24	25.5	19	20.5					27	28	

Notes:

- (1) Indicates >60" if actual Water Level is >14".
- (2) Indicates >60" if actual Water Level is >8".

Handout to Applicant

A handout of SR-2 readings and an attachment is given. The following is an explanation of the conditions, followed by two questions.

During the past 24 hours the Unit 2 has cooled down from 212 degrees F to 100 degrees F bulk moderator temperature.

2-SR -2 recorded the indicated water level on FRIDAY while at 212 deg F. Readings were again recorded on SATURDAY with moderator temperature at 100 degrees F. The readings for Narrow Range Compensated and Uncompensated columns are provided (provide marked up copy of page 24 and 46 of the SR, and Attachment 4).

1. The Unit Supervisor has requested that you utilize the reading and Attachment 4 of 2-SR-2 to determine corrected water level, and determine the actual net change in reactor water level over the 24 hour period starting when the reactor was at 212 degrees F and ending when the reactor was at 100 degrees F.
2. Assume the rate of change is the same over the next 24 hour period, determine the actual water level expected on SUNDAY.

Examiner Noter: Give applicant the conditions handout and the marked up copy of SR-2 (Instrument Checks and Observations) and Attachment 4

A handout of SR-2 readings and an attachment is given. The following is an explanation of the conditions, followed by two question.

During the past 24 hours the Unit 2 has cooled down from 212 degrees F to 100 degrees F bulk moderator temperature.

2-SR -2 recorded the indicated water level on FRIDAY while at 212 deg F. Readings were again recorded on SATURDAY with moderator temperature at 100 degrees F. The readings for Narrow Range Compensated and Uncompensated columns and are provided (provide marked up copy of page 24 and 46 of the SR, and Attachment 4).

1. The Unit Supervisor has requested that you utilize the reading and Attachment 4 of 2-SR-2 to determine corrected water level, and determine the actual net change in reactor water level over the 24 hour period starting when the reactor was a 212 degrees F and ending when the reactor was at 100 degrees F.
2. Assume the rate of change is the same over the next 24 hour period, determine the actual water level expected on SUNDAY.

Solution - Corrected Water Level for both sets of readings is 35 inches on both Friday and Saturday, should be the same for Sunday, so Net Change is Zero.

KA 2.1.28 (3.2/3.3) Knowledge of major system components and controls.

INFORMATION FOR THE SR-2 READINGS

At beginning of cooldown:

Narrow Range Compensated

2-LIS-3-53, 60, 206, and 253 indicated 41 inches
(listed as Friday Readings)

Narrow Range Uncompensated

2-LIS-3-184, 185, 203(A-D), and 208 (A-D) indicated 48 inches
(listed as Friday Readings)

Following the cooldown

Narrow Range Compensated

2-LIS-3-53, 60, 206, and 253 indicated 44 inches
(listed as Saturday Readings)

Narrow Range Uncompensated

2-LIS-3-184, 185, 203(A-D), and 208 (A-D) indicated 51 inches
(Listed as Saturday Readings)
Attachment 4 on following page.

ATTACHMENT 4

(Page 1 of 1)

Reactor Water Level Indication Correction

The Reactor Water Level Instrumentation tables in Attachment 2 are arranged such that only instruments in the same compensation group are compared. However, determination of corrected level indication may be required during operation at off-normal conditions or if desired to compare instruments from different compensation groups.

Corrected level indication may be used for satisfying MAX DEV criteria provided the following are observed:

- The parameter correction is appropriately applied to all instruments being compared.
- Both the indicated and corrected level indications are recorded and annotated in Attachment 2 along with the bases for the corrected level indication.

Corrected level indication can be determined from the following table which provides commonly needed corrections or from Technical Instruction 2-TI-149. The following table presents Reactor Water Level as: indicated, corrected for Reactor Vessel Temperature 100°F, and corrected for Reactor Vessel Temperature 212°F for various water level instruments. Enter the indicated Rx water level and find the correct instrument column and use the closest Rx vessel temperature. (Matching corrected levels between instruments and subtracting the associated indicated levels will yield an approximate deviation value in inches between those instruments. i.e. If the Narrow Range Compensated Instrument is reading 38", the corrected level would be 34.5". Also, using a corrected value of 35.5" in the Narrow Range Uncompensated column shows the instrument should be reading 46". Therefore, a deviation of approximately 8" would be expected between the Narrow Range Compensated instrument and the Narrow Range Uncompensated instrument.)

INDICATED LEVEL	CORRECTED LEVEL										
Indicated Reactor Water Level	Narrow Range Compensated 2-LIS-3-53(60)(206) (253) Level		Narrow Range Uncompensated 2-LIS-3-184, 185,203(A-D), 208(A-D) Level		Wide Range 2-LI-3-58A (B), 2-LIS-3-56A (D) Level		Post Accident 2-LR-3-62 2-LI/LIS-3-52 2-LI/LIS-3-62A Level		Floodup 2-LI-3-55 Level		Wide Range 2-LI-3-46A (B) Level
	100°	212°	100°	212°	100°	212°	100°	212°	100°	212°	
50	39	42	34.5	37	Note 1	Note 2	No Calculated Correction Value		49	50.5	No Calculated Correction Value
48	38	40	33	35					47	48.5	
46	36.5	39	31.5	34					45	46.5	
44	35	37	30	32.5					43	44	
42	33.5	36	29	31					41	42	
40	32	34	27.5	29.5					39	40	
38	31	33	26	28					37	38	
36	29.5	31.5	24.5	26.5					35	36	
34	28	30	23	25					33	34	
32	26.5	28.5	22	23.5					31	32	
30	25	27	20.5	22					29	30	
28	24	25.5	19	20.5					27	28	

Notes:

- (1) Indicates >60" if actual Water Level is >14".
- (2) Indicates >60" if actual Water Level is >8".

A12b

TASK CONDITIONS:

A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup. The following is the work history (excluding shift turnover time) of the available reactor operators on shift (hours reflect those worked PRIOR to the 2 hour holdover). A break of at least 8 hours occurred between all work periods.

DAY	1	2	3	4	5	6	7	8 (Today)
Operator #1	0	0	13	11	14	10	14	10
Operator #2	0	3	10	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

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.

Task Standard:

GEN 2.1.3 (3.0/3.4) Knowledge of shift turnover practices CFR 41.10 RO and SRO

Step	Description	Standard	SAT/UNSAT
1	Obtain a current revision of SSP-15	Current Revision SSP-15	
2	Evaluate Operator 1	Determine Operator #1 would exceed 24 hours in a 48 hour period and would exceed 72 hours in a 7 day period and would require overtime authorization	Critical
PROMPT: If asked, inform applicant that operator 1 received authorization for exceeding 24 hours in a 48 hour period between days 5 and 6.			
3	Evaluate Operator 1	Determine Operator exceeded 24 hours in a 48 hour period between days 5 and 6	
4	Evaluate Operator 2	Determine Operator #2 would exceed 72 hours in a 7 day period and would require overtime authorization	Critical
5	Evaluate Operator 3	Determine Operator #3 would exceed 16 hours in a 24 hour period and 24 hours in a 48 hour period and would require overtime authorization	Critical
6	Evaluate Operator 4	Determine that Operator #4 would not exceed any overtime guidelines	
7	Evaluate Operator 5	Determine Operator #2 would exceed 72 hours in a 7 day period and would require overtime authorization	Critical

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM – A.2

**Determine Component Positions for Valve Line-ups and
Tag Order Performance**

Draft

CANDIDATE

EXAMINER

DRAFT Admin A. Z

INITIAL CONDITIONS AND INITIATING CUE:

You are an Operator, the refrigeration unit in the maintenance shop is being lined up for service. The Unit Supervisor has directed you to perform **Independent Verification** of manual valves per Attachment 1 and notify him when complete.

Evaluation Steps
Evaluator Copy

Provide Student Attachment 1 and request Independent Verification on listed valves.

Step 1

Independent Verification of valve, 4T-SHV-066-0019A, Condenser A Outlet, OPEN.

Standard:

Locate valve and turn hand-wheel in close (clockwise) direction, notes freedom of movement, then returns valve to fully open position by turning hand-wheel in the counterclockwise direction to end of travel.

_____ SAT _____ UNSAT

Comments: _____

Step 2

Independent Verification of valve, 4T-SHV-066-0016A, Condenser A Inlet, CLOSED.

Standard:

Locate valve and turn hand-wheel in close (clockwise) direction, notes lack of hand-wheel movement and concludes valve in **CLOSED** position

_____ SAT _____ UNSAT

Comments: _____

Step 3 (this step has two parts)

Independent Verification of valve, 4T-SHV-066-001, Suction Isolation, LOCKED OPEN.

Standard:

Determines valve cannot be Independently Verified LOCKED OPEN

_____ SAT _____ UNSAT

When student determines that Independent Verification cannot be done on a locked open valve, then STATE: *I will act as your second party verifier, demonstrate how second party verification will be accomplished on this valve. Please explain in detail and I will provide assistance as asked.*

Standard:

Explains the method of second party verification, i.e., both parties must agree on the valve and required position, break locking tab, position checked as in step 1, then locking tab is reapplied.

_____ SAT _____ UNSAT

Comments: _____

Step 4 (this step has two parts)

Independent Verification of valve, 4T-SHV-066-003A, Circ A Pump Outlet,
THROTTLED 3 TURNS OPEN.

Standard:

Determines valve cannot be Independently Verified as THROTTLED, 3 TURNS
OPEN.

_____ SAT _____ UNSAT

When student determines that Independent Verification cannot be done on a throttled valve, then STATE: *I will act as your second party verifier, demonstrate how second party verification will be accomplished on this valve. Please explain in detail and I will provide assistance when asked.*

Standard:

Demonstrates second party verification, i.e., both parties must agree on the valve and required position, close valve fully by rotating in the clockwise direction until fully closed, then counts turns as opening to achieve 3 turns open.

_____ SAT _____ UNSAT

Comments: _____

ATTACHMENT 1 **REFRIGERATION UNIT MANUAL VALVE VERIFICATION CHECKLIST**

Valve ID Number	Noun Name	Required Position	1 st	2nd	IV
4T-SHV-066-0019A	CONDENSER A OUTLET	OPEN	<i>REX</i>		
4T-SHV-066-0016A	CONDENSER A INLET	CLOSED	<i>REX</i>		
4T-SHV-066-001	SUCTION ISOLATION	LOCKED OPEN	<i>REX</i>		
4T-SHV-066-003A	CIRC A PUMP OUTLET	THROTTLED 3 TURNS OPEN	<i>REX</i>		

Valve Position Verification BFN

The objective of the JPM is to demonstrate the verification requirements/techniques for manually operated valves. The mockup of the refrigeration unit at the BFN Training Center will be used. The valves (4 total) will be positioned prior the start of the JPM at specified below. The applicant will be given a task to Independently Verify all the valves on the checklist sheet. Two of the valves can be independently verified, however, two cannot be independently verified. The valves that cannot be Independently Verified, when identified, will require second party verification.

Equipment Needed

Mockup in mechanical maintenance area of BFTVC shop.
Locking Tabs, minimum of two.
Valve Locking Chain.

SETUP

POSITION THE FOLLOWING VALVES AS SPECIFIED.

4T-SHV-066-0019A	CONDENSER A OUTLET	OPEN
4T-SHV-066-0016A	CONDENSER A INLET	CLOSED
4T-SHV-066-001	SUCTION ISOLATION	LOCKED OPEN
4T-SHV-066-003A	CIRC A PUMP OUTLET	THROTTLED 3 TURNS OPEN

Initial Conditions and Initiating Cue

Provide initial condition and initiating cue from following page along with Attachment 1.

Note: Student may recognize that two of the four valves cannot be Independently Verified, if so, ***then ask how these valves must be verified***. Once he/she recognizes that 2nd party verification is the technique, then state, ***I will act as your 2nd party verifier but you must explain, in detail, my roll in 2nd party verification.***

A.3 DRAFT

JPM NO. 131
REV. NO. 2
PAGE 1 OF 13

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 131 A.3

TITLE: DETERMINE BUILDING VENTILATION 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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 131

TASK NUMBER: U-090-SU-02

TASK TITLE: PERFORM AIRBORNE EFFLUENT RELEASE RATE SI

K/A NUMBER: 272000A4.05 K/A RATING: RO 2.3 SRO:
3.7

*

TASK STANDARD: CALCULATE TOTAL BUILDING RADIOACTIVE RELEASE RARE
AS DIRECTED BY 0-SI-4.8.B.1.a.1

LOCATION OF PERFORMANCE: SIMULATOR _____ PLANT _____ CONTROL ROOM X

REFERENCES/PROCEDURES NEEDED: 0-SI-4.8.B.1.a.1, REV 2644

VALIDATION TIME: _____ CONTROL ROOM: 40:00 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-PLANT: I will explain the initial conditions and state the task to be performed. All steps shall be simulated. I will provide initiating cues and indicate any steps to be discussed. Ensure that you observe electrical safety precautions when working near energized equipment. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task and when you have completed the assigned task.

IN-SIMULATOR: I will explain the initial conditions and state the task to be performed. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task and when you have completed the assigned task.

INITIAL CONDITIONS: You are the Log AUO. Unit 2 is operating at power. Units 1 and 3 are defueled. The surveillance instruction to calculate the building ventilation noble gas release rate (once per shift) is due. The fan status has been determined.

INITIATING CUES: Calculate the building ventilation noble gas release rate per 0-SI-4.8.B.1.a.1. Begin at Step 7.7 and continue through Step 7.8.7.

START TIME_____

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, Attachment 7 must be completed before Step 7.9 can be completed.

7.7 Fan Status Determination

Performance Step:

Critical___ Not Critical X

7.7.1RM-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 (second 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.

Standard:

None. Fan status supplied with JPM.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step:

Critical___ Not Critical_X

7.7.2RM-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.

Standard:

None. Fan status supplied with JPM.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

7.7.3RM-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 (second shift): If all fans serviced by this CAM are off and the monitor is out of service, ENSURE the exhaust fan control switches are tagged out of service and VERIFY the fan dampers are closed.

Standard:

None. Fan status supplied with JPM.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

7.7.40-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.

Standard:

None. Fan status supplied with JPM.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

7.7.5 Stack Dilution Fan

Once each shift: RECORDED the operating status of the Unit 2 and 3 stack dilution fans 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.

Standard:

None. Fan status supplied with JPM.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

7.7.6 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.

7.7.7 At the completion of third shift on Saturday, TOTAL the number of shifts each column of Attachment 3 was marked. RECORD the totals at the bottom of Attachment 3.

Standard:

None

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical X Not Critical__

7.8 DETERMINE the building ventilation noble gas release rate once per shift by completing the following steps:

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, O-CONS-90-361A OR O-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 is negative, record 0.00.

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

Standard:

OBTAINED noble gas release rate from the Continuous Air Monitoring System Operator Console and **RECORDED** on Attachment 4.

SAT__ UNSAT__ N/A__ COMMENTS:_____

- 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 thumbwheel. If the release rate is negative, record 0.00.

Note:

If 0-SI-4.8.B.1.a.2 is in effect for the CAMs, the Chemical Laboratory will report on a shiftly basis the release rate in $\mu\text{Ci/sec}$. The reported release rate will assume 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 a noble gas release rate of 0.00 Uci/sec on Attachment 4.

Performance Step : Critical X Not Critical__

- 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.

Standard:

DETERMINED correct release factor based on fan status and
RECORDED on Attachment 4.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step: Critical_X Not Critical__

7.8.3MULTIPLY the release rate by the release factor and RECORD the answer under the column labeled "Actual Rate" on Attachment 4.

Standard:

MULTIPLIED release rate by the release factor and **RECORDED** on Attachment 4.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical_X

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.

Standard:

SUMMED the actual rates and **RECORDED** the unit total release rate on Page 4 of Attachment 4.

SAT ___ UNSAT ___ N/A ___ COMMENTS: _____

Performance Step: Critical X Not Critical__

7.8.5SUM 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.

Standard:

SUMMED the three unit total release rates and the 90-252 actual rate and **RECORDED** on Attachment 4.

SAT__UNSAT__N/A__ COMMENTS:_____

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 0.000012 should be recorded as 0.000.

Performance Step : Critical X Not Critical__

7.8.6DETERMINE the building ventilation release fraction by dividing the total building ventilation release rate by 1.50 E+05 (or 150,000) μ Ci/sec. RECORD the fraction on both Attachment 2 and Attachment 4.

Standard:

DIVIDED total building ventilation release rate (from Step 7.8.5) by 1.50 E+05 and **RECORDED** result in Attachments 2 and 4.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step : Critical__ Not Critical_X

7.8.7VERIFY 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 Shift Operation Supervisor. (AC)

Standard:

VERIFIED acceptance criteria of building ventilation release
fraction \leq 0.90.

SAT__ UNSAT__ N/A__ COMMENTS:_____

END OF TASK

STOP TIME_____

see A.4/ Draft

JPM NO. 181
REV. NO. 3
PAGE 1 OF 13

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 181

TITLE: CLASSIFY THE EVENT PER THE REP (GASEOUS
RELEASE RATE--0-SI-4.8.B.1.a.1)

TASK NUMBER: S-000-EM-21

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____
TRAINING

PLANT CONCURRENCE: _____ DATE: _____
OPERATIONS

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	10/1/96	ALL	INITIAL ISSUE
1	12/10/96	2,3,9-11	PROCEDURE REVISION
2	10/28/98	3,6,7,12	PROCEDURE REVISION AND UPDATE
3	11/16/99	2,3,4	PROCEDURE REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 181

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

TASK TITLE: CLASSIFY THE EVENT PER THE REP

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

*

TASK STANDARD: THE EVENT IS CLASSIFIED AS AN NOUE BASED ON 0-SI-4.8.B.1.a.1 RELEASE FRACTION > 2.0 FOR GREATER THAN 1 HOUR.

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: EPIP-1, REV. 28, EPIP-2, REV. 20

VALIDATION TIME: CONTROL ROOM: 12 MIN LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____

EXAMINER

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

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

INITIAL CONDITIONS: You are the SHIFT MANAGER/SRO. Unit 2 has just scrambled on low level from 100% power. The Unit 2 Board Operator acknowledges alarm "Reactor Zone Exhaust Radiation High", 2-RA-90-142A, and refers to ARP 2-XA-55-3A, Window 21. The Operator acknowledges that the Control Room, Reactor Zone, and Refueling Zone Isolates, and all SBTG trains start. "Rx Bldg Area Radiation High" is also in alarm, and the Operator verifies that RCIC Room 2-RE-90-26 is reading 350 MR/HR and trending upward. "RCIC Steam Line Leak Detection Temp. High" is alarming due to FCV 71-2 and 3 failing to close automatically on an isolation signal (Operator closes valves manually).

INITIATING CUES: The Log AUO informs you that he/she has just completed 0-SI-4.8.B.1.a.1 and the release fraction is 3.1 at 1400 hours. The Log AUO continues to monitor the gaseous release rate and informs you that the release fraction is trending downward. At 1515 hours the release fraction is 2.1. Using the following parameters provided to you by the Control Room operating crew, **CLASSIFY THE EVENT** according to the EPIP's and perform any required actions.

Reactor Level--(+33 inches on Normal Range)
Reactor Pressure--968 psig
DW Pressure--1.38 psig
DW Temperature--148 degrees F
DW Radiation--RR-90-256 reading normal
Torus Temperature--89 degrees F
Torus Pressure--1.42 psig
Torus Level--(+3 inches on normal band)
0-SI-4.8.B.1.a Release Fraction--2.1

NOTE: Unit 2 conditions are fairly stable.

START TIME: _____

Performance Step : Critical X Not Critical__

Refers to EPIP 1 to determine level of event.

Standard:

SHIFT MANAGER/SED refers to EPIP 1, Section 4.0, Radioactivity Releases and declares an NOUE (4.1-U) based on gaseous release rates exceeding ANY limit (SI-4.8.B.1.a.1 Release Fraction 2.2) in Table 4.1-U and Duration of > 1 hour.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step : Critical X Not Critical__

Implements EPIP-2 NOTIFICATION OF UNUSUAL EVENT.

Standard:

SHIFT MANAGER/SED recognizes/implements an NOUE per EPIP-2.

SAT__ UNSAT__ N/A__ COMMENTS: _____

NOTIFICATION OF
UNUSUAL EVENT
PLANT

EPIP-2

BROWNS FERRY
NUCLEAR

-
=====

3.0 INSTRUCTIONS

3.1 Notification of the Operations Duty Specialist (ODS)

NOTE: The ODS should be notified within 5 minutes
after the emergency event is declared.

Performance Step : Critical X Not Critical

3.1.1 Complete Attachment A (Notification
Information).

Standard:

ATTACHMENT A is complete with EAL Designator 4.1-U
NOTIFICATION OF UNUSUAL EVENT status on Unit 2. Unit 2 was at
100% power and scrambled on low water level. RCIC developed a
steam leak in the Reactor Building due to FCV 71-2 and 3 failing
to close automatically. Valves were closed manually. 0-SI-
4.8.B.1.a release fraction is presently 2.2 and has exceeded 2.0
for 1 hour and 15 minutes. Unit 2 is fairly stable with the
release fraction trending downward. **(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:

Performance Step : Critical X Not Critical__

3.1.2 **Notify** the ODS and **Provide** the information from Attachment A.

Note: Utilize the direct ring-down ODS phone when making this notification or as applicable dial direct.

ODS Telephone Numbers
5-1-751-1700
5-1-751-2495

If the ODS cannot be reached, **Then** contact the State of Alabama directly by requesting the Rad Health Duty Officer at:

Day Shift 8 a.m.-5 p.m.
9-1-334-206-5391

Holidays-Weekends-Offshifts
9-1-334-242-4378

Standard:

NOTIFIES the ODS within **5 minutes** from the time of declaration of event and **provides** the information from Attachment A.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical___ Not Critical X

3.1.3 **Fax** a copy of Attachment A to the ODS for confirmation of information (**N/A** this step if the State was contacted directly).

ODS Fax
5-1-751-8620

AL Rad Health
9-1-334-206-5387

CUE: FAXING TO THE ODS WILL BE SIMULATED.

Standard:

SIMULATED faxing a copy of Attachment A to the ODS.

SAT___ UNSAT___ N/A___ COMMENTS:_____

3.1.4 **Receive** confirmation call from the ODS (to verify notification of the State of Alabama).

**CUE: REQUEST SIMULATOR CONSOLE OPERATOR TO CALL AND
CONFIRM THAT ODS HAS NOTIFIED THE STATE OF ALABAMA**

3.2 **NOTIFICATION OF SITE PERSONNEL**

Performance Step : Critical X Not Critical__

3.2.1 **Provide** the Unit 1, Unit Operator with a completed copy of Attachment A.

Standard:

SIMULATED providing the Unit 1 Operator with a completed copy of Attachment A.

SAT__ UNSAT__ N/A__ COMMENTS:_____

CUE: UNIT 1 OPERATOR HAS A COPY OF ATTACHMENT A.

Performance Step : Critical X Not Critical__

3.2.2 **Direct** the Unit 1, Unit Operator to make notifications from Attachment B (Unit 1, Unit Operator Notification), utilizing information from Attachment A.

Standard:

SIMULATED by calling Console Operator and requesting Unit 1 Operator and directing to make notifications per Attachment B, utilizing information from Attachment A.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical___ Not Critical X

3.2.3 **Make** the following P.A. announcement:

THIS IS (NAME), SHIFT MANAGER. A
NOTIFICATION OF UNUSUAL EVENT HAS BEEN
DECLARED ON UNIT 2. I HAVE ASSUMED THE
DUTIES OF SITE EMERGENCY DIRECTOR.

Standard:

P. A. Announcement was made giving name, SHIFT MANAGER'S
Position, NOTIFICATION OF UNUSUAL EVENT status on Unit 2, and
informing crew that the SHIFT MANAGER has the duties of SED.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

3.2.4 **Notify** the Plant Manager or alternate.

Standard:

SHIFT MANAGER **SIMULATES** calling the Plant Manager by calling
the Simulator Console Operator.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

3.3 **OFFSITE DOSE ASSESSMENT**

3.3.1 Evaluate the need for offsite dose
assessment. (N/A STEP IF NOT APPLICABLE)

CUE: DOSE ASSESSMENT STEP IS NOT APPLICABLE.

from 3.3.1.1 When offsite dose assessment is
required obtain the information
the CECC when operational.

the 3.3.1.2 If the CECC is not operational,
contact the TSC, when staffed or
RADCON Shift Supervisor and request
the implementation of EPIP 14,
for manual dose assessment.

Standard:

SHIFT MANAGER/SED addresses the OFFSITE DOSE ASSESSMENT and
N/A's STEP.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical X Not Critical__

3.4 **NOTIFICATION OF THE NRC**

3.4.1 **Notify** the **NRC** immediately or within 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 NOTIFICATION OF UNUSUAL EVENT status on Unit 2.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical___ Not Critical X

3.5 **PERIODIC EVALUATION OF THE EVENT**

- 3.5.1 Reevaluate the event by using EPIP-1 at least once every 2 hours or more frequently if conditions warrant.

**CUE: ANOTHER SHIFT MANAGER (SRO) IS HERE TO RELIEVE YOU.
THAT WILL BE ALL FOR NOW!**

END OF TASK

STOP TIME _____

RO A.4

DRAFT

**Region II
Initial Operator License Exam
Browns Ferry**

RO Admin A.4

Question #1

No References Allowed.

You are the Unit **One** Control Room Operator.

The Shift Manager has decided that the Control Room must be abandoned.

What Are the Immediate actions that must be taken?

Answer:

4.1 Immediate Action

NOTE:

This instruction is not intended to support Unit 1 when fuel is in the Reactor vessel. This instruction will require major revision prior to loading fuel in Unit 1.

- 4.1.1 ACTIVATE the Automatic Paging System (APS).
- 4.1.2 OBTAIN a hand-held radio.
- 4.1.3 PROCEED to 4kV Shutdown Board A and await instruction from Unit 2 Backup Control Panel.

Reference 1-AOI-100-2

KA: Gen 2.4.11 Knowledge of abnormal condition procedures.

RO 3.4/SRO 3.6

**Region II
Initial Operator License Exam
Browns Ferry**

RO Admin A.4

Question # 2

References Allowed.

What Actions are taken upon receipt of a fire emergency report, and what individual is responsible for these actions?

Answer:

3.2.1 Upon receiving a fire emergency call, the Unit 1 Control Room Unit Operator will:

- Obtain the name of the caller
- Obtain the location of the fire.
- Obtain nature of fire.
- Obtain telephone number from caller

3.2.2 Initiate the "Fire Alarm Bell".

3.2.3 Announce fire location over the plant public address (PA) system, repeating at regular intervals until instructed otherwise by Shift Manager of the fire.

3.2.4 Notify the Fire Protection Personnel using the Operations/Fire Protection Radio.

3.2.5 Notify the Shift Manager of the fire.

Reference EPIP-21.

K/A:2.4.39 Knowledge of the RO's responsibilities in emergency plan implementation.
RO 3.3/SRO 3.1

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

Date of Examination: 9/17-9/21
 Operating Test No.: 1

B.1 Control Room Systems

	System / JPM Title	Type Code*	Safety Function
a.	RESPOND TO CONTROL ROD DRIFT IN. (80F MODIFIED)	M,S,A	7
b.	CROSSTIE CAD TRAINS A AND B TO DRYWELL CONTROL AIR IN ACCORDANCE WITH 2-EOI APPENDIX 8G. (191)	M,C,	3
c.	OPERATE RHR SYSTEM IN SUPPRESSION POOL COOLING MODE IN ACCORDANCE WITH 2-EOI APPENDIX 17A. (69)	M,S,	5
d.	PERFORM CONTROL ROOM ACTIONS REQUIRED TO ESTABLISH THE CONDENSATE/FEEDWATER SYSTEM AS AN RPV INJECTION SYSTEM. (14).	D,S	2
e.	PERFORM OPERATIONS NECESSARY TO PARALLEL A DIESEL GENERATOR WITH OFFSITE POWER AT PANEL 9-23 AS DIRECTED BY 0-OI-82. (104)	M,A,S	6
f.	START A RECIRC PUMP DURING POWER OPERATION.(JPM 90).	D,S	1
g.	LINE UP INJECTION SYSTEMS - RCIC IN ACCORDANCE WITH EOI APPENDIX 5C (18 modified).	M,A,S	4P

B.2 Facility Walk-Through

a.	PERFORM FIRE PROTECTION VENTILATION LINEUP IN ACCORDANCE WITH 0-AOI-26-1 (CONTROL BAY) (154F).	D,A	8
b.	LINE UP ALTERNATE RPV INJECTION SYSTEM - FIRE SYSTEM IN ACCORDANCE WITH 2-EOI APPENDIX 7K (27F)	D,R	2
c.	JPM NRC-2 FILL AND VENT THE STATOR COOLING SYSTEM 2-OI-35A	N	4S

* 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

Draft

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

Date of Examination: 9/17-9/21
Operating Test No.: 1

B.1 Control Room Systems

	System / JPM Title	Type Code*	Safety Function
a.	OPERATE RHR SYSTEM IN SUPPRESSION POOL COOLING MODE IN ACCORDANCE WITH 2-EOI APPENDIX 17A. (69)	M,S,	5
b.	PERFORM OPERATIONS NECESSARY TO PARALLEL A DIESEL GENERATOR WITH OFFSITE POWER AT PANEL 9-23 AS DIRECTED BY 0-OI-82. (104)	M,A,S	6
c.	START A RECIRC PUMP DURING POWER OPERATION.(JPM 90).	D,S	1

B.2 Facility Walk-Through

a.	PERFORM FIRE PROTECTION VENTILATION LINEUP IN ACCORDANCE WITH 0-AOI-26-1 (CONTROL BAY) (154F).	D,A	8
b.	LINE UP ALTERNATE RPV INJECTION SYSTEM - FIRE SYSTEM IN ACCORDANCE WITH 2-EOI APPENDIX 7K (27F)	D,R	2

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

JPM NO. 80F
REV. NO. 1
PAGE 1 OF 11

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

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	09/23/99	ALL	NEW JPM
1	10/04/00	ALL	GENERAL REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 80F

TASK NUMBER: U-085-AB-05

TASK TITLE: RESPOND TO CONTROL ROD DRIFT IN

K/A NUMBER: 201002A2.03 K/A RATING: RO 3.4 SRO: 3.7
214000A2.03 K/A RATING: RO 3.6 SRO: 3.9

TASK STANDARD: PERFORM OPERATIONS NECESSARY TO RESPOND TO A
CONTROL ROD DRIFT IN AS DIRECTED BY 2-AOI-85-5

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-AOI-85-5, REV 11

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.

INITIAL CONDITIONS: You are an Operator. Unit 2 is at 100% power.

INITIATING CUES: STATE: I (INSTRUCTOR/EVALUATOR) WILL ACT AS YOUR UNIT SUPERVISOR. YOU ARE TO RESPOND TO THE NEXT EVENT.

START TIME _____

Performance Step: Critical X Not Critical _____

Applicant recognizes CRD Pump trip and responds to annunciator response procedure. (To be supplied later).
Standard:

Applicant responds to ARP.

Performance Step: Critical x Not Critical _____

Applicant starts standby CRD pump.

Standard:

B CRD Pump started.

NOTE: When B CRD pump is started the pressure control MOV will fail in a direction to cause maximum CRD drive pressure.

Performance Step: Critical _____ Not Critical X

EXAMINEE recognize CR Drift in and responds per 2-AOI-85-5.

Standard:

Responds per 2-AOI-85-5.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

4.0 OPERATOR ACTIONS

4.1 Immediate Actions

Performance Step: Critical___ Not Critical X

4.1.1 If multiple rods are drifting into the core,
THEN

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

Standard:

CHECKED periodically for multiple drift lights on full
core display.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

4.2.1 IF the Control Rod travels greater than two
(2) notches from its intended position; THEN

INSERT Control Rod to position 00 using
continuous in

Standard:

PERFORMER recognizes rod travel greater than two notches from
its intended position, SELECTS & uses continuous in to drive
the rod full in.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical___

4.2.2 INFORM Reactor Engineer.

Standard:

Contacts RE.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

4.2.4 ADJUSTS CONTROL ROD PATTERN AS DIRECTED BY
REACTOR ENGINEER AND CHECKS ~~THESE~~ LIMITS ON
ics (RUN OFFICIAL 3D)

**CUE: REACTOR ENGINEER (IF REQUESTED) REPORTS INITIAL READER
SATISFACTORY, AND INSERTION OF SYMMETRICAL CONTROL
RODS ARE NOT NECESSARY AT THIS TIME.**

Standard:

FOLLOWS RE RECOMMENDATIONS.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

4.2.3 Checks Thermal Limits on ICS (Run Official
3D)

Standard:

**Proceeds to ICS Terminal NSSS Menu & selects "Run Official
3D".**

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

4.2.5 IF CRD Cooling Water Header DP is excessive and causing the control rod drift, THEN

Alternately ADJUST the tape setpoint CRD SYSTEM FLOW CONTROL, 2-FIC-85-11, and position of CRD DRIVE WATER PRESS CONTROL VLV, 2-HS-85-23A, to establish the following:

- ✍ CRD CLG WTR HDR DP, 2-PDI-85-18A, of about 20 psid, and
- ✍ CRD DRIVE WTR HDR DP, 2-PDI-85-17A, between 250 and 270 psid, and
- ✍ CRD SYSTEM FLOW CONTROL, 2-FIC-85-11A, between 40 and 65 gpm.

Standard:

VERIFIED:

Cooling water DP approximately 20 psid on 2-PDI-85-18A.

Drive Water DP 250-270 psid on 2-PDI-85-17A.

CRD Flow 40-65 gpm on 2-FI-85-11A.

SAT___ UNSAT___ N/A___ COMMENTS:_____

**INSTRUCTOR NOTE: HAVE CONSOLE INSTRUCTOR INSERT MULTIPLE ROD
DRIFTS FOR IMMEDIATE OPERATOR ACTION—SCRAM THE REACTOR.**

INSERT: bat jpm80f

4.0 OPERATOR ACTIONS

4.1 Immediate Actions

Performance Step: Critical X Not Critical _____

4.1.1 If multiple rods are drifting into the core,
 THEN

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

Standard:

OPERATOR recognizes multiple rod drifts and manually **SCRAMS**
the Reactor and REFERS TO 2-AOI-100-1.

- Depresses both scram pushbuttons. _____
- Places mode switch in shutdown. _____
- Verifies All Rods in. _____

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

**COR: AFTER OPERATOR SCRAMS REACTOR AND PERFORMS ABOVE ACTIONS THEN
"STATE" THAT WILL BE ALL FOR NOW**

Performance Step: Critical____Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical____Not Critical X

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

Standard:

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

SAT____UNSAT____N/A____ COMMENTS:_____

END OF TASK

STOP TIME _____

Draft

JPM NO. 39NRC
REV. NO. 5
PAGE 1 OF 16

JPM NUMBER: 39 NRC - modified for control room use

TITLE: EOI APPENDIX 8G - CROSSTIE CAD TO
DRYWELL CONTROL AIR

TASK NUMBER: U-000-EM-74

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
2	11/28/94	1,2,3,4	REVISE TO NEW FORMAT
3	10/23/96	4,10	ADDEDED NON-CRITICAL ON STAAR, US.
4	11/02/97	ALL	FORMAT, CHANGED MGT. EXPECT. TO PLANT WORK EXPECTATIONS, ADDED 3-WAY COMM.
5	7/30/01	NRC Revised JPM to include CR cues	

OPERATOR: _____

RO ____ SRO ____ DATE: _____

JPM NUMBER: 39 NRC

TASK NUMBER: U-000-EM-74

TASK TITLE: CROSSTIE CAD TRAINS A AND B TO DRYWELL
CONTROL AIR IN ACCORDANCE WITH EOI APPENDIX
8G

K/A NUMBER: 218000A2.03 K/A RATING: RO 3.4 SRO: 3.6

TASK STANDARD: PERFORM MANIPULATIONS REQUIRED TO
ALIGN CONTAINMENT AIR DILUTION SYSTEMS A AND
B TO THE DRYWELL CONTROL AIR SYSTEM

LOCATION OF PERFORMANCE: SIMULATOR __ PLANT__ CONTROL
ROOM X

REFERENCES/PROCEDURES NEEDED: 2-EOI APPENDIX 8G, REV ⁴3

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

IN-CONTROL ROOM: I will explain the initial conditions and state the task to be performed. I will provide initiating cues, instrument readings, indication, and reports on other actions when directed by you. You will simulate all actions. 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 due to low RPV level. EOI-1 has been followed to RC/P-9.

INITIATING CUES: The UNIT SUPERVISOR has directed you to perform Appendix 8G.

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 8G.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step : Critical X Not Critical

1. **OPEN** the following valves:

! 0-FCV-84-5, CAD SYSTEM A N₂ SHUTOFF VALVE (Unit
1, Panel 9-54)

Standard:

PLACED 0-HS-84-5A in the OPEN position and VERIFIED illuminated
RED valve position indicating lamp.

CUE: AFTER applicant placed 0-HS-84-5A in the OPEN position. RED valve
position indicating lamp is illuminated.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step :

Critical X Not Critical__

! 0-FCV-84-16, CAD SYSTEM B N₂ SHUTOFF VALVE (Unit 1, Panel 9-55).

Standard:

PLACED 0-FCV-84-16A in the OPEN position and **VERIFIED** illuminated RED valve position indicating lamp.

CUE: AFTER applicant placed 0-FCV-84-16A in the OPEN position. RED valve position indicating lamp is illuminated.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step : Critical__ Not Critical X

2. **VERIFY** 0-PI-84-6, N2 VAPORIZER A OUTLET PRESS, and 0-PI-84-17, N2 VAPORIZER B OUTLET PRESS, indicate approximately 100 psig (Unit 1, Panel 9-54 and 9-55).

Standard:

VERIFIED 0-PI-84-6 and 0-PI-84-17 indicating approximately 100 psig.

CUE: 0-PI-84-6 and 0-PI-84-17 (Located on back of Unit 2 Panel 9-54 on simulator) indicate approximately 100 psig.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Critical X Not Critical

3. **PLACE** keylock switch 2-HS-84-48, CAD A CROSS TIE TO DW CONTROL AIR in OPEN (Unit 2, Panel 9-54).

Standard:

PLACED 2-HS-84-48 in the OPEN position.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step : Critical__ Not Critical X

4. **CHECK OPEN 2-FSV-84-48, CAD A CROSS TIE TO DW CONTROL AIR (Unit 2, Panel 9-54).**

Standard:

VERIFIED illuminated RED valve position indicating lamp above 2-HS-84-48.

CUE: AFTER applicant verified 2-FSV-84-48 is in the OPEN position. RED valve position indicating lamp is illuminated.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step :

Critical X Not Critical___

5. **PLACE** keylock switch 2-HS-84-49, CAD B CROSS TIE TO DW CONTROL AIR, in OPEN (Unit 2, Panel 9-55).

Standard:

PLACED 2-HS-84-49 in the OPEN position.

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step : Critical__ Not Critical X

6. **CHECK OPEN 2-FSV-84-49, CAD B CROSS TIE TO DW CONTROL AIR (Unit 2, Panel 9-55).**

Standard:

VERIFIED illuminated RED valve position indicating lamp above 2-HS-84-49.

CUE: AFTER applicant performed all steps correctly, then RED valve position indicating lamp is illuminated. If the applicant did not perform steps correctly ,then GREEN valve position indicating lamp is illuminated

SAT__UNSAT__N/A__ COMMENTS:_____

Performance Step : Critical__ Not Critical X

7. **CHECK** MAIN STEAM RELIEF VLV AIR ACCUM PRESS LOW, 2-PA-32-31, alarm cleared (2-XA-55-3D, Window 18).

Standard:

VERIFIED MAIN STEAM RELIEF VLV AIR ACCUM PRESS LOW
alarm cleared.

CUE: AFTER applicant performed all steps correctly, then MAIN STEAM RELIEF VLV AIR ACCUM PRESS LOW alarm cleared. If the applicant did not perform steps correctly ,MAIN STEAM RELIEF VLV AIR ACCUM PRESS LOW alarm did not cleared.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical__ Not Critical X

8. IF... MAIN STEAM RELIEF VLV AIR ACCUM PRESS LOW, 2-PA-32-31, annunciator is or remains in alarm on Panel 9-3 (2-XA-55-3D, Window 18),

THEN..**DETERMINE** which Drywell Control Air header is depressurized as follows:

Standard:

VERIFIED 2-XA-55-3B, Window 18, NOT in alarm.

CUE: AFTER applicant performed all steps correctly, then 2-XA-55-3B, Window 18, NOT in alarm. If the applicant did not perform steps correctly then 2-XA-55-3B, Window 18, IS in alarm.

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**

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
3	12/7/94	1,2,3,4	REVISE TO NEW FORMAT
4	5/1/96	ALL	GENERAL REVISION DUE TO PROCEDURE REV
5	8/4/96	ALL	ADDED CRITICAL STEP ON TOUCH STAAR, UNID, AND CHANGED COMM STD
6	10/2/97	ALL	FORMAT, CHANGED MGT EXPECTATIONS TO PLANT WORK EXPECTATIONS, ADDED 3-WAY COMM.
7	10/28/98	ALL	GENERAL REVISION
8	01/04/99	ALL	PROCEDURE REVISION ADDED STEP TO MONITOR RHR NPSH, & CHANGED STEP NUMBERS.
9	10/16/00	4,10,13	REVIEWED FOR ACCURACY. REMOVED NON-CRITICAL STEPS. REVERSED THE ORDER OF STEPS 2G AND 2H TO MATCH THE EOI APPENDIX. CORRECTED STEP 2.1 ON PAGE 13 TO BE STEP 2.M TO CORRECT MISNUMBERING.
10	8/8/01	all	Exchanged sequence of step 2.g and 2.h in order to sequence suppression pool cooling valve and pump operation

identically to that used
in the operating
instruction 2-OI-74.

Add direction to verify
power available to RHR
min flow valves if
required to verify valve
closed (TACF 2-00-012-
074, TACF 3-00-008-074).

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 69

TASK NUMBER: U-000-EM-79

TASK TITLE: OPERATE RHR SYSTEM IN SUPPRESSION POOL COOLING
MODE IN ACCORDANCE WITH 2-EOI APPENDIX 17A

K/A NUMBER: 295026EA1.01 K/A RATING: RO 4.1 SRO:
4.1

*

TASK STANDARD: PERFORM OPERATIONS NECESSARY TO PLACE RHR LOOP II
IN SUPPRESSION POOL COOLING WITH A LPCI SIGNAL
PRESENT AS DIRECTED BY 2-EOI APPENDIX 17A

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-EOI APPENDIX 17A, REV 8

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

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: Simulator Operator - Open 2-BKR-074-0030 on 480V RMOV
Board 2E, Compartment 4E prior to starting JPM

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

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

INITIAL CONDITIONS: You are an operator. Unit 2 reactor has scrammed. Due to a LOCA, EOI-2 has been followed to SP/T-3. 2-EOI Appendices 16F and 16G, Bypassing RHR Injection Valve Timers HAVE been completed.

INITIATING CUES: The Unit Supervisor directs you to place RHR Loop II in Suppression Pool Cooling mode as directed by 2-EOI Appendix 17A.

START TIME _____

Performance Step: Critical___ Not Critical X

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

Standard:

IDENTIFIED OR OBTAINED copy of 2-EOI Appendix 17A.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

1. IF.....Adequate core cooling is assured,
THEN...**BYPASS** LPCI Injection Valve Timers as necessary
using EOI Appendices 16F and 16G.

Standard:

None. Given in initial conditions.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

2. **PLACE** RHR SYSTEM II in Suppression Pool Cooling as follows:

- a. **VERIFY** at least one RHRSW pump supplying each EECW header.

Standard:

VERIFIED A3, B3, C3, D3 EECW pumps running by red light above handswitch.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical___

- b. **VERIFY** RHRSW pump supplying desired RHR Heat Exchanger(s).

Standard:

STARTED RHRSW Pump(s) A1/A2 and/or C1/C2 using handswitch and observed RED light illuminated above associated handswitch.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical

- c. **THROTTLE** the following in-service RHRSW outlet valves to obtain between 1350 and 4500 gpm RHRSW flow:

- ✍ 2-FCV-23-34, RHR HX 2A RHRSW OUTLET VLV
- ✍ 2-FCV-23-46, RHR HX 2B RHRSW OUTLET VLV
- ✍ 2-FCV-23-40, RHR HX 2C RHRSW OUTLET VLV
- ✍ 2-FCV-23-52, RHR HX 2D RHRSW OUTLET VLV.

Standard:

THROTTLED valves for HX(s) in service to obtain 1350-4500 gpm RHRSW flow.

SAT___UNSAT___N/A___ COMMENTS:_____

2-XS-74-130, RHR SYS II LPCI 2/3 CORE HEIGHT
OVRD.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical X Not Critical _____

- e. IF.....LPCI INITIATION Signal exists,
THEN...**MOMENTARILY PLACE** the following in select:

- ✍ 2-XS-74-121, RHR SYS I CTMT SPRAY/CLG VLV SELECT.
- ✍ 2-XS-74-129, RHR SYS II CTMT SPRAY/CLG VLV SELECT.

Standard:

MOMENTARILY PLACED 2-XS-74-121 and 2-XS-74-129 in the SELECT position.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical X Not Critical _____

- f. IF.....2-FCV-74-53(67), RHR SYS I(II) LPCI INBD
INJECT VALVE is open,
THEN...**VERIFY CLOSED** 2-FCV-74-52(66), RHR SYS I(II)
LPCI
OUTBD INJECT VALVE.

Standard:

VERIFIED open 2-FCV-74-67 by red light above
handswitch.**PLACED** 2-HS-74-66A in the CLOSE position and
VERIFIED illuminated GREEN valve position indicating lamp
above associated control switch.

SAT____UNSAT____N/A____ COMMENTS:_____

Performance Step: Critical X Not Critical

- g. **OPEN** 2-FCV-74-57(71), RHR SYS I(II) SUPPR CHBR/POOL
ISOL VLV.

Standard:

PLACED 2-HS-74-71 in OPEN and **VERIFIED** illuminated RED valve
position indicating lamp above associated control switch.

SAT UNSAT N/A COMMENTS:

Performance Step: Critical X Not Critical

- h. **VERIFY** desired RHR pump(s) for Suppression Pool Cooling
are operating.

Standard:

STARTED RHR Pumps A and C using handswitch and observed
illuminated red lights above associated handswitches or other
9-3 indications.

SAT UNSAT N/A COMMENTS:

* CAUTION *
* *
* RHR System flows below 7000 gpm and above 10,000 gpm *
* for one-pump operation may result in excessive system *
* vibration and equipment damage. *

Performance Step: Critical X Not Critical _____

- i. **THROTTLE OPEN** 2-FCV-74-59(73), RHR SYS I(II) SUPPR POOL CLG/TEST VLV, to maintain EITHER of the following as indicated on 2-FI-74-50(64), RHR SYS I(II) FLOW:

✍ Between 7000 and 10,000 gpm for one-pump operation.

OR

✍ At or below 13,000 gpm for two-pump operation.

Standard:

THROTTLED open 2-FCV-74-73 to obtain 7,000 to 10,000 gpm for one pump or ~13,000 gpm for two pumps on 2-FI-74-64.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

- j. **VERIFY CLOSED** 2-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE (**VERIFY CLOSED** 2-BKR-074-0007(0030) on 480V RMOV Board 2D(2E), Compartment 5E(4E), if required).

Standard:

VERIFIED illuminated GREEN valve position indicating lamp above 2-HS-74-30. Contact AUO to close 2-BKR-074-0030) on 480V RMOV Board 2E, Compartment 4E.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

k. **MONITOR** RHR Pump NPSH using Attachment 1.

Standard:

PERFORMER MONITORED RHR Pump NPSH per Attachment 1.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

1. **NOTIFY** Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.

Standard:

NOTIFIED Chemistry that RHRSW is aligned to RHR Heat Exchangers 2A and 2C.

CUE: CHEMISTRY REPEATS BACK "RHRSW IS ALIGNED TO RHR HEAT EXCHANGERS 2A AND 2C",

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

- m. IF.....Additional Suppression Pool Cooling flow
is necessary,
THEN...**PLACE** additional RHR and RHRSW pumps in
service using Steps 2.b through 2.1.

**CUE: [IF NECESSARY] US DIRECTS BOTH LOOP I PUMPS PLACED
IN SERVICE.**

Standard:

Starts additional RHR pumps and/or RHRSW pumps, if not done
previously, with associated handswitches and observing
illuminated red indicating lights above associated
handswitches.

SAT___ UNSAT___ N/A___ COMMENTS:_____

**CUE: LEAVE SUPPRESSION POOL COOLING IN SERVICE UNTIL
FURTHER NOTICE.**

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**

JPM NUMBER: 14 JPM B.1.d (MODIFIED)

TITLE: 2-EOI APPENDIX 5A - INJECTION SYSTEMS LINEUP
- CONDENSATE/FEEDWATER

TASK NUMBER: U-000-EM-29

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	5/26/95	8,10	Typos and changed light indication from red to amber on RFP trips.
5	10/14/95	ALL	Procedure revision
6	10/30/96	ALL	PROCEDURE UPGRADE FOR NEW RFW MOD, ADDED NON-CRITICAL STEP ON TOUCH STAAR, CHANGED ASOS TO US.
7	09/17/97	ALL	FORMAT, ADDED 3-WAY COMM., CHANGED MGT EXPECTATIONS TO PLANT WORK EXP.
8	08/08/01	ALL	Matched EOI-App 5A rev Modified step 4 and 7

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 14

TASK NUMBER: U-000-EM-29

TASK TITLE: LINE UP INJECTION SYSTEMS - CONDENSATE/FEEDWATER
IN ACCORDANCE WITH 2-EOI APPENDIX 5A

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

*

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

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-EOI APPENDIX 5A, REV 6

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

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: Simulator Operator - Open 2-HS-1-121, Do not start oil
pump for 2A RFPT until directed by candidate

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 2 Operator. The reactor has scrammed and EOI-1 has been followed through RC/L-3.

INITIATING CUES: The UNIT SUPERVISOR has directed you to establish and maintain RPV water level +12" to +51" as directed by 2-EOI Appendix 5A, INJECTION SYSTEMS LINEUP - CONDENSATE/FEEDWATER, using Reactor Feed pump 2A.

START TIME _____

Performance Step: Critical___ Not Critical X

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

Standard:

IDENTIFIED OR OBTAINED copy of 2-EOI Appendix 5A.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

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

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step: Critical___ Not Critical X

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

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

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

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical

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

Standard:

Identify that the illuminated RED valve position indicating lamps above 2-HS-1-121, on Panel 2-9-6 is lit for RFPT 2A. and take actions to close valve.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

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

Standard:

VERIFIED illuminated RED valve position indicating lamp
above 2-HS-1-125.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Figure 1. The effect of the concentration of the solution on the adsorption of the dye. The concentration of the solution was 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 5.0, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 6.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 7.0, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 8.0, 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 9.0, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 10.0, 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9, 11.0, 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8, 11.9, 12.0, 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7, 12.8, 12.9, 13.0, 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8, 13.9, 14.0, 14.1, 14.2, 14.3, 14.4, 14.5, 14.6, 14.7, 14.8, 14.9, 15.0, 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 15.9, 16.0, 16.1, 16.2, 16.3, 16.4, 16.5, 16.6, 16.7, 16.8, 16.9, 17.0, 17.1, 17.2, 17.3, 17.4, 17.5, 17.6, 17.7, 17.8, 17.9, 18.0, 18.1, 18.2, 18.3, 18.4, 18.5, 18.6, 18.7, 18.8, 18.9, 19.0, 19.1, 19.2, 19.3, 19.4, 19.5, 19.6, 19.7, 19.8, 19.9, 20.0, 20.1, 20.2, 20.3, 20.4, 20.5, 20.6, 20.7, 20.8, 20.9, 21.0, 21.1, 21.2, 21.3, 21.4, 21.5, 21.6, 21.7, 21.8, 21.9, 22.0, 22.1, 22.2, 22.3, 22.4, 22.5, 22.6, 22.7, 22.8, 22.9, 23.0, 23.1, 23.2, 23.3, 23.4, 23.5, 23.6, 23.7, 23.8, 23.9, 24.0, 24.1, 24.2, 24.3, 24.4, 24.5, 24.6, 24.7, 24.8, 24.9, 25.0, 25.1, 25.2, 25.3, 25.4, 25.5, 25.6, 25.7, 25.8, 25.9, 26.0, 26.1, 26.2, 26.3, 26.4, 26.5, 26.6, 26.7, 26.8, 26.9, 27.0, 27.1, 27.2, 27.3, 27.4, 27.5, 27.6, 27.7, 27.8, 27.9, 28.0, 28.1, 28.2, 28.3, 28.4, 28.5, 28.6, 28.7, 28.8, 28.9, 29.0, 29.1, 29.2, 29.3, 29.4, 29.5, 29.6, 29.7, 29.8, 29.9, 30.0, 30.1, 30.2, 30.3, 30.4, 30.5, 30.6, 30.7, 30.8, 30.9, 31.0, 31.1, 31.2, 31.3, 31.4, 31.5, 31.6, 31.7, 31.8, 31.9, 32.0, 32.1, 32.2, 32.3, 32.4, 32.5, 32.6, 32.7, 32.8, 32.9, 33.0, 33.1, 33.2, 33.3, 33.4, 33.5, 33.6, 33.7, 33.8, 33.9, 34.0, 34.1, 34.2, 34.3, 34.4, 34.5, 34.6, 34.7, 34.8, 34.9, 35.0, 35.1, 35.2, 35.3, 35.4, 35.5, 35.6, 35.7, 35.8, 35.9, 36.0, 36.1, 36.2, 36.3, 36.4, 36.5, 36.6, 36.7, 36.8, 36.9, 37.0, 37.1, 37.2, 37.3, 37.4, 37.5, 37.6, 37.7, 37.8, 37.9, 38.0, 38.1, 38.2, 38.3, 38.4, 38.5, 38.6, 38.7, 38.8, 38.9, 39.0, 39.1, 39.2, 39.3, 39.4, 39.5, 39.6, 39.7, 39.8, 39.9, 40.0, 40.1, 40.2, 40.3, 40.4, 40.5, 40.6, 40.7, 40.8, 40.9, 41.0, 41.1, 41.2, 41.3, 41.4, 41.5, 41.6, 41.7, 41.8, 41.9, 42.0, 42.1, 42.2, 42.3, 42.4, 42.5, 42.6, 42.7, 42.8, 42.9, 43.0, 43.1, 43.2, 43.3, 43.4, 43.5, 43.6, 43.7, 43.8, 43.9, 44.0, 44.1, 44.2, 44.3, 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 45.0, 45.1, 45.2, 45.3, 45.4, 45.5, 45.6, 45.7, 45.8, 45.9, 46.0, 46.1, 46.2, 46.3, 46.4, 46.5, 46.6, 46.7, 46.8, 46.9, 47.0, 47.1, 47.2, 47.3, 47.4, 47.5, 47.6, 47.7, 47.8, 47.9, 48.0, 48.1, 48.2, 48.3, 48.4, 48.5, 48.6, 48.7, 48.8, 48.9, 49.0, 49.1, 49.2, 49.3, 49.4, 49.5, 49.6, 49.7, 49.8, 49.9, 50.0, 50.1, 50.2, 50.3, 50.4, 50.5, 50.6, 50.7, 50.8, 50.9, 51.0, 51.1, 51.2, 51.3, 51.4, 51.5, 51.6, 51.7, 51.8, 51.9, 52.0, 52.1, 52.2, 52.3, 52.4, 52.5, 52.6, 52.7, 52.8, 52.9, 53.0, 53.1, 53.2, 53.3, 53.4, 53.5, 53.6, 53.7, 53.8, 53.9, 54.0, 54.1, 54.2, 54.3, 54.4, 54.5, 54.6, 54.7, 54.8, 54.9, 55.0, 55.1, 55.2, 55.3, 55.4, 55.5, 55.6, 55.7, 55.8, 55.9, 56.0, 56.1, 56.2, 56.3, 56.4, 56.5, 56.6, 56.7, 56.8, 56.9, 57.0, 57.1, 57.2, 57.3, 57.4, 57.5, 57.6, 57.7, 57.8, 57.9, 58.0, 58.1, 58.2, 58.3, 58.4, 58.5, 58.6, 58.7, 58.8, 58.9, 59.0, 59.1, 59.2, 59.3, 59.4, 59.5, 59.6, 59.7, 59.8, 59.9, 60.0, 60.1, 60.2, 60.3, 60.4, 60.5, 60.6, 60.7, 60.8, 60.9, 61.0, 61.1, 61.2, 61.3, 61.4, 61.5, 61.6, 61.7, 61.8, 61.9, 62.0, 62.1, 62.2, 62.3, 62.4, 62.5, 62.6, 62.7, 62.8, 62.9, 63.0, 63.1, 63.2, 63.3, 63.4, 63.5, 63.6, 63.7, 63.8, 63.9, 64.0, 64.1, 64.2, 64.3, 64.4, 64.5, 64.6, 64.7, 64.8, 64.9, 65.0, 65.1, 65.2, 65.3, 65.4, 65.5, 65.6, 65.7, 65.8, 65.9, 66.0, 66.1, 66.2, 66.3, 66.4, 66.5, 66.6, 66.7, 66.8, 66.9, 67.0, 67.1, 67.2, 67.3, 67.4, 67.5, 67.6, 67.7, 67.8, 67.9, 68.0, 68.1, 68.2, 68.3, 68.4, 68.5, 68.6, 68.7, 68.8, 68.9, 69.0, 69.1, 69.2, 69.3, 69

Performance Step : Critical X Not Critical__

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

Standard:

DEPRESSED 2-HS-46-8A, RFPT 2A SPEED CONT RAISE/LOWER AND **VERIFIED** amber light illuminated.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step: Critical__ Not Critical X

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

Standard:

Identified Main Oil Pumps not running for RFPT 2A by observing a green indicating light above Handswitch. Take actions to start Oil pump

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step: Critical___ Not Critical X

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

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

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

Standard:

VERIFIED illuminated GREEN LIGHT and RED LIGHT extinguished on 2-HS-3-208A & 208B.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

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

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

Standard:

VERIFIED OPEN 2-FCV-3-75 (76) OR (77) HP HTR FW OUTLET ISOL VLVS.

SAT___UNSAT___N/A___ COMMENTS:_____

- Blue light extinguished
- HP Stop Valve open as indicated by red light above the following:
 - 2-HS-3-108, RFPT 2A HP STOP VLV (2-FCV-1-127)
TEST
 - 2-HS-3-134, RFPT 2B HP STOP VLV (2-FCV-1-135)
TEST
 - 2-HS-3-159, RFPT 2C HP STOP VLV (2-FCV-1-143)
TEST
- LP Stop Valve open as indicated by red light above the following:
 - 2-HS-3-107, RFPT 2A LP STOP VLV (2-FCV-1-123)
TEST
 - 2-HS-3-133, RFPT 2B LP STOP VLV (2-FCV-1-131)
TEST
 - 2-HS-3-158, RFPT 2C LP STOP VLV (2-FCV-1-139)
TEST

DEPRESSED 2-HS-3-124A, RFPT 2A TRIP RESET, and **CHECKED** the blue light extinguished, HP Stop Valve open as indicated by red light above 2-HS-3-108, RFPT 2A HP STOP VLV 2-FCV-1-127. **AND** the LP Stop Valve open as indicated by the red light above 2-HS-3-107, RFPT 2A LP STOP VLV 2-FCV-1-123.

SAT _____ UNSAT _____ N/A _____ COMMENTS: _____

Performance Step: Critical___ Not Critical X

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

Standard:

VERIFIED illuminated RED valve position indicating light above 2-HS-3-20, Panel 2-9-6.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical___

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

Standard:

PLACED 2-HS-46-112A, RFPT 2A START/LOCAL ENABLE, in START.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

13. **CHECK** RFPT 2A (2B) (2C) Speed accelerates to approximately 600 rpm.

Standard:

CHECKED RFPT 2A Speed accelerated to approximately 600 rpm.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

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

Standard:

VERIFIED illuminated RED valve position indicating light above 2-HS-3-19.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical__

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

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

OR

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

OR

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

Standard:

RAISED RFPT 2A speed UNTIL RFP discharge pressure was approximately equal to RPV pressure utilizing one of the methods above on Panel 2-9-5.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical X Not Critical_____

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

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

OR

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

OR

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

Standard:

SLOWLY RAISED speed of RFPT 2A **UNTIL** RFW flow to the RPV is indicated utilizing one of the above methods.

SAT___UNSAT___N/A___ COMMENTS:_____

Performance Step : Critical____ Not Critical X

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

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

OR

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

OR

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

Standard:

ADJUSTED speed of 2A RFPT as required utilizing one of the above methods.

SAT____ UNSAT____ N/A____ COMMENTS:_____

CUE: WHEN RX WATER LEVEL IS RISING AND EXAMINEE DEMONSTRATES CONTROL OF RX FEED PUMP:

"ANOTHER OPERATOR WILL RELIEVE YOU OF WATER LEVEL CONTROL."

"THAT WILL BE ALL FOR NOW."

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT___ UNSAT___ N/A ___ COMMENTS:_____

Performance Step:

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 _____

JPM NO. 104
REV. NO. 12
PAGE 1 OF 17

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
3	10/4/94	ALL	GENERAL REVISION
4	11/8/94	11	Step 8.1.7 not critical
5	10/23/95	ALL	PROCEDURE CHANGE
6	5/2/96	3, 8	PROCEDURE UPDATE, MINOR VERBAL CHANGE
7	10/24/96	4, 16, 17	ADDED NON-CRIT. STEP ON TOUCH STAAR, CHANGED ASOS TO US, SOS TO SM.
8	12/06/96	2, 9, 14, 15, 16	PROCEDURE UPDATE, MINOR VERBAL CHANGES
9	10/14/97	ALL	FORMAT, PROCEDURE UPDATE, CHANGED MGT EXPECT. TO PLANT WORK EXPECTATIONS, ADDED 3-WAY COMM.
10	09/02/98	2	PROCEDURE REVISION
11	01/04/99	3	PROCEDURE REVISION
12	11/04/99	2, 9, 10, 14, 16	PROCEDURE REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 104

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. 68 74

VALIDATION TIME: CONTROL ROOM: 14:00 LOCAL: _____

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

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

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

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 ± 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 copy 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: _____

Circumstance	Percentage (%)
1. A person is attacking another person	95
2. A person is threatening another person	85
3. A person is using a weapon	80
4. A person is in a dangerous situation	75
5. A person is in a vehicle	70
6. A person is in a public place	65
7. A person is in a private place	60
8. A person is in a vehicle	55
9. A person is in a public place	50
10. A person is in a private place	45
11. A person is in a vehicle	40

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:_____

Circumstance	Percentage (%)
1. To protect oneself or others	95
2. To stop a crime	92
3. To protect property	88
4. To stop a fight	85
5. To stop a person from committing a crime	82
6. To stop a person from causing harm	78
7. To stop a person from causing damage	75
8. To stop a person from causing injury	72
9. To stop a person from causing death	68
10. To stop a person from causing serious harm	65
11. To stop a person from causing serious damage	62

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

.....

As Load is being adjusted, insert Malfunction (DG05) and remove to simulate a voltage transient.

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 X COMMENTS:_____

Performance Step: Critical X Not Critical___

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

Standard:

Monitors offsite source and notices A voltage transient in progress.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical__

8.1.15 IF abnormal voltage or frequency transients are experienced, THEN PERFORM the following:

8.1.15.1 **REFER TO** Section 8.2 and SEPARATE the 4-kV board from offsite power.

Standard:

Refers to section 8.2.

SAT__ UNSAT__ N/A X COMMENTS:_____

Performance Step: Critical X Not Critical_____

8.2 Separating 4-kV Shutdown Board from Offsite Power at Panel 9-23

8.2.1 VERIFY diesel generator is operating in Parallel With System. REFER TO Section 8.1 or Section 8.5 of this instruction.

NOTE:

The following is a list of 4-kV shutdown board normal and alternate feeder breakers which may be referred to when performing this section:

Shutdown Board	A	B	C	D
Norm Feed Bkr	1614	1616	1718	1724
Alt Feed Bkr	1716	1714	1624	1618

Performance Step: Critical X Not Critical_____

8.2 Separating 4-kV Shutdown Board from Offsite Power at Panel 9-23
(Continued)

8.2.2 **DEPRESS** the associated 4kV shutdown board auto transfer lockout relay trip pushbutton:

Board	Pushbutton Name	Pushbutton No.	Panel
A	4KV SD BD A AUTO TO MANUAL TRIP	0-HS-211-A	0-9-23
B	4KV SD BD B AUTO TO MANUAL TRIP	0-HS-211-B	0-9-23
C	4KV SD BD C AUTO TO MANUAL TRIP	0-HS-211-C	0-9-23
D	4KV SD BD D AUTO TO MANUAL TRIP	0-HS-211-D	0-9-23

Standard:

0-HS-211-A/22A **Depressed**.

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.

CAUTION

[II/C] When unloading the diesel generator, failure to slowly approach the 100 kW/100 kVAR limit may result in a reverse power trip of the diesel generator output breaker. [II-92-055]

.....

Performance Step: Critical___ Not Critical X

8.2.3 [II/C] USE the associated Diesel Generator's Governor Controlswitch and Voltage Regulator control switch to reduce generator load to approximately 100 kW and 100 kVAR: [II-92-055]

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

Standard:

Using hand switches 0-HS-82-A/3A and 0-HS-A/2A reduces Generator load to approximately 100 KW and 100 KVARs.

SAT___ UNSAT___ N/A___ COMMENTS:

8.2 Separating 4-kV Shutdown Board from Offsite Power at Panel 9-23 (Continued)

Performance Step: Critical X Not Critical _____

- 8.2.4 TRIP the 4-kV shutdown board feeder breaker that is paralleled with the diesel generator.

Standard:

Normal Feeder Breaker 1614 Tripped.
Cue: Normal (Alt.) Feeder Breaker is tripped.

SAT___UNSAT___N/A___ COMMENTS:

Performance Step: Critical X Not Critical _____

- 8.2.5 PULL and PLACE the associated Diesel Generator mode selector switch in SINGLE UNIT:

Diesel	Handswitch Name	Handswitch No.	Panel
A	DG A MODE SELECT	0-HS-82-3A/5A	0-9-23
B	DG B MODE SELECT	0-HS-82-3B/5A	0-9-23
C	DG C MODE SELECT	0-HS-82-3C/5A	0-9-23
D	DG D MODE SELECT	0-HS-82-3D/5A	0-9-23

Standard:

0-HS-82-A/5A pulled and placed in SINGLE UNIT.
Cue: (0-HS-82-A/5A pulled and placed in SINGLE UNIT).
SAT___UNSAT___N/A___ COMMENTS:

- 8.2.6 RELEASE the Diesel Generator Mode Selector switch and OBSERVE the SINGLE UNIT light illuminated.

Standard:

0-HS-82-A/5A **RELEASED**. Cue: Switch is released.

SAT___UNSAT___N/A___ COMMENTS:

- 8.2.7 VERIFY locally that the breaker closing spring is charged for the feeder breaker that was supplying the 4 kV shutdown board by observing that the amber breaker spring charged light is on and the closing spring target indicates charged.

Standard:

AUO dispatched to verify the breaker closing spring is charged. Cue: (Spring is charged).

SAT___UNSAT___N/A___ COMMENTS:

- 8.1.15.2 **REFER TO** 0-OI-57A and TRANSFER the 4-kV shutdown bus to a stable offsite source.

CUE: THE SHIFT MANAGER DIRECTS SOMEONE ELSE TO REFER TO 0-OI-57A. THAT WILL BE ALL FOR NOW.

Performance Step: Critical___ Not Critical X

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

PERFORMER verified applicable components by utilizing 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_____

JPM NO. 90
REV. NO. 9
PAGE 1 OF 16

JPM NUMBER: 90 JPM B.1.C

TITLE: START A RECIRC PUMP DURING POWER OPERATION

TASK NUMBER: U-000-NO-06

SUBMITTED BY: _____ DATE: _____

VALIDATED BY: _____ DATE: _____

APPROVED: _____ DATE: _____

TRAINING

PLANT CONCURRENCE: _____ DATE: _____

OPERATIONS

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

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
3	10/4/94	ALL	GENERAL REVISION
4	10/31/95	ALL	PROCEDURE REVISIONS
5	11/30/95	ALL	PROCEDURE REPAGINATION
6	5/2/96	ALL	PROCEDURE REPAGINATION, ADDED NOTE ON DISCH VLV CLOSURE CKT, AND MINOR VERBAL CHANGES
7	11/09/99	ALL	PROCEDURE REVISION, RE- FORMAT DOCUMENT, ADDED PLANT WORK EXPECT., TOUCH STAAR, 3-WAY COMM., CHANGED ASOS TO US
8	09/23/00	ALL	GENERAL REVISION

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 90

TASK NUMBER: U-068-NO-06

TASK TITLE: START AN IDLE RECIRCULATION PUMP DURING POWER
OPERATIONS

K/A NUMBER: 202001A4.01 K/A RATING: RO 3.7 SRO: 3.7

*

TASK STANDARD: PERFORM OPERATIONS NECESSARY TO RESTART AN IDLE
RECIRC PUMP DURING POWER OPERATIONS AS DIRECTED BY
2-OI-68

LOCATION OF PERFORMANCE: SIMULATOR X PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-OI-68, REV 88

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

MAX. TIME ALLOWED: 15:00 (Completed for Time Critical JPMS
only)

PERFORMANCE TIME: _____ CONTROL ROOM _____ LOCAL _____

COMMENTS: _____

Additional comment sheets attached? YES _____ NO _____

RESULTS: SATISFACTORY _____ UNSATISFACTORY _____

SIGNATURE: _____ DATE: _____
EXAMINER

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

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

INITIAL CONDITIONS: You are an Operator. 2A Recirc Pump tripped 1 hour ago. All AOI actions have been completed. The problem with 2A Recirc Pump has been corrected. The SRO has directed 2A Recirc Pump be restarted. A Reactor Engineer is in the control room. All prerequisites have been met and 2-SR-3.4.9.3 & 4 has been successfully completed. The startup procedure has been completed through step 5.2.16. This JPM is Time Critical.

INITIATING CUES: The US directs you to continue the return of 2A Recirc Pump to service as directed by 2-OI-68 starting at Step 5.2.17 and balance jet pump flows.

START TIME: _____

Start Critical Time: _____

Performance Step: Critical___ Not Critical X

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

Standard:

IDENTIFIED OR OBTAINED copy of 2-OI-68.

SAT___ UNSAT___ N/A___ COMMENTS: _____

NOTE:

The closure circuit for RECIRC PUMP 2A(2B) DISCHARGE VALVE, 2-HS-68-3A(79A) is a seal-in and is **NOT** to be held in the **CLOSE** position.

Performance Step : Critical X Not Critical___

5.2.17 VERIFY RECIRC LOOP A(B) DIFF PRESS LOW
ANNUNCIATION, 2-XA-55-4A (4B), WINDOW 31 IN ALARM.

5.2.18 **VERIFY** CLOSED, RECIRC PUMP 2A(2B) DISCHARGE VALVE,
2-FCV-68-3(79) .

Standard:

VERIFIED 2-XA-55-4A WIN 31 IN ALARM, AND, PLACED 2-HS-68-3A in the **CLOSE** position and **VERIFIED** 2-FCV-68-3 TRAVELS FULLY CLOSED.

SAT___ UNSAT___ N/A___ COMMENTS: _____

Performance Step : Critical X Not Critical___

5.2.19 **DEPRESS** pushbutton, SCOOP TUBE 2A(2B) RESET, 2-HS-96-15(16).

Standard:

DEPRESSED 2-HS-96-15 ON Panel 2-9-4

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

5.2.20 **VERIFY** RESET, RECIRC FLUID DRIVE A(B) SCOOP TUBE LOCK 2-XA-96-15(16) 2-XA-55-4A(B), Window 28.

Standard:

RESET annunciator Panel 2-9-4A and **VERIFIED** window 28 extinguished.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CAUTION

Recirc System operation is restricted by criteria in Illustrations 1 and 2.

Performance Step : Critical X Not Critical__

- 5.2.21 **PLACE** to START, RECIRC MG 2A(2B) NORMAL FEEDER, 2-HS-57-17(14) or RECIRC MG 2A (2B) ALTERNATE FEEDER, 2-HS-57-15(12) (if normal feeder is unavailable), and **VERIFY** the following:

Standard:

PLACED 2-HS-57-17 in the START position (Normal feeder).

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical__ Not Critical X

- Recirc Generator Drive Motor A(B) amps as indicated on AMPS, 2-EI-96-11A(B), increase to full scale, then decreases to no-load amps as motor comes to speed. After 7 seconds the field breaker closes.

Standard:

VERIFIED 2-EI-96-11A increased to full scale, decreased to no-load amps and field breaker closed in ~7 seconds as indicated by illuminated RED breaker position indicating lamp.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical___ Not Critical_X

- Pump DP increases to above 5 psid as indicated on PUMP DP, 2-PDI-68-65(82).

Standard:

VERIFIED 2-PDI-68-65 indicated increase above 5 psid.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical_X

- Recirc Generator A(B) speed rises to about 40 percent and then lowers to 28 percent, as indicated on RECIRC MG SET 2A(2B) GEN SPEED, 2-SI-96-2A(2B).

Standard:

VERIFIED 2-SI-96-3A indicated rises to ~ 40% and then lowers to 28%.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Stop Time Critical_____

Performance Step : Critical___ Not Critical_X

- RECIRC LOOP A(B) DIFF PRESS LOW 2-PDS-68-65(2-PDA-68-82), 2-XA-55-4A(B), Window 31, is reset.

Standard:

RESET Panel 2-9-4 annunciators and **VERIFIED** Panel 2-9-4A, Window 31, CLEARED.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical_X

- RECIRC PUMP 2A(2B) DISCHARGE VALVE, 2-FCV-68-3(79), begins to open by the automatic jogging circuit.

Standard:

VERIFIED illuminated both RED and GREEN valve position indicating lamps above 2-HS-68-3A.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical_X

- RECIRC MG SET A(B) STARTUP SEQ INCOMPLETE 2-XA-96-40(41), 2-XA-55-4A(B), Window 4 is clear.

Standard:

VERIFIED annunciator Panel 2-9-4A, Window 4 EXTINGUISHED.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical_X

- **VERIFY** locally, RECIRC PUMP 2A (2B) breaker closing spring recharged by observing amber breaker spring charged light is on and closing spring target indicates charged.

Standard:

DISPATCHED AUO to **VERIFY** Recirc Pump 2A breaker closing spring recharged.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: [WHEN DISPATCHED] THE AUO REPORTS RECIRC PUMP 2A BREAKER CLOSING SPRING IS CHARGED.

NOTES:

- (1) In order to achieve balanced jet pump flows, the Recirc Pumps speed may require a mismatch.
- (2) Recirc Pump speed cannot be increased above 28%(_320 RPM generator speed) until total Feedwater flow is greater than 19 percent. Recirc Pump speed can be controlled between 20%(_320 RPM generator speed) using the Recirc Pump Speed Controllers.
- (3) Recirc Pump A(B) will trip 85 seconds after initiation of the automatic jogging sequence if RECIRC PUMP A3(B) DISCHARGE VALVE, 2-FCV-68-3(79), is less than 90 percent open.
- (4) Performance of 2-SR-3.4.2.1 is required 24 hours after reaching >25% RTP and/or 4 hours after returning a Recirc Pump to service. .

Performance Step : Critical___ Not Critical_X

5.2.22 **VERIFY** fully open, RECIRC PUMP 2A(2B) DISCHARGE VALVE, 2-FCV-68-3(79).

Standard:

VERIFIED illuminated ONLY RED valve position indicating lamp above 2-HS-68-3A.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CAUTION

Per Technical Specifications, the reactor **CAN BE** operated indefinitely with one Recirc loop out of service, provided the requirements of T.S. 3.4.1 are implemented within 24 hours of entering single loop operations.

Performance Step : Critical___ Not Critical X

5.2.23 **NOTIFY** Reactor Engineer to **VERIFY** that the following has been **PERFORMED**, as applicable, depending on the number of operating recirc loops, and **RECORD** the applicable requirements and their completion status in the narrative log.

5.2.23.1 2-SR-3.4.1(DLO), Reactor Recirculation System Dual Loop Operation.

OR

5.2.23.2 2-SR-3.4.1(SLO), Reactor Recirculation System Single Loop Operation.

Standard:

NOTIFIED Reactor Engineer to verify 2-SR-3.4.1(DLO) has been performed.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: REACTOR ENGINEER VERIFIED 2-SR-3.4.1 (DLO) HAS BEEN PERFORMED.

Performance Step : Critical___ Not Critical X

5.2.24 VERIFY BAILEY NULL SWITCH A(B) pushbutton, 2-HS-96-3A(3B) backlight extinguished.

Standard:

VERIFIED Bailey Null Switch A push-button, 2-HS-96-3A back-light is not illuminated.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical X Not Critical___

5.2.25 **PLACE** in AUTO, RECIRC MG 2A(2B) AUTO/MAN SELECT, 2-XS-57-16A(13A). (N/A if Recirc MG Set is supplied by alternate feeder.

Standard:

PLACED AUTO/MAN SELECT 2-XS-57-16A in AUTO.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical X

5.2.26 **DEPRESS** pushbutton RECIRC PUMP 2A(2B) RUNBACK RESET 2-HS-68-32(41).

Standard:

DEPRESSED 2-HS-68-32.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical_X

5.2.27 **MONITOR** Recirc Pump seal pressures during pressurization for proper operation. (Number 2 seal pressure should be approximately one half that of Number 1 seal pressure).

Standard:

VERIFIED 2-PI-68-63A indicating approximately one-half the indication of 2-PI-68-64A.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step : Critical___ Not Critical_X

5.2.28 **MAINTAIN** fluid drive oil temperature from cooler at 110F to 130F, on RECIRC MG SET 2A(2B) FLUID CLPG AND BRG TEMP, 2-TR-68-97(98), Point 9, (Panel 2-9-21).

Standard:

VERIFIED Point 9 on 2-TR-68-97 indicating 110F to 130F.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CAUTION

The Recirc System should be operated with balanced jet pump flows to reduce hydraulic forces and vibration stresses on jet pumps and retainers.

**CUE: [IF ASKED] THE UNIT SUPERVISOR DIRECTS THE OPERATOR TO
BALANCE RECIRC FLOWS.**

Performance Step : Critical___ Not Critical_X

5.2.29 **ADJUST** Recirc Pump speeds 2A(2B) using RAMP
UP/RAMP DOWN pushbuttons on RECIRC PUMP 2A(2B)
SPEED INDICATING CONTROL, 2-SIC-96-3A(3B), to
achieve balanced jet pump flows. (N/A for Single
Loop Operation)

Standard:

RAISED 2-SIC-96-3A to balance jet pump flows.

SAT___ UNSAT___ N/A___ COMMENTS:_____

**INSTRUCTOR NOTE: WHEN COMPETENCY DEMONSTRATED ON ADJUSTING
2A RECIRC SPEED THEN TERMINATE THE JPM BY STATING
"WE WILL STOP HERE".**

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_____

ORIGINAL Draft

JPM NO. 18
REV. NO. 7
PAGE 1 OF 14

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

JPM NUMBER: 18
TITLE: EOI APPENDIX 5C - INJECTION SYSTEM LINEUP -
RCIC
TASK NUMBER: U-000-EM-31

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

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

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
3	11/29/94	1,2,3,4	REVISE TO NEW FORMAT
4	9/11/95	ALL	DESIGNATED U-2 ITEMS AND FORMATTING
5	9/29/97	ALL	FORMAT, ADDED PLANT WORK EXPECTATIONS TOUCH STAAR AND 3 WAY COMM., CHANGED ASOS TO US.
6	9/08/99	ALL	PROCEDURE REVISION
7	10/03/00	4	EDITORIAL CHANGE

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 18

TASK NUMBER: U-000-EM-31

TASK TITLE: LINE UP INJECTION SYSTEMS - RCIC IN ACCORDANCE
WITH EOI APPENDIX 5C

K/A NUMBER: 217000A4.04 K/A RATING: RO 3.6 SRO:
3.6

*

TASK STANDARD: MANIPULATE CONTROLS REQUIRED TO INJECT WATER TO
THE RPV USING THE REACTOR CORE ISOLATION COOLING
(RCIC) SYSTEM AND MAINTAIN LEVEL AS REQUIRED.

LOCATION OF PERFORMANCE: SIMULATOR _____ PLANT _____ CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 2-EOI APPENDIX 5C - INJECTION
SYSTEM LINEUP - RCIC, REV 3

VALIDATION TIME: CONTROL ROOM: 5:00 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: _____

JPM NO. 18
REV. NO. 7
PAGE 4 OF 14

EXAMINER

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

*

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

INITIAL CONDITIONS: You are the Unit 2 Operator. The reactor has scrammed and RPV water level is decreasing slowly. EOI-1 has been entered and followed to RC/L-4.

INITIATING CUES: The US has directed you to restore RPV water level +12 to +51 inches using the Reactor Core Isolation Cooling System as directed by 2-EOI Appendix 5C, INJECTION SYSTEM LINEUP - RCIC.

START TIME _____

**EXAMINERS'S NOTE: UNLESS OTHERWISE NOTED, ALL COMPONENTS TO
BE OPERATED AND ALL INDICATIONS ARE LOCATED ON PANEL 2-9-3.**

Performance Step: Critical____ Not Critical X

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

Standard:

IDENTIFIED OR OBTAINED copy of 2-EOI Appendix 5C.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical____ Not Critical X

1. IF.....**BOTH** of the following exist:

✍ Rx Pressure is at or below 50 psig,

AND

✍ Bypass of RCIC low RPV pressure isolation
interlocks is necessary,

THEN...**EXECUTE** EOI Appendix 16A concurrently with
this procedure.

Standard:

DETERMINED RPV PRESSURE >50 PSIG, as indicated by 2-PI-207A,
Panel 2-9-5.

SAT__ UNSAT__ N/A__ COMMENTS: _____

Performance Step: Critical___ Not Critical X

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

✍ High temperature exists in the RCIC area,

AND

✍ SRO directs bypass of RCIC High Temperature Isolation interlocks,

THEN...**EXECUTE** EOI Appendix 16K concurrently with this procedure.

Standard:

DETERMINED high temperature does not exist in the RCIC area, as indicated by Panel 2-9-21 2-TS-69-71-41A,B,C alarms clear or no alarm on Panel 2-9-3 2-TA-71-41.

SAT___UNSAT___N/A___ COMMENTS:_____

CAUTION

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

*

Performance Step: Critical___ Not Critical X

3. **VERIFY RESET** and **OPEN** 2-FCV-71-9, RCIC TURB TRIP/
THROT VALVE RESET.

Standard:

VERIFIED illuminated RED indicating lamp 2-ZI-71-9.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

4. **VERIFY** 2-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL,
controller in AUTO with setpoint at 600 gpm.

Standard:

VERIFIED 2-FIC-71-36A in AUTO and tape setpoint at 60 (X10).

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical X Not Critical___

5. **OPEN** the following valves:

✍ 2-FCV-71-39, RCIC PUMP INJECTION VALVE.

Standard:

PLACED 2-HS-71-39A in the OPEN position and **OBSERVED**
illuminated RED valve position indicating lamp above
associated control switch.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical__ Not Critical_X

✍ 2-FCV-71-34, RCIC PUMP MIN FLOW VALVE.

Standard:

PLACED 2-HS-71-34A in the OPEN position and **OBSERVED**
illuminated RED valve position indicating lamp above
associated control switch.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step: Critical_X Not Critical__

✍ 2-FCV-71-25, RCIC LUBE OIL CLR COOLING WTR VLV.

Standard:

PLACED 2-HS-71-25A in the OPEN position and **OBSERVED**
illuminated RED valve position indicating lamp above
associated control switch.

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

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

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical_X Not Critical___

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

Standard:

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

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

8. **CHECK** proper RCIC operation by observing the following:
- a. RCIC Turbine speed accelerates above 2100 rpm.

Standard:

VERIFIED RCIC turbine speed > 2100 by **OBSERVING** 2-SI-71-42A.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

- b. RCIC flow to RPV stabilizes and is controlled automatically at 600 gpm.

Standard:

OBSERVED 2-FIC-71-36A and **VERIFIED** RCIC flow to RPV stabilized at 600 GPM.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

- c. 2-FCV-71-40, RCIC Testable Check Vlv, opens by observing 2-ZI-71-40A, DISC POSITION, red light illuminated.

Standard:

OBSERVED illuminated RED check valve DISC POSITION indicating lamp.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical X

- d. 2-FCV-71-34, RCIC PUMP MINIMUM FLOW VLV, closes as flow rises above 120 gpm.

Standard:

OBSERVED RCIC system flow to RPV > 120 GPM as indicated on 2-FIC-71-36A and **VERIFIED** illuminated GREEN valve position indicating lamp above 2-HS-71-34A.

SAT___ UNSAT___ N/A___ COMMENTS:_____

Performance Step: Critical___ Not Critical_X

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

✍ RCIC Initiation signal is NOT present,

AND

✍ RCIC flow is below 60 gpm,

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

Standard:

VERIFIED RCIC initiation signal not present as indicated by 2-IL-71-52, RCIC AUTO-INIT, amber lamp being extinguished.

SAT___ UNSAT___ N/A___ COMMENTS:_____

id

Performance Step: Critical___ Not Critical_X

10. **ADJUST** 2-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller as necessary to control injection.

Standard:

ADJUSTED 2-FIC-71-36A tape setpoint with thumbwheel as necessary to obtain RPV water level +12 to +51 inches.

SAT___ UNSAT___ N/A___ COMMENTS:_____

EXAMINER'S NOTE: IT WILL NOT BE NECESSARY FOR THE PERFORMER TO OBTAIN A LEVEL > +12". AN INCREASING RPV WATER LEVEL WILL SUFFICE.

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 is 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

JPM NO. 18
REV. NO. 7
PAGE 16 OF 14

STOP TIME _____

*Draft
Replaced with
16TC*

JPM NO. 154F
REV. NO. 4
PAGE 1 OF 15

*Due to Plant
model making procedure
wrong.*

JPM NUMBER: 154F

TITLE: PERFORM FIRE PROTECTION VENTILATION LINEUP IN
ACCORDANCE WITH 0-AOI-26-1 (CONTROL BAY)

TASK NUMBER: U-026-AB-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

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	10/4/94	ALL	NEW JPM
1	11/21/95	ALL	COMPLETE PROCEDURE CHANGE
2	12/15/95	2,10,11	REVISED CUES TO MAKE MORE FLEXIBLE
3	11/12/99 WAY- TO	2,3,4,13,15,16	PROCEDURE REVISION, ADDED PLANT WORK EXPECT. TOUCH STAAR, SAFETY AND 3-COMM., CHANGED ASOS US.
4	10/16/00	4,10,11	FORMAT REVISION & EDITORIAL.

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 154F

TASK NUMBER: U-026-AB-03

TASK TITLE: PERFORM FIRE PROTECTION VENTILATION LINEUP IN
ACCORDANCE WITH 0-AOI-26-1 (CONTROL BAY)

K/A NUMBER: 286000G9 K/A RATING: RO 3.9 SRO: 3.8

TASK STANDARD: SIMULATE PERFORMING FIRE PROTECTION VENTILATION
LINEUP IN ACCORDANCE WITH 0-AOI-26-1 AND FIRE PRE-
PLAN RX 2-621.

LOCATION OF PERFORMANCE: SIMULATOR _____ PLANT X CONTROL ROOM _____

REFERENCES/PROCEDURES NEEDED: 0-AOI-26-1, REV 2

VALIDATION TIME: CONTROL ROOM: 15 MINS 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

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

INITIAL CONDITIONS: You are an Operator. Unit 1 is defueled and Unit 2 is at 100% power. A fire is in progress in Unit 2 Reactor Building, El 621.

INITIATING CUES: The Incident Commander has requested you to secure ventilation in accordance with Fire Pre-Plan RX 2-621 as directed by 0-AOI-26-1, Fire Response, and report back when the ventilation is secured.

START TIME _____

Performance Step: Critical___ Not Critical_X

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

Standard:

IDENTIFIED OR OBTAINED copy of 0-AOI-26-1.

SAT___UNSAT___N/A___ COMMENTS:_____

4.0 OPERATOR ACTIONS

4.1 Immediate Actions

None

4.2 Subsequent Action

4.2.1 CONFIRM the fire area and ANNOUNCE over the PA.

NOTE:

Tripping fans or air handling units will support closure of fire dampers due to loss of air flow.

Performance Step : Critical__ Not Critical_X

4.2.2 Based upon request from the Fire Brigade Leader,
TRIP the fans, air handling units or cooling unit
for affected area. REFER TO Attachment 1.

Standard:

LOCATED Fire Pre-Plan RX 2-621 listing on Attachment 1 of 0-
AOI-26-1 and **PROCEEDED** to Control Bay.

SAT__UNSAT__N/A__ COMMENTS:_____

4.2.2.1 IF components fail to trip at listed
handswitch locations, THEN

TRIP components at listed breakers.

0-OI-26-1, ATTACHMENT 1 - FIRE PRE-PLAN RX 2-621

	HANDSWITCH	HANDSWITCH LOCATION	ELECT PANEL	COMPT NO.
REACTOR ZONE EXHAUST FAN 2A	2-HS-64-11A	MCR PANEL 2-9-25	RB VENT BD 2A	1B2
REACTOR ZONE EXHAUST FAN 2B	2-HS-64-11A	MCR PANEL 2-9-25	RB VENT BD 2A	11B2
REACTOR ZONE SUPPLY FAN 2A	2-HS-64-11A	MCR PANEL 2-9-25	RB VENT BD 2B	3B
REACTOR ZONE SUPPLY FAN 2B	2-HS-64-11A	MCR PANEL 2-9-25	RB VENT BD 2B	7B
REFUEL ZONE SUPPLY FAN 2A	2-HS-64-3A	MCR PANEL 2-9-25	RB VENT BD 2B	2B
REFUEL ZONE SUPPLY FAN 2B	2-HS-64-3A	MCR PANEL 2-9-25	RB VENT BD 2B	8B
SD BD ROOM ACU/A CONTROL SW	2-HS-031-7205B <u>OR</u> 2-HS-031-7205A	UNIT 1 MECH EQ RM EL 617 <u>OR</u> ELEC BD RM 2B EL 593	480V RMOV 2A	1B
SD BD ROOM ACU/B CONTROL SW	2-HS-031-7206B <u>OR</u> 2-HS-031-7206A	UNIT 1 MECH EQ RM EL 617 <u>OR</u> ELEC BD RM 2B EL 593	480V RMOV 2B	8A1
250V BATTERY ROOM SUPPLY FAN 2A	0-HS-31-164	ELEC BD RM 2A EL 621	480V RMOV 2A	R9E
250V BATTERY ROOM SUPPLY FAN 2B	0-HS-31-164	ELEC BD RM 2A EL 621	480V RMOV 2B	R9B
250V BATTERY ROOM EXHAUST FAN 2A	0-HS-31-163	ELECT BD RM 2A EL 621	480V RMOV 2A	R9C2
250V BATTERY ROOM EXHAUST FAN 2B	0-HS-31-163	ELECT BD RM 2A EL 621	480V RMOV 2B	R9A

XX INFO ONLY XX

Performance Step : Critical X Not Critical___

TRIP the Unit 2 Reactor Zone Supply and Exhaust Fans.

Standard:

At Panel 2-9-25, **SIMULATED PLACING** 2-HS-64-11A in the OFF position.

SAT___UNSAT___N/A___ COMMENTS:_____

CUE: [WHEN SIMULATED] THE GREEN MOTOR BREAKER POSITION INDICATING LAMPS FOR 2A AND 2B REACTOR ZONE SUPPLY AND

Performance Step : Critical X Not Critical___

TRIP the Unit 2 Refuel Zone Supply Fans.

Standard:

At Panel 2-9-25, **SIMULATED PLACING** 2-HS-64-3A in the OFF position.

SAT___UNSAT___N/A___ COMMENTS:_____

CUE: [WHEN SIMULATED] THE GREEN MOTOR BREAKER POSITION INDICATING LAMPS FOR 2A AND 2B REFUEL ZONE SUPPLY FANS ARE

Performance Step : Critical X Not Critical___

TRIP the Shutdown Board Room Air Conditioning Unit A (ACU/A).

Standard:

At Unit 1 Mechanical Equipment Room or Electrical Board Room 2B, **SIMULATED PLACING** EITHER 2-HS-031-7205B OR 2-HS-031-7205A in the STOP position.

SAT____UNSAT____N/A____ COMMENTS:_____

CUE: [IF 'A' UNIT OPERATING AND WHEN SIMULATED]

1) IF 2-HS-031-7205B IN THE UNIT 1 MECHANICAL EQUIPMENT ROOM IS USED - THE RED MOTOR BREAKER POSITION INDICATING LAMP IS STILL ILLUMINATED.

2) IF 2-HS-031-7205A IN ELECTRICAL BOARD ROOM 2B IS USED - THE RED MOTOR BREAKER POSITION INDICATING LAMP IS STILL ILLUMINATED.

[IF 'A' UNIT IS NOT OPERATING] THE GREEN BREAKER POSITION

Performance Step: Critical X Not Critical____

TRIP the Shutdown Board Room Air Conditioning Unit B (ACU/B).

Standard:

SIMULATED PLACING EITHER 2-HS-031-7206B OR 2-HS-7206A in the STOP position.

SAT____UNSAT____N/A____ COMMENTS:_____

CUE: [IF 'B' UNIT OPERATING AND WHEN SIMULATED]

1) IF 2-HS-031-7206B IN THE UNIT 1 MECHANICAL EQUIPMENT ROOM IS USED - THE RED MOTOR BREAKER POSITION INDICATING LAMP IS STILL ILLUMINATED.

2) IF 2-HS-031-7206A IN ELECTRICAL BOARD ROOM 2B IS USED - THE RED MOTOR BREAKER POSITION INDICATING LAMP IS STILL ILLUMINATED.

[IF 'B' UNIT IS NOT OPERATING] THE GREEN BREAKER POSITION

Performance Step: Critical X Not Critical

TRIP the Shutdown Board Room Air Conditioning Unit A(B)
(ACU/A(B)) at its supply breaker.

Standard:

At 480V RMOV 2A, **SIMULATED PLACING** Compartment 1B breaker in
the OFF position OR AT 480V RMOV 2B, **SIMULATED PLACING**
compartment 8A1 breaker in the OFF position.

SAT UNSAT N/A COMMENTS:

CUE: [WHEN CORRECTLY SIMULATED] THE BREAKER IS IN THE OFF

Performance Step: Critical X Not Critical

TRIP the 250V Battery Room Supply Fans 2A and 2B.

Standard:

At Electrical Board Room 2A, **SIMULATED PLACING** 0-HS-31-164 in
the OFF position.

SAT UNSAT N/A COMMENTS:

CUE: [WHEN CORRECTLY SIMULATED] THE SWITCH IS IN THE OFF

Performance Step: Critical X Not Critical

TRIP the 250V Battery Room Exhaust Fans 2A and 2B.

Standard:

At Electrical Board Room 2A, **SIMULATED PLACING** 0-HS-31-163 in the OFF position.

SAT UNSAT N/A COMMENTS:

CUE: [WHEN CORRECTLY SIMULATED] THE SWITCH IS IN THE OFF

Performance Step: Critical Not Critical X

NOTIFY Fire Brigade Leader that requested ventilation has been secured per Fire Pre-Plan RX 2-621, Attachment 1, 0-AOI-26-1.

Standard:

SIMULATED NOTIFYING Fire Brigade Leader ventilation secured.

SAT UNSAT N/A COMMENTS:

CUE: [WHEN NOTIFICATION SIMULATED] ACKNOWLEDGE VENTILATION

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 _____

DRAFT

JPM NO. 27F
REV. NO. 7
PAGE 1 OF 14

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

JPM NUMBER: 27F (B.2.b)

TITLE: 2-EOI APPENDIX 7K - ALTERNATE RPV INJECTION SYSTEM
LINEUP - FIRE SYSTEM (THROUGH RHR SYSTEM II)

TASK NUMBER: U-000-EM-14

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	12/6/94	1,2,3,4	REVISE TO NEW FORMAT
3	11/8/95	ALL	UPDATE TO MATCH BASE PROCEDURE REVS
4	8/1/96	ALL	ADDED CRITICAL STEP FOR MGT EXPECTATIONS. CHANGED FORMAT FOR ACKNOWLEDGING TASK, AND UNIT 2 SPECIFIC JPM.
5	9/6/96	2, 4	ADD TO INITIATING CUE TO VERIFY CLOSED RSW STRG TNK ISOL VLVS LOCALLY
6	9/13/99	ALL	CHANGED MGT. EXPECT TO PLANT WORK EXPECT. WITH CRIT STEPS TO NON-CRIT. STEPS, FORMAT DOCUMENT, AND ADDED 3-WAY COMM.
7 steps.	10/03/00	4	deleted non-critical

BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE

OPERATOR: _____ SS# _____

RO _____ SRO _____ DATE: _____

JPM NUMBER: 27F

TASK NUMBER: U-000-EM-44

TASK TITLE: LINE UP ALTERNATE RPV INJECTION SYSTEM - FIRE
SYSTEM IN ACCORDANCE WITH 2-EOI APPENDIX 7K

K/A NUMBER: 295031EA1.01 K/A RATING: RO 4.4 SRO: 4.4

*

TASK STANDARD: SIMULATE PERFORMING VALVE MANIPULATIONS REQUIRED
TO ALIGN THE FIRE SYSTEM TO INJECT INTO THE RPV
VIA THE RHR SYSTEM AS DIRECTED BY 2-EOI APPENDIX
7K

LOCATION OF PERFORMANCE: SIMULATOR ____ PLANT X CONTROL ROOM ____

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

VALIDATION TIME: _____ CONTROL ROOM: 25:00 LOCAL: 20:00

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

PERFORMANCE TIME: _____ CONTROL ROOM ____ LOCAL ____

COMMENTS: _____

Additional comment sheets attached? YES ____ NO ____

RESULTS: SATISFACTORY ____ UNSATISFACTORY ____

SIGNATURE: _____ DATE: _____

EXAMINER

**BROWNS FERRY NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

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

INITIAL CONDITIONS: You are an extra operator. A tornado has caused Unit 2 reactor to scram and no AC power is available. Due to an un-isolable leak and several equipment failures the RPV inventory cannot be maintained above -162". The diesel fire pump is running. The fire system injecting into RHR System II is to be used as a source of makeup to the RPV. (RHR System I is tagged)

INITIATING CUES: The Unit 2 Operator directs you to perform manual valve alignments per Attachment 1 of 2-EOI Appendix 7K, verifying RSW STORAGE TANK ISOL. VALVES closed and align RHR System II for injection to the RPV.

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 7K.

SAT___ UNSAT___ N/A___ COMMENTS:_____

NOTE:With AC power NOT available, valve manipulations are manual and performed locally.

1. IF ALL AC Power is NOT available,

THEN ... **REFER TO** Attachment 1 and **DISPATCH** personnel to manually operate the listed valves while performing the following steps.

* CAUTION *
* *
* Automatic initiation of fire system will divert water *
* from the RPV during performance of this procedure. *

2. **NOTIFY** Unit 1 Operator to perform the following:
 - a. **VERIFY** at least one electric or diesel driven fire pump running (Unit 1, Panel 9-20).
 - b. IF Diesel Driven fire pump is running,
THEN **DISPATCH** personnel to diesel fire pump as soon
as possible to check proper operation.

- c. **VERIFY CLOSED** the following valves (Unit 1, Panel 9-20):
- 0-FCV-25-32, RSW STRG TNK ISOLATION VALVE.
 - 0-FCV-25-70, RSW STRG TNK ISOLATION VALVE.
- d. **OPEN** FCV-23-57, STANDBY COOLANT VALVE FROM RHRSW (Unit 1, Panel 9-3).
3. **VERIFY** RHR pumps 2A and 2C shutdown (Unit 2, Panel 9-3).
4. **OPEN** 2-FCV-74-100, RHR SYS I U-1 DISCH XTIE, (Unit 2, Panel 9-3).
5. **VERIFY CLOSED** 2-FCV-23-52, RHR HX 2D RHRSW OUTLET VLV (Unit 2, Panel 9-3).
6. **VERIFY OPEN** the following valves (Unit 2, Panel 9-3):
- 2-FCV-74-52, RHR SYS I LPCI OUTBD INJECT VALVE
 - 2-FCV-74-53, RHR SYS I LPCI INBD INJECT VALVE.
7. IF Additional injection flow is required,
THEN **INJECT** using RHR System II as follows:
- a. **VERIFY** RHR pumps 2B and 2D shut down (Unit 2, Panel 9-3).
 - b. **OPEN** 2-FCV-23-57, STANDBY COOLANT VLV FROM RHRSW, (Unit 2, Panel 9-3).
- NOTE: Breaker compartment for 2-FCV-74-101, RHR SYS II U-3 DISCH XTIE, valve is maintained in the open position as an Appendix R requirement.
- c. **DISPATCH** personnel to close 480V ACB to 2-FCV-74-101, RHR SYS II U-3 DISCH XTIE, (480V RMOV BD 3B, Compartment 19E).
 - d. **OPEN** 2-FCV-74-101, RHR SYS II U-3 DISCH XTIE (Unit 2, Panel 9-3).

- e. **VERIFY CLOSED** 2-FCV-23-46, RHR HX 2B RHRSW OUTLET VLV,
(Unit 2, Panel 9-3).
- f. **VERIFY OPEN** the following valves (Unit 2, Panel 9-3):
- 2-FCV-74-67, RHR SYS II LPCI INBD INJECT VALVE
 - 2-FCV-74-66, RHR SYS II LPCI OUTBD INJECT VALVE.

END OF TEXT

(ATTACHMENT 1)

<u>VALVE LOCATIONS AND POSITIONS</u>		
NOTE: The valves listed below are operated <u>ONLY</u> when directed by the Unit Operator.		
VALVE	POSITION	LOCATION
0-FCV-25-32, RSW STRG TNK ISOLATION VALVE	CLOSED	UNIT 1 RB NW, El 639 ft, SLC Area, West wall by Gland Seal Water tank
0-FCV-25-70, RSW STRG TNK ISOLATION VALVE	CLOSED	
SYSTEM I		
1-FCV-023-0057, STANDBY COOLANT VLV	OPEN	Unit 1 RB SE, El 565 ft, overhead above equipment air lock
2-FCV-74-100, RHR HTX A-C DISCH XTIE (TO U-1) VLV	OPEN	Unit 2 RB SW, El 565 ft, overhead at west wall above door to elevator and stairs
2-FCV-23-52, RHR HEAT EXCHANGER D SW OUTLET VALVE	CLOSED	UNIT 2 RB SE, El 565 ft, by SW Stairwell
2-FCV-74-53, RHR SYSTEM I INBD INJECTION VLV	OPEN	Unit 2 RB, El 580 ft above drywell personnel access
2-FCV-74-52, RHR SYSTEM I OUTBD INJECTION VLV	OPEN	

SYSTEM II		
2-FCV-074-0101, RHR HTX B-D DISCH XTIE (TO U-3) VLV	OPEN	Unit 2 RB SE, El 565 ft, overhead on platform
2-FCV-23-57, STANDBY COOLANT VALVE	OPEN	Unit 2 RB SE, El 565 ft overhead on platform
2-FCV-23-46, RHR HX B RHRSW OUTLET VLV	CLOSED	UNIT 2 RB SE, El 565 ft, by SE Stairwell
2-FCV-074-0067, RHR SYSTEM II INBD INJECTION VLV	OPEN	Unit 2 RB, El 580 ft, above drywell personnel access
2-FCV-074-0066, RHR SYSTEM II OUTBD INJECTION VLV	OPEN	

Performance Step : Critical___ Not Critical X

CLOSE 0-FCV-25-32, RSW STRG TNK ISOLATION VALVE.

Standard:

SIMULATED CLOSING 0-FCV-25-32.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: [WHEN SIMULATED] 0-FCV-25-32 IS CLOSED.

Performance Step : Critical___ Not Critical X

CLOSE 0-FCV-25-70, RSW STRG TNK ISOLATION VALVE.

Standard:

SIMULATED CLOSING 0-FCV-25-70.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: [WHEN SIMULATED] 0-FCV-25-70 IS CLOSED.

Performance Step : Critical X Not Critical____

OPEN 2-FCV-074-0101, RHR HTX B-D DISCH XTIE (TO U-3) VLV.

Standard:

SIMULATED ENGAGING handwheel and **ROTATING** 2-FCV-074-0101 handwheel in the COUNTERCLOCKWISE direction.

SAT____UNSAT____N/A____ COMMENTS:_____

CUE: [WHEN SIMULATED] THE HANDWHEEL IS TURNING AND THE VALVE STEM IS MOVING OUTWARD. [PAUSE] THE HANDWHEEL IS NOW SNUG.

Performance Step : Critical X Not Critical____

OPEN 2-FCV-23-57, STANDBY COOLANT VALVE.

Standard:

SIMULATED ENGAGING handwheel and **ROTATING** 2-FCV-23-57 handwheel in the COUNTERCLOCKWISE direction.

SAT____UNSAT____N/A____ COMMENTS:_____

CUE: [WHEN SIMULATED] THE HANDWHEEL IS TURNING AND THE VALVE STEM IS MOVING OUTWARD. [PAUSE] THE HANDWHEEL IS NOW SNUG.

Performance Step : Critical___ Not Critical X

VERIFY CLOSED 2-FCV-23-46, RHR HEAT EXCHANGER B SW OUTLET VALVE.

Standard:

VERIFIED 2-FCV-23-46 valve position indicator indicating CLOSED or **SIMULATED** engaging handwheel and rotating handwheel in the CLOCKWISE direction.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: [IF HANDWHEEL MANIPULATION SIMULATED] THE HANDWHEEL IS SNUG.

Performance Step : Critical X Not Critical___

OPEN 2-FCV-074-0067, RHR SYSTEM II INBD INJECTION VLV.

Standard:

SIMULATED ENGAGING handwheel and **ROTATING** 2-FCV-074-0067 handwheel in the COUNTERCLOCKWISE direction.

SAT___ UNSAT___ N/A___ COMMENTS:_____

CUE: [WHEN SIMULATED] THE HANDWHEEL IS TURNING AND THE VALVE STEM IS MOVING OUTWARD. [PAUSE] THE HANDWHEEL IS NOW SNUG.

Performance Step : Critical X Not Critical__

OPEN 2-FCV-074-0066, RHR SYSTEM II OUTBD INJECTION VLV.

Standard:

SIMULATED ENGAGING handwheel and **ROTATING** 2-FCV-074-0066 handwheel in the COUNTERCLOCKWISE direction.

SAT__ UNSAT__ N/A__ COMMENTS:_____

CUE: [WHEN SIMULATED] THE HANDWHEEL IS TURNING AND THE VALVE STEM IS MOVING OUTWARD. [PAUSE] THE HANDWHEEL IS NOW SNUG.

Performance Step : Critical X Not Critical__

PERFORMER demonstrated the use of TOUCH STAAR during this JPM.

Standard:

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

SAT__ UNSAT__ N/A__ COMMENTS:_____

Performance Step : Critical X Not Critical__

PERFORMER complied with all safety rules and regulations.

Standard:

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

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

SAT__ UNSAT__ N/A__ COMMENTS:_____

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: _____

JPM NO. 27F
REV. NO. 7
PAGE 15 OF 14

DRAFT

JPM NUMBER: NRC -2 (B.2.c)

TITLE: Fill and Vent the Stator Cooling
System

KA 245000 K6.05 (2.9/2.9)

INITIAL CONDITIONS:

Drained
You are an Operator. You have been asked to fill and vent the

stator cooling system.

The following conditions exist at the beginning of this task:

Generator stator inlet water conductivity is 0.25 m siemen

Generator stator current is less than 6000 amps

↑stator inlet cooling water flow is 650 gpm.

Stator cooling water temperature is 71°C.

Stator Water Deionizer - 3 psid.

Stator Filter - 2 psid.

Rectifier Filter - 1 psid.

↑cooling water flow to rectifiers is 30 gpm at 45°C inlet temperature

Main generator is 850,000 kVA at 0.93 PF; 75 psig H₂ pressure.

INITIATING CUES: Based on a review of available indications, it is determined that the stator cooling system must be vented and drained. You are the to fill and vent the stator cooling system.

Performance Step : 1

Critical__ Not Critical X

8.1.1 REVIEW all Precautions and Limitations in Section 3.0.

Standard:

VERIFIED all Precautions and Limitations in Section 3.0.

3.1 Generator stator inlet water conductivity should be maintained less than 0.5 m siemen.

3.2 The stator coolant pumps trip if a generator differential current condition is detected.

3.3 Operation of only one stator cooling pump is required to provide normal system flow.

The standby pump will automatically start on low system discharge pressure.

3.4 A main turbine trip will occur after 70 seconds if 2 out of 3 signals are received from either of the following conditions:

Generator stator current greater than 7726 amps and stator inlet cooling water flow less 542 gpm.

Stator cooling water temperature greater than 81°C.

If the above trips are inoperable, the turbine should be removed from service within 12 hours.

3.5 The following pressure differential limits are placed on the filters and deionizer in the stator cooling system:

3.5.1 Stator Water Deionizer - 15 psid.

3.5.2 Stator Filter - 8 psid.

3.5.3 Rectifier Filter - 8 psid.

3.6 Filter cartridges should be replaced at the first scheduled shutdown after the pressure drop across the filter has risen to 8 psid or after 18 to 20 months of service.

3.7 If conductivity of the stator cooling water cannot be maintained below 0.5 m siemen, the deionizer resin bed should be replaced.

3.8 The generator should not be operated above its "No Liquid Flow Capability" (7726 amps stator current at 75 psig H₂ pressure) when any part of the Stator Cooling System is subjected to freezing ambient conditions.

3.9 If adjustments are to be made to the Stator Cooling System while the generator is in operation, the generator load should not be above the "No Liquid Flow Capability" (7726 amps stator current at 75 psig H₂ pressure).

3.10 On a loss of stator cooling flow, the turbine shall be manually tripped within the following time limits:

3.10.1 Three minutes with conductivity greater than 0.5 m siemens prior to the loss of stator cooling water flow.

3.10.2 Forty minutes with conductivity less than 0.5 m siemens prior to the loss of stator cooling water flow.

NOTE:

Without flow, conductivity readings are inaccurate and should be disregarded.

3.11 Normal cooling water flow to rectifiers is 30 gpm at 45°C (113°F) inlet temperature; rectifier high temperature alarm occurs at 93.3°C (200°F).

3.12 Main generator rating is 1,280,000 kVA at 0.93 PF; 75 psig H₂ pressure. With one stator cooler out of service, maximum main generator rating is 896,000 kVA at 0.93 PF; 75 psig H₂ pressure.

3.13 If rectifier cooling water flow is lost, 4964 amps of field current can be carried for 5 minutes, followed by a reduction to 2482 amps at 77°F ambient, or 122°F ambient continuous.

3.16 [PER/C] Frequent attention to the stator cooling surge tank level should be exercised during maintenance, filling, and venting. [SQ941193PER]

SAT__ UNSAT__ N/A__

COMMENTS: _____

Performance Step : 2

Critical__ Not Critical X

8.1.2 ROUTE outlet of DEMIN WATER MAKEUP DRAIN valve, 2-DRV-035-0840(Y-62) to floor drain.

Standard:

Simulate routing outlet to floor drain

SAT__ UNSAT__ N/A__

COMMENTS: _____

Performance Step : 3

Critical__ Not Critical__

8.1.3 OPEN DEMIN WATER MAKEUP DRAIN valve, 2-DRV-035-0840(Y-62).

Standard:

simulate opening 2-DRV-035-0840(Y-62)

SAT__ UNSAT__ N/A__

COMMENTS: _____

Performance Step : 4

Critical X Not Critical__

8.1.4 OPEN STATOR COOLING DEMIN WTR SPLY valve, 2-SHV-2-1595

Standard:

simulate opening 2-SHV-2-1595

SAT__ UNSAT__ N/A__

COMMENTS: _____

Performance Step : 5

Critical X Not Critical__

8.1.5 OPEN the DEMIN WATER MAKEUP valve, 2-SHV-035-0839(Y-61).

Standard:

simulate opening 2-SHV-035-0839

SAT__ UNSAT__ N/A__

COMMENTS: _____

Performance Step : 6

Critical__ Not Critical X

8.1.6 AFTER a 2-minute flush CLOSE the following valves:

8.1.6.1 DEMIN WATER MAKEUP, 2-SHV-035-0839(Y-61).

8.1.6.2 DEMIN WATER MAKEUP DRAIN, 2-DRV-035-0840(Y-62).

CUE: When Flush has started : TWO MINUTES HAVE PASSED

Standard:

^{closing}
simulate ~~opening~~ 2-SHV-035-0839(Y-61) and 2-DRV-035-0840(Y-62)

SAT__ UNSAT__ N/A__

COMMENTS: _____

Performance Step : 7

Critical__ Not Critical X

8.1.7 CLOSE the DEIONIZER INLET valve, 2-CKV-035-0852(Y-19).

Standard:

simulate closing 2-CKV-035-0852(Y-19)

SAT__ UNSAT__ N/A__

COMMENTS: _____

Performance Step : 8

Critical X Not Critical__

8.1.8 OPEN the DEMIN WATER MAKEUP valve, 2-SHV-035-0839(Y-61).

Standard:

Simulate opening 2-SHV-035-0839(Y-61)

SAT__ UNSAT__ N/A__

COMMENTS: _____

Critical X Not Critical

CUE: 2-FI-035-0079. Is indicating ~ 55%

Standard:

Adjust throttle valve to get ~55 ^{gpm} ^{gpm}

COMMENTS: _____

Critical__ Not Critical__

CUE: Stator Cooling Water Storage Tank Level is at the top of the sightglass

Close valve when the sightglass is full

COMMENTS: _____

Critical Not Critical

Simulate closing 2-CKV-035-0851(Y-21)

SAT__UNSAT__N/A__

COMMENTS:_____

Performance Step : 12

Critical__ Not Critical X

8.1.12 CLOSE STATOR COOLING DEMIN WTR SPLY valve, 2-SHV-2-1595

Standard:

Simulate closing 2-SHV-2-1595

SAT__UNSAT__N/A__

COMMENTS:_____

Performance Step : 13

Critical X Not Critical__

8.1.13 LOOSEN the following vent plugs, one at a time, and WHEN water is seen flowing through/around the plug threads, THEN

RETIGHTEN the vent plug:

Cooler A Vent Plug

CUE: water is seen flowing through/around the plug threads

Cooler B Vent Plug

CUE: water is seen flowing through/around the plug threads

Deionizer Vent Plug

CUE: water is seen flowing through/around the plug threads

Secondary Filter Vent Plug

CUE: water is seen flowing through/around the plug threads

Primary Filter Vent Plug

CUE: water is seen flowing through/around the plug threads

Standard:

VERIFY all plugs have water flowing from them

SAT__UNSAT__N/A__

COMMENTS: _____

Performance Step :

Critical X Not Critical__

8.1.14 THROTTLE OPEN DEIONIZER INLET, 2-CKV-035-0852(Y-19) to maintain ~55% flow as indicated on 2-FI-035-0079.

CUE: 2-FI-035-0079. Is indicating ~ 45%

CUE:after flow is adjusted 2-FI-035-0079Is indicating ~55%

Standard:

adjust flow to reach ~ 55%

SAT__UNSAT__N/A__

COMMENTS: _____