

## **Final Submittal**

### **FARLEY EXAM 50-348 & 50-364/2003-301**

**MAY 19 - 26, 2003**

1. Administrative Questions/JPMs
2. In-plant JPMs
3. Control Room JPMs (simulator JPMs)

Facility: Farley  
Examination Level (circle one): RO / SRO

Date of Examination: 5/19-27/2003  
Operating Test Number: 1

Administrative Topic (see Note)	Describe activity to be performed
Conduct of Operations	Calculate Reactor Vessel Head Venting Time (New JPM) 2.1.25 (2.8/3.1)
Conduct of Operations	Perform ECP [CRO-025A] 2.1.10 (plant parameter verification) (2.7/3.9)
Equipment Control	Maintenance Retest of 1B RHR Pump (New JPM) K/A 2.2.12 3.0/3.4
Radiation Control	Perform A Shielding Calculation (New JPM) 2.3.2 (2.5/ 2.9)
Emergency Plan	N/A
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.	

Facility: FarleyDate of Examination: 5/19-27/2003Examination Level (circle one): RO / SROOperating Test Number: 1

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Conduct of Operations	Calculate Reactor Vessel Head Venting Time (New JPM) 2.1.25 (2.8/3.1)
Conduct of Operations	Perform ECP [CRO-025A] 2.1.10 (plant parameter verification) (2.7/3.9)
Equipment Control	Maintenance Retest of 1B RHR Pump (New JPM) K/A 2.2.12 3.0/3.4
Radiation Control	Perform A Shielding Calculation (New JPM) 2.3.2 (2.5/ 2.9)
Emergency Plan	Classification of an Emergency Event (New JPM) 2.4.41 (2.3/4.1)
<p>NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.</p>	

**JOB PERFORMANCE MEASURES**  
**FORMAL OJT REQUIRED PRIOR TO EVALUATION**

**CRO-NEW**

TITLE: Calculate Reactor Vessel Head Venting Time

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT \_\_\_ LOCT X

ACCEPTABLE EVALUATION METHOD: X PERFORM \_\_\_ SIMULATE \_\_\_ DISCUSS

EVALUATION LOCATION: \_\_\_ SIMULATOR \_\_\_ CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 10 MIN SIMULATOR IC NUMBER: \_\_\_

ALTERNATE PATH \_\_\_ TIME CRITICAL \_\_\_ PRA \_\_\_

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>	<b>Trainee:</b>
<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b> Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>	
<b>Evaluator Comments (attach additional sheets if necessary)</b>	

JPM Approved: NRC exam – admin section  
 Supervisor - Operations Training or Operations

## STANDARDS

Apply the following criteria during the performance of this JPM:

- The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to CALCULATE REACTOR VESSEL HEAD VENTING TIME. FNP-1-FRP-I.3, Response to Voids in Reactor Vessel, has been implemented and completed through step 20.1. The following conditions exist in Unit 1 containment:

- Containment pressure is 9 psig.
- Lower Containment Temperature is 140°F.
- H<sub>2</sub> Concentration is 1.8%.
- RCS Pressure is 290 psig.

The SRO has directed you to complete step 20.3 by recording the maximum allowable venting time from TABLE 1 (Maximum Reactor Head Vent Time (minutes-Seconds)).

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
*1. Determine correct sheet of TABLE 1 to use by looking at H <sub>2</sub> Concentration and RCS pressure.	Determines sheet 3 due to 1.8% H <sub>2</sub> Concentration and 290 psig RCS pressure.	S / U
*2. Determine correct ROWS to use, 1.8 and between 250 and 300 psig.	Correct ROWS determined and intersection reads 13-5.	S / U
3. Write 13 next to minutes and 5 next to sec on FRP-I.3 step 20.3.	<u>13</u> min. <u>5</u> sec. entered in blanks.	S / U

## \_\_\_\_ STOP TIME

Terminate when Maximum vent time is recorded on FRP-I.3, step 20.3.

\* **CRITICAL ELEMENTS:** Critical Elements are denoted with an Asterisk (\*) preceding the element number.

**GENERAL REFERENCES:**

1. FNP-1- FRP-I.3 Rev. 17
2. K/As: 2.1.25 RO-2.8 SRO-3.1

**GENERAL TOOLS AND EQUIPMENT:**

None

**COMMENTS:**

## **CONDITIONS**

When I tell you to begin, you are to CALCULATE REACTOR VESSEL HEAD VENTING TIME. FNP-1-FRP-I.3, Response to Voids in Reactor Vessel, has been implemented and completed through step 20.1. The following conditions exist in Unit 1 containment:

- a. Containment pressure is 9 psig.
- b. Lower Containment Temperature is 140°F.
- c. H<sub>2</sub> Concentration is 1.8%.
- d. RCS Pressure is 290 psig.

The SRO has directed you to complete step 20.3 by recording the maximum allowable venting time from TABLE 1 (Maximum Reactor Head Vent Time (minutes-Seconds)).

**JOB PERFORMANCE MEASURES**  
**FORMAL OJT REQUIRED PRIOR TO EVALUATION**

**CRO-025A**

TITLE: Perform An Estimated Critical Condition Calculation

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT X LOCT X

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE \_\_\_ DISCUSS

EVALUATION LOCATION: X SIMULATOR X CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 40 MIN SIMULATOR IC NUMBER: N/A

ALTERNATE PATH \_\_\_ TIME CRITICAL \_\_\_ PRA

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>	<b>Trainee:</b>
<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b> <b>Satisfactory</b> <input type="checkbox"/> <b>Unsatisfactory</b> <input type="checkbox"/>	
<b>Evaluator Comments</b> (attach additional sheets if necessary)	

**JPM Approved: 2003 NRC EXAM**  
**Supervisor - Operations Training or Operations**



## JPM CORRECTION FORM

LESSON TITLE: Perform An Estimated Critical Condition Calculation

LESSON NO.: JPM CRO-025A

[illegible]

## STANDARDS

Apply the following criteria during the performance of this JPM:

- The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to PERFORM AN ESTIMATED CRITICAL CONDITION CALCULATION. The conditions under which this task is to be performed are:

- The Unit tripped 48 hours ago.
- Prior to the trip, the unit had been operating at 100% power for 2 months.
- Conditions at time of trip: 100% power, Bank D rods at 227 steps, 185 ppm boron, 18,000 MWD/MTU burnup.
- The Unit is presently in Mode 3 with  $T_{avg}$  at 547°F.
- Plans are to perform a reactor startup now with a critical rod height of 150 steps on Bank D.
- DBW, XENON, and SAMARIUM programs are attached.

**NOTE: THIS JPM HAS BEEN DESIGNED FOR UNIT 1 CYCLE 18 CORE PHYSICS CURVES. DBW, XENON, AND SAMARIUM PROGRAMS ARE ATTACHED.**

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
1. Determine total reactivity associated with prior critical conditions.	Reactivity total 2200 pcm.	S / U
2. Determine xenon reactivity change.	Correct reactivity change calculated using xenon worth program (+2260 pcm).	S / U
3. Determine samarium reactivity change.	Correct reactivity change calculated using samarium worth program. (-85 pcm).	S / U
4. Determine the reactivity associated with the desired critical rod height.	Current reactivity determined for desired rod height. (-502 pcm).	S / U
5. Determine the reactivity change due to temperature.	Correct reactivity determined for temperature. (0 pcm).	S / U

## EVALUATION CHECKLIST

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
<b>START TIME</b>		
6. Add algebraically the xenon, samarium, rod, and temperature reactivity.	Total reactivity calculated correctly. (+1673 pcm).	S / U
*7. Determine the critical boron concentration.	Boron concentration calculated correctly. (551 to 581 ppm).	S / U
8. Determine the minimum critical rod height.	Correct rod height determined. (D at 21).	S / U
9. Determine the maximum critical rod height.	Correct rod height determined. (D at 227).	S / U
10. If ECP computer program is used, attach completed ECC Calculation worksheet to Appendix 1.	ECC Calculation Worksheet is Worksheet to Appendix 1.	S / U
<b>STOP TIME</b>		

Terminate when maximum critical rod height is determined.
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**CRITICAL ELEMENTS:** Critical Elements are denoted with an asterisk (\*) before the element number.

## **GENERAL REFERENCES**

1. Core Physics Curve Book, Unit 1, Cycle 18
2. FNP-1-STP-29.6 Revision 2.0
3. K/A: 001A4.10      RO-3.5      SRO-3.9

## **GENERAL TOOLS AND EQUIPMENT**

1. STP-29.6
2. Xenon Worth Program
3. Samarium Worth Program
4. Core Physics Curves
5. Calculator
6. DBW and/or ECP Computer Program

## **COMMENTS**

## CONDITIONS

When I tell you to begin, you are to PERFORM AN ESTIMATED CRITICAL CONDITION CALCULATION. The conditions under which this task is to be performed are:

- a. The Unit tripped 48 hours ago.
- b. Prior to the trip, the unit had been operating at 100% power for 2 months.
- c. Conditions at time of trip: 100% power, Bank D rods at 227 steps, 185 ppm boron, 18,000 MWD/MTU burnup.
- d. The Unit is presently in Mode 3 with  $T_{avg}$  at 547°F.
- e. Plans are to perform a reactor startup now with a critical rod height of 150 steps on Bank D.
- f. Initial conditions given to examinee
- g. The ECC has been completed up through Section A, Step 1
- h. The startup date and time has been entered in Section B, Step 1
- i. Access to DBW and ECP computer programs may or may not be available. (Determined by the examiner.)

**JOB PERFORMANCE MEASURES**  
**FORMAL OJT REQUIRED PRIOR TO EVALUATION**

**CRO-NEW**

TITLE: Perform STP-11.2, 1B RHR PUMP QUARTERLY INSERVICE TEST

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT \_\_\_ LOCT X

ACCEPTABLE EVALUATION METHOD: X PERFORM \_\_\_ SIMULATE \_\_\_ DISCUSS

EVALUATION LOCATION: X SIMULATOR X CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 20 MIN SIMULATOR IC NUMBER: JPM IC- 100% power

**TURN on B train CCW**

ALTERNATE PATH \_\_\_ TIME CRITICAL \_\_\_ PRA \_\_\_

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

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<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b> Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>	
<b>Evaluator Comments (attach additional sheets if necessary)</b>	

JPM Approved: NRC exam – admin section  
 Supervisor - Operations Training or Operations

## JPM CORRECTION FORM

LESSON TITLE: Perform STP-11.2, 1B RHR PUMP QUARTERLY INSERVICE TEST

LESSON NO.: CRO-new

[illegible]

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to PERFORM FNP-1-STP-11.2, 1B RHR PUMP QUARTERLY INSERVICE TEST. The conditions under which this task is to be performed are:

- a. Unit 1 is at 100% power.
- b. Steps 3.1 through 3.11 have been completed.
- c. 1B RHR pump standstill oil levels are between the MAX and ¼ inch below the MAX mark.
- d. 1B RHR pump oil levels are visible.
- e. Directed by Shift Supervisor to perform STP-11.2 starting at step 5.1.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
1. Verify closed MOV 8702A and 8702B.	MOV 8702A and 8702B are closed. (CUE: green lights lit).	S / U
2. Verify closed 8720B.	Calls Radside SO to verify 8720B is closed (CUE: <b>Report back that 8720B is closed.</b> )	S / U
3. Verify closed MOV 8889.	MOV-8889 is checked closed. (CUE: Valve position indicator green light lit.)	S / U
4. Close or Verify closed 8887A and V605B.	Handswitch taken to close. (CUE: Valve position indicator green light lit.)	S / U
5. Verify open 8809B and 8887B.	8809B and 8887B are checked open. (CUE: Valve position indicator red light lit.)	S / U
6. Call Radside SO to open Instrument root valves for PI-601D and 600D and pressure checked on PI-601D.	Cue: report from Radside SO that valves are open and <b>PI- 601D reads 46 psig.</b>	S / U



## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
7. Check oil levels	<b>Cue: Oil levels are between the MAX and ¼ inch below the MAX mark</b>	S / U
8. Verify HIK-603B is 100% open	HIK-603B checked. (CUE: HIK is 100% open.)	S / U
*9. Start "1B" RHR pump	Handswitch for "B" RHR PMP taken to start. (CUE: Pump amp meter indicates 40 amps, pump breaker red light lit.)	S / U
10. Verify FCV-602B fully OPEN	FCV-602B checked. (CUE: FCV-602B red light lit.)	S / U
11. Check 1B RHR room cooler fan running.	1B RHR room cooler fan is checked. (CUE: Fan red light lit.)	S / U
12. Call for pump discharge pressure for PI-600D and 601D and seal leakage.	Radside SO called to report pressures and leakage. (CUE: <b>PI-600D = 221 psig and PI-601D = 64 psig and seal leakage is 10 cc/min.</b> )	S / U
<b>Simulator operator: Open V8881</b>		
13. Call Radside SO to open 8881.	Radside called (Cue: <b>valve is open.</b> )	S / U
*14. Adjust HIK- 603B to obtain flow between 3575 - 3625	Flow adjusted to required value.	S / U
15. Verify FCV-602B closes.	FCV-602B is checked. (Cue: 602B green light lit.)	S / U
*16. After 2 minutes record RHR pump flow, discharge pressure and suction pressure and compare $\Delta P/\Delta P_r$ on Data sheet 2.	Flow obtained from computer point and pressure given when called. <b>PI-600D = 176 psig</b> <b>PI-601D = 43 psig</b>	S / U
*17. Compare $\Delta P/\Delta P_r$ and enter on Data Sheet 2.	Enter 131.8 based on flow from table, enter 133 from recorded value, calculate $133 / \Delta P_r = 1.00$ to 1.01.	S / U

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
18. Verify oil levels	Cue: when asked provide – <b>(Oil levels are between the MAX and ¼ inch below the MAX mark)</b>	S / U
19. Call for vibration on the motor housings in the horizontal, vertical and axial planes and record measurements in Data Sheet 1.	<b>Provide the following:</b> <b>1H-</b> .055 <b>1V-</b> .051 <b>2H-</b> .062 <b>2V-</b> .034 <b>2A-</b> .033	S / U
<b>Simulator operator: Close V8881</b>		
*20. Close 8881.	Call Radside SO to close v8881. (Cue: Flow decreases and Radside SO calls – <b>v8881 is shut</b> )	S / U
*21. Open HIK-603B.	HIK-603B taken to full open position.	S / U
22. Verify closed FK-605B.	FK-605B is closed	S / U
*23. Open MOV-8887A	Handswitch for 8887A taken to open. (Cue: 8887A red light lit)	S / U
24. Call to check 1A RHR Pump not rotating.	Radside SO reports: <b>1A RHR Pump is not rotating</b>	S / U
*25. Stop 1B RHR Pump and record the time	1B RHR Pump green light lit, amps at 0.	S / U
*26. Call for suction pressure.	Radside SO called to record PI-601D. (Cue: <b>PI-601D reads 73 psig</b> for <b>both</b> steps 5.1.26 and 5.1.28.)	S / U
*27. Compare the vibration, $\Delta P/\Delta Pr$ and flow values to action ranges and determine if any actions need to be taken.	Comparisons are made and no value is out of spec.	S / U

### \_\_\_\_ STOP TIME

Terminate when all comparisons are complete.

\* **CRITICAL ELEMENTS:** Critical Elements are denoted with an Asterisk (\*) preceding the element number.

**GENERAL REFERENCES:**

1. FNP-1- STP-11.2 Rev. 41
2. K/As: 2.2.12 RO-3.0 SRO-3.4

**GENERAL TOOLS AND EQUIPMENT:**

None

**COMMENTS:**

## **CONDITIONS**

When I tell you to begin, you are to PERFORM FNP-1-STP-11.2, 1B RHR PUMP QUARTERLY INSERVICE TEST. The conditions under which this task is to be performed are:

- a. Unit 1 is at 100% power.
- b. Steps 3.1 through 3.11 have been completed.
- c. 1B RHR pump standstill oil levels are between the MAX and ¼ inch below the MAX mark.
- d. 1B RHR pump oil levels are visible.
- e. Directed by Shift Supervisor to perform STP-11.2 starting at step 5.1.

## JOB PERFORMANCE MEASURES

### CRO-NEW

TITLE: PERFORM A SHIELDING CALCULATION

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT X LOCT

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE  
DISCUSS

EVALUATION LOCATION: \_\_\_ SIMULATOR \_\_\_ CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 15 MIN SIMULATOR IC NUMBER: N/A

ALTERNATE PATH \_\_\_ TIME CRITICAL \_\_\_ PRA

### JPM DIRECTIONS:

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>	<b>Trainee:</b>
<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b>	<b>Satisfactory</b> <input type="checkbox"/> <b>Unsatisfactory</b> <input type="checkbox"/>
<b>Evaluator Comments (attach additional sheets if necessary)</b>	

JPM Approved: 2003 NRC EXAM

Supervisor - Operations Training or Operations

## CONDITIONS

When I tell you to begin, you are to PERFORM A SHIELDING CALCULATION. The conditions under which this task is to be performed are:

You have been directed to work in an area where the Gamma Radiation intensity is 10,000 Rad/Hr with NO shielding. You cannot work in the area unless the field is reduced to LESS THAN or EQUAL to 200 Rad/Hr. You have been directed to calculate the following two scenarios.

1. Calculate the minimum number of HALF-VALUE layers (HVLs) required to reduce the Gamma level of 10,000 Rad/Hr to LESS THAN to 200 Rad/Hr.
2. Calculate the minimum number of TENTH-VALUE layers (TVLs) required to reduce the Gamma level of 10,000 Rad/Hr to LESS THAN 100 Rad/Hr.

## EVALUATION CHECKLIST

ELEMENTS:

STANDARDS:

RESULTS:  
(CIRCLE)

\_\_\_\_ START TIME

Examiner should provide the following IF shielding equation is used. The total linear attenuation coefficient ( $\mu$ ) is  $0.772 \text{ cm}^{-1}$

- \*1. Calculate the number of HVLs 6 HVLs calculated. S / U

Examinee may use one of the following methods:

1.  $10,000/2 = 5000$
2.  $5000/2 = 2500$
3.  $2500/2 = 1250$
4.  $1250/2 = 625$
5.  $625/2 = 312.5$
6.  $312.5/2 = 156.25$

OR

$$I_{\text{shielded}} = I_{\text{unshielded}} (1/2)^{\text{\#HVL}} (1/10)^{\text{\#TVL}} \text{ where } \text{\#HVL} = \frac{\text{shield thickness (cm)}}{\text{HVL (cm)}}$$

$$\text{and } \text{\#TVL} = \frac{\text{shield thickness (cm)}}{\text{TVL (cm)}}$$

OR

Shielding equation  $I = I_0 e^{-\mu x}$  where  $I$  = exposure rate with the shield (Rad/ Hr)  
 $I_0$  = unshielded exposure rate (Rad/ Hr)  
 $X$  = shield thickness  
 $\mu$  = total linear attenuation coefficient ( $\text{cm}^{-1}$ )

CUE: IF shielding equation is used, the total linear attenuation coefficient ( $\mu$ ) is  $0.772 \text{ cm}^{-1}$

## EVALUATION CHECKLIST

**RESULTS:**  
**(CIRCLE)**

**ELEMENTS:**

**STANDARDS:**

\*2. Calculate the number of TVLs

**3 TVLs calculated.**

**S / U**

Examinee may use one of the following methods:

1.  $10,000/10 = 1000$
2.  $1000/10 = 100$
3.  $100/10 = 10$

OR

$$I_{\text{shielded}} = I_{\text{unshielded}} (1/2)^{\text{\#HVL}} (1/10)^{\text{\#TVL}} \text{ where } \text{\#HVL} = \frac{\text{shield thickness (cm)}}{\text{HVL (cm)}}$$

$$\text{and } \text{\#TVL} = \frac{\text{shield thickness (cm)}}{\text{TVL (cm)}}$$

OR

Shielding equation  $I = I_0 e^{-\mu x}$  where  $I$  = exposure rate with the shield (Rad/ Hr)

$I_0$  = unshielded exposure rate (Rad/ Hr)

$X$  = shield thickness

$\mu$  = total linear attenuation coefficient ( $\text{cm}^{-1}$ )

**CUE: IF shielding equation is used, the total linear attenuation coefficient ( $\mu$ ) is  $0.772 \text{ cm}^{-1}$**

### STOP TIME

Terminate when values calculated.

**CRITICAL ELEMENTS:** Critical Elements are denoted with an asterisk (\*) before the element number.

### GENERAL REFERENCES:

1. Basic Rad worker training
2. K/A: 2.4.41 RO-2.3 SRO-4.1

### GENERAL TOOLS AND EQUIPMENT:

None

### COMMENTS:

## **CONDITIONS**

When I tell you to begin, you are to PERFORM A SHIELDING CALCULATION. The conditions under which this task is to be performed are:

You have been directed to work in an area where the Gamma Radiation intensity is 10,000 Rad/Hr with NO shielding. You cannot work in the area unless the field is reduced to LESS THAN or EQUAL to 200 Rad/Hr. You have been directed to calculate the following two scenarios.

1. Calculate the minimum number of HALF-VALUE layers (HVLs) required to reduce the Gamma level of 10,000 Rad/Hr to LESS THAN to 200 Rad/Hr.
2. Calculate the minimum number of TENTH-VALUE layers (TVLs) required to reduce the Gamma level of 10,000 Rad/Hr to LESS THAN 100 Rad/Hr.



Facility: Farley Date of Examination: 5/19-27/2003  
 Exam Level (circle one): RO / SRO(I) / SRO(U) Operating Test No.: 1

## Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)

System / JPM Title	Type Code*	Safety Function
a. Shift AFW pump suction to Service Water CRO-239	DS	4S
b. Verify Phase B Containment Isolation and Containment Spray Initiation <b>CRO-406B new</b>	MASL	5
c. Two Train Verification of ECCS equipment CRO-406E NEW	NASL	2
d. Restore Instrument Air to Containment—CRO-328B	DASL	8
e. Perform the required actions for Cold Leg Recirculation CRO-333A	DSL	3
f. Align R-11/R-12 to normal in response to spurious SI SRO-343H	DS	7
g. Perform an emergency boration. CRO-65 New	N,S,A	1
h. Parallel the Main Turbine with the Grid CRO-177A	D,S,L	6

## In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)

i. Makeup to SFP from the RWST SO-130 New	R,N	8
j. Manual operation of S/G Atmospheric Relief SO-549A	D	4S
k. Bleed and Feed Generator for H2 Purity SO-251	D	6

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

Facility: Farley Date of Examination: 5/19-27/2003  
 Exam Level (circle one): RO / SRO(I) / SRO(U) Operating Test No.: 1

## Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)

System / JPM Title	Type Code*	Safety Function
a. Shift AFW pump suction to Service Water CRO-239	DS	4S
b. Verify Phase B Containment Isolation and Containment Spray Initiation <b>CRO-406B new</b>	MASL	5
c. Two Train Verification of ECCS equipment CRO-406E NEW	NASL	2
d. Restore Instrument Air to Containment—CRO-328B	DASL	8
e. Perform the required actions for Cold Leg Recirculation CRO-333A	DSL	3
f. Align R-11/R-12 to normal in response to spurious SI SRO-343H	DS	7
g. Perform an emergency boration. CRO-65 New	N,S,A	1
h.		

## In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)

il. Makeup to SFP from the RWST SO-130 New	R,N	8
j. Manual operation of S/G Atmospheric Relief SO-549A	D	4S
k. Bleed and Feed Generator for H2 Purity SO-251	D	6

\* 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

## JOB PERFORMANCE MEASURES

### SS-138 modified

TITLE: Classify An Emergency Event

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT X LOCT X

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE \_\_\_ DISCUSS

EVALUATION LOCATION: X SIMULATOR X CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 20 MIN SIMULATOR IC NUMBER: N/A

ALTERNATE PATH X TIME CRITICAL X PRA

**\*THIS JPM IS TIME CRITICAL\***

### JPM DIRECTIONS:

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>	<b>Trainee:</b>
<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b>	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
<b>Evaluator Comments (attach additional sheets if necessary)</b>	

JPM Approved: 2003 NRC EXAM  
Supervisor - Operations Training or Operations

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to PERFORM THE ACTIONS REQUIRED BY EIP-9.0. The conditions under which this task is to be performed are:

- a. An automatic reactor trip and safety injection (SI) has occurred (10 minutes ago) on Unit 1.
- b. Steam Generator 1A has been identified as RUPTURED.
- c. Steam Generator 1B has been identified as FAULTED
- d. R15A is offscale high. R15B had been reading greater than ten (10) times normal and is now trending down.
- e. 4160V buses F, H, K, G, J, and L are being supplied from the S/U transformers.
- f. The MSIVs are closed due to high steam flow with Lo-Lo Tavg.
- g. Transition to EEP-2 is in progress due to 1B SG pressure dropping in an uncontrolled manner.
- h. Containment parameters are normal.

## EVALUATION CHECKLIST

ELEMENTS:

STANDARDS:

RESULTS:  
(CIRCLE)

\_\_\_\_ START TIME

**NOTE: THE TIME IT TAKES TO CLASSIFY THE EVENT IS TIME CRITICAL AND SHOULD BE COMPLETED IN 15 MINUTES.**

\_\_\_\_ CRITICAL ELEMENT START TIME

\*1. Classify the event

Event classified as an Alert per  
EIP-9.0.

S / U

\_\_\_\_ CRITICAL ELEMENT STOP

## EVALUATION CHECKLIST

**ELEMENTS:**

**STANDARDS:**

**RESULTS:  
(CIRCLE)**

**NOTE: ACCURATE COMPLETION OF CERTAIN STEPS EIP-9.0, ALERT NOTIFICATION FORM, ARE ESSENTIAL TO ENSURE ADEQUATE NOTIFICATION OF STATE AND LOCAL AGENCIES. THESE STEPS ARE SHOWN AS THE STANDARDS FOR ELEMENT NUMBER 3.**

**WHEN THE CANDIDATE HAS SHOWN/EXPLAINED HOW THEY WOULD OBTAIN MET TOWER INFORMATION THEN CUE: WIND SPEED IS 1 MPH, WIND DIRECTION IS FROM 85 DEGREES AND DELTA T IS 0.5 DEGREES F.**

*2. Complete EIP-9.0, Alert Notification Form	Identifies A2.1 or 2.2 as criteria for Alert	S / U
	Completes declaration time date	S / U
	Completes met tower data	S / U
	Approves the declaration form	S / U

\_\_\_\_ **STOP TIME**

Terminate JPM when Form is signed.
------------------------------------

**CRITICAL ELEMENTS:** Critical Elements are denoted with an Asterisk (\*) before the element number.

### **GENERAL REFERENCES:**

1. FNP-0-EIP-8.1
2. FNP-0-EIP-9.0
3. KAs: 2.4.38 RO-2.2 SRO-4.4

### **GENERAL TOOLS AND EQUIPMENT:**

None

### **COMMENTS:**

## **CONDITIONS**

When I tell you to begin, you are to PERFORM THE ACTIONS REQUIRED BY EIP-9.0. The conditions under which this task is to be performed are:

- a. An automatic reactor trip and safety injection (SI) has occurred (10 minutes ago) on Unit 1.
- b. Steam Generator 1A has been identified as RUPTURED.
- c. Steam Generator 1B has been identified as FAULTED
- d. R15A is offscale high. R15B had been reading greater than ten (10) times normal and is now trending down.
- e. 4160V buses F, H, K, G, J, and L are being supplied from the S/U transformers.
- f. The MSIVs are closed due to high steam flow with Lo-Lo Tavg.
- g. Transition to EEP-2 is in progress due to 1B SG pressure dropping in an uncontrolled manner.
- h. Containment parameters are normal.

## JOB PERFORMANCE MEASURES

### CRO-239

TITLE: Shift Auxiliary Feed Pump Suction

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT X LOCT X

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE \_\_\_ DISCUSS

EVALUATION LOCATION: X SIMULATOR X CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 8 MIN SIMULATOR IC NUMBER: JPM IC-25

ALTERNATE PATH \_\_\_ TIME CRITICAL \_\_\_ PRA

### JPM DIRECTIONS:

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>	<b>Trainee:</b>
<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b> Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>	
<b>Evaluator Comments (attach additional sheets if necessary)</b>	

JPM Approved: JOE POWELL  
Supervisor - Operations Training or Operations

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to SHIFT AUXILIARY FEED PUMP SUCTION. The conditions under which this task is to be performed are:

- a. Just entered ESP-1.2, Post LOCA Cooldown and Depressurization.
- b. You are directed by a foldout page to shift AFW pump suctions per SOP-22.0 due to CST low level alarm.

<b>NOTE: THIS JPM MAY BE PERFORMED ON EITHER UNIT.</b>
--

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
1. Obtain the keys from SSS for AFW-MOV-3209A and AFW-MOV-3209B.	Keys obtained. <u>NOTE</u> : This standard may be satisfied by explaining how to check out keys from the SSS. (CUE: The keys have been obtained.)	S / U
2. Notify Shift Chemist that SW will be added to the steam generators.	Shift Chemist is called and informed that SW will be supplied to the steam generators. (CUE: The Shift Chemist acknowledges.)	S / U
3. Verify the service water system is in operation IAW FNP-1-SOP-24.0, SERVICE WATER SYSTEM.	Service water system checked. (CUE: Bus power is available, the pump breakers are closed, and header pressure is 95 psig.)	S / U
*4. Open AFW-MOV-3209A.	Key placed in switch for MOV-3209A and taken to open. (CUE: MOV-3209A is open.)	S / U



## **EVALUATION CHECKLIST**

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
*5. Open AFW-MOV-3209B.	Key placed in switch for MOV-3209B and taken to open. (CUE: MOV-3209B is open.)	S / U
*6. Open service water to MDAFW pump 'A' AFW-MOV-3210A.	Handswitch for MOV-3210A taken to open. (CUE: MOV-3210A is open.)	S / U
*7. Open service water to MDAFW pump 'B' AFW-MOV-3210B.	Handswitch for MOV-3210B taken to open. (CUE: MOV-3210B is open.)	S / U
*8. Open service water to TDAFW pump AFW-MOV-3216.	Handswitch for MOV-3216 taken to open. (CUE: MOV-3216 is open.)	S / U

\_\_\_\_ STOP TIME

Terminate when all valves are open.
-------------------------------------

**CRITICAL ELEMENTS:** Critical Elements are denoted with an asterisk (\*) preceding the element number.

### **GENERAL REFERENCES:**

1. FNP-1-SOP-22.0, Version 49.0
2. FNP-2-SOP-22.0, Version 45.0
3. K/As: 061K1.07      RO-3.6      SRO-3.8

### **GENERAL TOOLS AND EQUIPMENT:**

1. Keys

### **COMMENTS:**

## **CONDITIONS**

When I tell you to begin, you are to SHIFT AUXILIARY FEED PUMP SUCTION. The conditions under which this task is to be performed are:

- a. Just entered ESP-1.2, Post LOCA Cooldown and Depressurization.
- b. You are directed by a foldout page to shift AFW pump suctions per SOP-22.0 due to a CST low level alarm.

## JOB PERFORMANCE MEASURES

## CRO-406B NEW

**TITLE: Verify Phase B Containment Isolation And Containment Spray Initiation**

PROGRAM APPLICABLE: SOT      SOCT      OLT X      LOCT X

ACCEPTABLE EVALUATION METHOD:   X   PERFORM   X   SIMULATE        DISCUSS

EVALUATION LOCATION:  X  SIMULATOR  X  CONTROL ROOM   PLANT

PROJECTED TIME: 10 MIN      SIMULATOR IC NUMBER: IC-

ALTERNATE PATH X TIME CRITICAL        PRA X

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

[illegible]

**JPM Approved:** JOE POWELL  
Supervisor - Operations Training or Operations

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

The conditions under which this task is to be performed are:

- a. A safety injection has occurred.
- b. All steps of EEP-0 through step 14 have been completed.
- c. You are directed to perform step 15 of EEP-0.0.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<u>      </u> START TIME		
1. Check containment pressure has remained less than 27 psig	CTMT pressure PR 950 is read (Cue: PR 950 reads greater than 27 psig).	S / U
2. Verify Phase B CTMT ISO- ACTUATED	Checks MLB-3 1-1 AND 6-1 lit. (Cue: MLB-3 1-1 is NOT lit, 6-1 is lit).	S / U
3. Stop all RCPs	All RCPs checked Stopped. (Cue: All RCPs have a green light lit).	S / U
*4. Check all MLB-3 indicating lights.	Checks MLB-3 lights. (CUE: 6-1, 6-2 are lit, 7-1, 7-2, 7-3 are lit 8-1, 8-2 are lit 9-1, 9-2, 9-3, 9-4 are lit)	S / U

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
5. Actuate phase B hand switches.	Takes one of the following combinations of hand switches to actuate: both in one set (left set or right set), both outside, or both inside. (CUE: No change on MLB-3.)	S / U
*6. Start the 'A' CS pump.	'A' CS pump switch taken to start. (CUE: Red light lit. MLB-3 2-1 and 2-2 are lit.)	S / U
*7. Align 'A' train CTMT Spray.	Q1E13MOV8820A handswitch taken to open. FI-958A is checked. (CUE: MOV-8820A red light lit/green light out. Spray flow on FI-958A is 2550 gpm. MLB3 2-3 is lit)	S / U
*8. Close CCW to RCP MOV-3052, 3045 AND 3182.	Handswitch for MOV-3052, CCW to RCP CLRS, MOV-3045, CCW FROM RCP THRM BARR and MOV-3182 CCW FROM RCP OIL CLRS taken to close. (CUE: MOV-3052,3045 and 3182 red light out/green light lit. MLB-3 3-1, 3-2 and 3-3 is lit.)	S / U
*9. Close HV-3611, IA TO CTMT (BOP)	Handswitch for HV-3611, IA TO CTMT, taken to close (Cue: HV-3611 green light lit. MLB-3 1-2 lit)	S / U
10. Verify proper operation of PRF IAW SOP-60.	Examinee may place PRF ON service prior to this step to get all MLB-3 lights lit. However, in this step, SOP-60 will have candidate shutdown one train of PRF. Only one train should be running IAW SOP-60	S / U

## **EVALUATION CHECKLIST**

**RESULTS:  
(CIRCLE)**

**ELEMENTS:**

**STANDARDS:**

11. Notify control room of Phase B containment isolation status. Control room informed.

\_\_\_\_ **STOP TIME**

Terminate JPM when PRF status has been determined.
--

**CRITICAL ELEMENTS:** Critical Elements are denoted by an asterisk (\*) before the element number.

**GENERAL REFERENCES:**

1. FNP-1-EEP-0, Version 28.0
2. PRA/IPE Human Reliability Analysis Notebook operator actions 3.6.10 and 3.6.11
3. K/As: 013A4.01 RO-4.5 SRO-4.8  
027A4.01 RO-3.3 SRO-3.2

**GENERAL TOOLS AND EQUIPMENT:**

None

## **CONDITIONS**

The conditions under which this task is to be performed are:

- a. A safety injection has occurred.
- b. All steps of EEP-0 through step 14 have been completed.
- c. You are directed to perform step 15 of EEP-0.0.

**JOB PERFORMANCE MEASURES**  
**FORMAL OJT REQUIRED PRIOR TO EVALUATION**

**CRO-406E**

**TITLE:** Two Train Verification Of ECCS Equipment

**PROGRAM APPLICABLE:** SOT \_\_\_ SOCT \_\_\_ OLT X LOCT X

**ACCEPTABLE EVALUATION METHOD:** X PERFORM X SIMULATE \_\_\_ DISCUSS

**EVALUATION LOCATION:** X SIMULATOR X CONTROL ROOM \_\_\_ PLANT

**PROJECTED TIME:** 15 MIN **SIMULATOR IC NUMBER:** JPM \*

**ALTERNATE PATH** X **TIME CRITICAL** \_\_\_ **PRA**

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>	<b>Trainee:</b>
<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b> <b>Satisfactory</b> <input type="checkbox"/> <b>Unsatisfactory</b> <input type="checkbox"/>	
<b>Evaluator Comments</b> (attach additional sheets if necessary)	

**\* RED TAG UNIT 2 SERVICE WATER TO 1B DIESEL GENERATOR (MOV's Q1P16V522/530)**

**JPM Approved: 2003 NRC exam**  
 Supervisor - Operations Training or Operations



## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to perform TWO TRAIN VERIFICATION OF ECCS EQUIPMENT. The conditions under which this task is to be performed are:

- a. A safety injection has occurred due to a LOCA in containment.
- b. Unit 2 service water to the 1B diesel generator is tagged closed.
- c. You are the extra operator and the shift supervisor has directed you to verify two trains of ECCS equipment aligned per EEP-0, Step 21.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
1. Check breaker DF01 closed.	Check DF01 closed. (CUE: DF01 red light lit. White power available lights lit for 'F' 4160V bus.)	S / U
2. Verify breaker DF02 closed.	Check DF02 closed. (CUE: DF02 red light lit. White power available lights lit for 'K' 4160V bus.)	S / U
3. Check breaker DG15 closed.	Check DG15 closed. (CUE: DG15 red light lit. White power available lights lit for 'G' 4160V bus.)	S / U

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
4. Verify breaker DG02 closed.	Examinee may take breaker DG02 to reset then to close. (CUE: DG02 green and amber lights lit. White power available lights not lit for 'L' 4160V bus. If requested the following EPB annunciators are in alarm: VE1, VE4, and VF1) <u>With DG02 open, there is no SW flow to the 1B DG even with the lights lit for 1D/E SW Pumps.</u> <u>There is no pressure on B Train.</u>	S / U

**NOTE: IF EXAMINEE REQUESTS SHIFT SUPERVISOR PERMISSION TO RESET SI PROVIDE THE FOLLOWING CUE.**

**CUE: THE SHIFT SUPERVISOR GIVES PERMISSION TO RESET SI.**

*5. Verify SI is RESET.	Train A and B SI reset pushbutton depressed. (CUE: MLB-1 1-1 and MLB1 11-1 are not lit.)	S / U
*6. Place the affected diesel generator MODE SELECTOR SWITCH to MODE 2.	1B diesel generator MODE SELECTOR SWITCH placed in MODE 2 position. (CUE: The MSS is in MODE 2.)	S / U
*7. Depress the affected diesel generator DIESEL EMERG START RESET pushbutton.	1B diesel generator EMERG START RESET pushbutton depressed. (CUE: The DG EMERG START light goes out.)	S / U
*8. Depress affected diesel generator STOP pushbutton.	1B diesel generator STOP pushbutton depressed. (CUE: DIESEL STOP light lit.)	S / U
*9. Place affected diesel generator MODE SELECTOR SWITCH to MODE 3.	1B diesel generator MODE SELECTOR SWITCH placed to MODE 3. (CUE: The MSS is in MODE 3. EPB annunciator VB1 alarms.)	S / U

## **EVALUATION CHECKLIST**

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
10. Depress the affected diesel generator DIESEL EMERG START RESET pushbutton.	1B diesel generator DIESEL EMERG START RESET button is depressed. (CUE: DG EMERG START light remains off.)	S / U
11. Verify two trains of battery chargers - ENERGIZED	AMPS checked > 0 ( Cue: Amps are greater than 0)	S / U
12. Check all MLB-1 lights lit	Checks MLB-1 lights. (Cue: All lights lit)	S / U
13. Verify charging pump suction and discharge valves OPEN	Checks MOV 8132A,B and 8133A,B and MOV 8130A,B and 8131A,B open. (Cue: all valves checked and all red lights lit.)	S / U
*14. Verify all PA Ctmt air mixing system fans started	Checks Post accident mixing fans 1A,1B,1C,1D and RX CAV H2 DILUTION FANS 1A AND 1B running ( Cue: all fans running) Some fans may have not started yet due to simulator timing and this would make this a critical step	S / U

### **STOP TIME**

Terminate when all elements of the task have been completed.

**CRITICAL ELEMENTS:** Critical Elements are denoted by an asterisk (\*) before the element number.

### **GENERAL REFERENCES:**

1. FNP-1-EEP-0, Version 28.0
2. K/As: 013A4.03 RO-4.3 SRO-4.4

### **GENERAL TOOLS AND EQUIPMENT:**

None

### **COMMENTS:**

## **CONDITIONS**

When I tell you to begin, you are to perform TWO TRAIN VERIFICATION OF ECCS EQUIPMENT. The conditions under which this task is to be performed are:

- a. A safety injection has occurred due to a LOCA in containment.
- b. Unit 2 service water to the 1B diesel generator is tagged closed.
- c. You are the extra operator and the shift supervisor has directed you to verify two trains of ECCS equipment aligned per EEP-0, Step 21.

## JOB PERFORMANCE MEASURES

### CRO-328B

TITLE: Restore Instrument Air To Containment

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT X LOCT X

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE \_\_\_ DISCUSS

EVALUATION LOCATION: X SIMULATOR X CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 10 MIN SIMULATOR IC NUMBER: JPM IC-30 \*

\* Simulator operator needs to enter prior to running: DISPLAY\KCASSEQ\FIND\SET\2\POKE

(IF APPLICABLE)

ALTERNATE PATH X TIME CRITICAL \_\_\_ PRA

### JPM DIRECTIONS:

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>	<b>Trainee:</b>
<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b>	<b>Satisfactory</b> <input type="checkbox"/> <b>Unsatisfactory</b> <input type="checkbox"/>
<b>Evaluator Comments (attach additional sheets if necessary)</b>	

JPM Approval: 2003 nrc exam  
Supervisor-Operations Training or Operations

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to RESTORE INSTRUMENT AIR TO CONTAINMENT. The conditions under which this task is to be performed are:

- a. A loss of site power and a small break LOCA have occurred on Unit 1.
- b. Both turbine building buses are de-energized.
- c. You are directed by the Unit 1 Shift Supervisor to restore instrument air starting at Step 5.11 of ESP-1.2 to align 1C air compressor for service.
- d. Sufficient diesel generator capacity has been verified for the start of one air compressor.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
*1. Verify the 1C air compressor handswitch in RUN/START.	Observes 1C air compressor indication. (CUE: Green indicating light is lit.) Examinee places 1C air compressor handswitch in RUN/START. (CUE: 1C air compressor handswitch in RUN/START.)	S / U
*2. Verify 1C air compressor started.	Examinee verifies 1C air compressor started. (CUE: 1C air compressor indication did <u>NOT</u> change (Green light still lit).)	S / U
<b>NOTE: IF EXAMINEE DIRECTS THE SO TO CHECK 1C AIR COMPRESSOR THEN CUE: S.O. REPORTS 1C AIR COMPRESSOR MOTOR VERY WARM TO THE TOUCH.</b>		
3. Verify 1C air compressor handswitch in OFF.	Examinee verifies 1C air compressor handswitch placed in OFF position. (CUE: 1C air compressor handswitch in OFF.)	S / U

## EVALUATION CHECKLIST

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
4. Verify SI is reset.	Examinee checks MLB1 1-1 and 11-1. (CUE: MLB1 1-1 and 11-1 are not lit.)	S / U
<b>NOTE: IF DONE ON ACTIVE SIMULATOR THEN ENTER: PANELS\OTHERS\BIF SEQUENCER\ESS STOP RESET PB\TRUE AND ACTIVATED TO RESET SEQUENCER.</b>		
*5. Direct resetting B1F sequencer.	Direct sequencer to be reset. (CUE: SEQ B1F or B2F SIAS annunciator (WE5) goes from a solid condition to a flashing condition.)	S / U
*6. Place Breaker DF13 Sync Switch in manual.	SYNC SWITCH in MANUAL POSITION. (CUE: Red light under the 'A' train synchroscopes is lit.)	S / U
*7. Close Breaker DF13.	Breaker DF13 handswitch taken to closed. (CUE: Breaker position indicator red light lit. 1H 4160 bus AC potential lights illuminated.)	S / U
*8. Close breaker DH01.	Breaker DH01 handswitch taken to close. (CUE: Breaker position indicator red light lit.)	S / U
9. Verify breaker EG02-1 closed.	Breaker EG02-1 position indicator check. (CUE: Breaker position indicator red light lit.)	S / U
<b>NOTE: IF EXAMINEE CHECKS STATUS OF 1D 4160V BUS, PROVIDE THE FOLLOWING CUE: NO VOLTAGE INDICATED AND POTENTIAL LIGHTS OFF FOR 1D 4160V BUS.</b>		
*10. Verify start of 1A air compressor.	1A air compressor observed running or handswitch taken to start. (CUE: Breaker position indicator red light lit.)	S / U
11. Check IA pressure > 85 psig.	INST AIR PI-4004B indication checked. (CUE: PI-4004B indicates 90 psig.)	S / U

## **EVALUATION CHECKLIST**

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
*12. Open IA to PENE RM valve HV-3825.	Handswitch for HV-3825 taken to open. (CUE: HV-3825 is open.)	S / U
*13. Open IA to PENE RM valve HV-3885.	Handswitch for HV-3885 taken to open. (CUE: HV-3885 is open.)	S / U
*14. Open instrument air supply to CTMT HV-3611.	Handswitch for HV-3611 taken to open. (CUE: HV-3611 is open.)	S / U

### **STOP TIME**

Terminate when HV-3611 is opened.
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**CRITICAL ELEMENTS:** Critical elements are denoted by an asterisk (\*) in front of the element number.

### **GENERAL REFERENCES:**

1. FNP-1-ESP-1.2, Version 19.0
2. K/A: 065AA-1.03 RO-2.9 SRO-3.1

### **GENERAL TOOLS AND EQUIPMENT:**

None

### **COMMENTS:**



## CONDITIONS

When I tell you to begin, you are to RESTORE INSTRUMENT AIR TO CONTAINMENT. The conditions under which this task is to be performed are:

- a. A loss of site power and a small break LOCA have occurred on Unit 1.
- b. Both turbine building buses are de-energized.
- c. You are directed by the Unit 1 Shift Supervisor to restore instrument air starting at Step 6.11 of ESP-1.2 to align 1C air compressor for service.
- d. Sufficient diesel generator capacity has been verified for the start of one air compressor.

**JOB PERFORMANCE MEASURES**  
**FORMAL OJT REQUIRED PRIOR TO EVALUATION**

**CRO-333A**

TITLE: Perform The Required Actions For Cold Leg Recirculation

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT X LOCT X

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE \_\_\_ DISCUSS

EVALUATION LOCATION: X SIMULATOR X CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 11 MIN SIMULATOR IC NUMBER: JPM IC-35

ALTERNATE PATH \_\_\_ TIME CRITICAL \_\_\_ PRA \_\_\_

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>	<b>Trainee:</b>
<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b> Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>	
<b>Evaluator Comments (attach additional sheets if necessary)</b>	

**JPM Approved: 2003 nrc exam**  
**Supervisor - Operations Training or Operations**

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to PERFORM THE REQUIRED ACTIONS FOR COLD LEG RECIRCULATION. The conditions under which this task is to be performed are:

- a. SI system in operation following a LOCA.
- b. ESP-1.3 has been entered and all steps through Step 6 have been completed.
- c. "B" Charging pump is aligned to A Train.
- d. Containment pressure is 18 psig.
- e. Recirc. Disconnects are Closed.
- f. Directed by Shift Supervisor to transfer to cold leg recirculation starting at Step 7 of ESP-1.3.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
*1. Check containment sump level greater than 3.0 ft.	LI-3594A or LR-3594B checked. (CUE: CTMT Sump Level 3.1 ft.)	S / U
*2. Stop both RHR pumps	A and B RHR pump handswitches taken to stop. (CUE: Amps indicate '0', Both pumps secured.)	S / U
*3. Align A Train RHR for cold leg recirculation	MOV-8809A handswitch taken to closed. (CUE: Valve position indicator green light lit.) MOV-8811A and MOV-8812A, handswitches taken to open. (CUE: Valve position indicators, red lights lit.) MOV-8887A handswitch taken to closed. (CUE: Valve position indicator green light lit.)	S / U S / U S / U

## EVALUATION CHECKLIST

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
*4. Start "A" RHR pump	Handswitch for "A" RHR PMP taken to start. (CUE: Pump amp meter indicates 40 amps, pump breaker red light lit.)	S / U
5. Verify A Train LHSI flow is stable	FI-605A checked. (CUE: FI-605A stable at 2600 gpm.)	S / U
*6. Align B Train RHR for cold leg recirculation	Handswitches for RWST TO "B" RHR PMP MOV-8809B taken to closed. (CUE: Valve position indicator, green light lit.) Handswitches for CTMT SUMP TO "B" RHR PMP MOV-8811B and MOV-8812B, taken to open. (CUE: Valve position indicators, red lights lit.) Handswitch for RHR TO RCS HOT LEGS XCON MOV-8887B taken to closed. (CUE: Valve position indicator, green light lit.)	S / U S / U S / U
*7. Start "B" RHR pump	Handswitch for "B" RHR PMP taken to start. (CUE: Pump amp meter indicates 40 amps, pump breaker red light lit.)	S / U
8. Verify B train LHSI flow is stable	FI-605B checked. (CUE: FI-605B stable at 2600 gpm.)	S / U
9. B Charging Pump suction Hdr Iso's Valves Checked OPEN	Position indication for CHG PMP SUCT HDR ISO VLV MOV-8130A and B checked. (CUE: Valve position indicators, red lights lit.)	S / U
*10. CLOSE- B Chg Pump Suct Hdr Iso from B Train	Handswitches for CHG PMP SUCT HDR ISO VLV 8131A and B taken to close. (CUE: Valve position indicators, green lights lit.)	S / U
*11. OPEN- RHR Supply to A Train Chg Pump suction	MOV-8706A handswitch taken to open. (CUE: Valve position indicator red light lit.)	S / U

## EVALUATION CHECKLIST

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
12. Verify VCT level is > 5%	LI-112 and LI-115 are checked. (CUE: LI-115/112 indicates 30% level.)	S / U

**NOTE: IF EXAMINEE OBSERVES CHARGING PUMP AMPS - CUE: A CHARGING PUMP AMPS 150 AND STABLE.**

*13. CLOSE – A Train RWST to Chg pump suction valve	Handswitch for RWST TO CHG PMP HDR LCV-115B taken to close. (CUE: Valve position indicator green light lit.)	S / U
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**NOTE: EXAMINEE MAY NOT RECHECK ELEMENTS 14 AND 15 BECAUSE OF RECENT COMPLETION OF ELEMENTS 9 AND 10.**

14. “B” Charging Pump Suction Hdr Iso valves from A Train Checked OPEN	Position indication for CHG PMP SUCT HDR ISO VLV MOV-8130A and B checked. (CUE: Valve position indicators, red lights lit.)	S / U
15. “B” Charging Pump Suction Hdr Iso valves from B Train Checked CLOSED	Position indication for CHG PMP SUCT HDR ISO VLV 8131A and B checked. (CUE: Valve position indicators, green lights lit.)	S / U
*16. OPEN- B RHR Supply to “B” Train Charging Pump Suction	Handswitch for RHR HX B TO CHG PMP SUCT MOV-8706B taken to open. (CUE: Valve position indicator, red light lit.)	S / U
17. Verify VCT level is > 5%	LI-112 and LI-115 are checked. (CUE: LI-115/112 indicates 30% level.)	S / U

**NOTE: IF EXAMINEE OBSERVES CHARGING PUMPS AMPS – (CUE: ‘C’ CHARGING PUMP AMPS 150 AND STABLE.)**

*18. Close B Train RWST to charging header valves	Handswitch for RWST TO CHG PMP HDR LCV-115D taken to close. (CUE: Valve position indicator, green light lit.)	S / U
19. Check one charging pump in each train running	Charging pump indications checked. (CUE: A and C pumps red lights are lit, amps 150.)	S / U

## EVALUATION CHECKLIST

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
*20. Open charging pump recirc to RCS cold legs	Handswitch for CHG PMP RECIRC TO COLD LEG MOV-8885 handswitch taken to open. (CUE: Valve position indicator, red light lit. FI-940 = 600 gpm, FI-943 = 600 gpm.)	S / U
21. Check OPEN B charging pump to A train discharge valves	Position indication for CHG PMP DISCH HDR MOV-8132A and B checked. (CUE: Valve position indicators, red lights lit.)	S / U
*22. CLOSE B Charging Pump Discharge Hdr to B Train	Handswitch for CHG PMP DISCH HDR MOV-8133A and B taken to closed. (CUE: Valve position indicators, green lights lit.)	S / U
23. Verify SI flow is stable	Flow is checked on FI-943, FI-940, HHSI Flow A (B) train recirc flow and FI-605A/605B RHR HDR flow. (CUE: SI flow is stable at 600 gpm on FI-943 and FI-940. Flow is stable at 2200 gpm on FI-605A and B.)	S / U

### STOP TIME

Terminate when SI flow is determined to be stable.
--

\* **CRITICAL ELEMENTS:** Critical Elements are denoted with an Asterisk (\*) preceding the element number.

### GENERAL REFERENCES:

1. FNP-1- [2] - ESP-1.3 Rev. 15
2. K/As: 011 EA1.11 RO-4.2 SRO-4.2

### GENERAL TOOLS AND EQUIPMENT:

None

### COMMENTS:

## **CONDITIONS**

When I tell you to begin, you are to PERFORM THE REQUIRED ACTIONS FOR COLD LEG RECIRCULATION. The conditions under which this task is to be performed are:

- a. SI system in operation following a LOCA.
- b. ESP-1.3 has been entered and all steps through Step 6 have been completed.
- c. "B" Charging pump is aligned to A Train.
- d. Containment pressure is 18 psig.
- e. Recirc. Disconnects are Closed.
- f. Directed by Shift Supervisor to transfer to cold leg recirculation starting at Step 7 of ESP-1.3.

## JOB PERFORMANCE MEASURES

### CRO-343H

TITLE: Align R-11 And R-12 To Normal As Required In Response To A Spurious Safety Injection

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT X LOCT X

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE \_\_\_ DISCUSS

EVALUATION LOCATION: X SIMULATOR X CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 5 MIN SIMULATOR IC NUMBER: JPM IC-52

ALTERNATE PATH \_\_\_ TIME CRITICAL \_\_\_ PRA

### JPM DIRECTIONS:

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Evaluator/Date:</b>		<b>Trainee:</b>	
<b>Overall JPM Performance:</b>		<b>Satisfactory</b> <input type="checkbox"/>	<b>Unsatisfactory</b> <input type="checkbox"/>
<b>Evaluator Comments</b> (attach additional sheets if necessary)			

**JPM Approved: 2003 NRC EXAM**

**Supervisor - Operations Training or Operations**



## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to ALIGN R-11 AND R-12 TO NORMAL AS REQUIRED IN RESPONSE TO A SPURIOUS SAFETY INJECTION. The conditions under which this task is to be performed are:

- a. The plant has experienced a spurious safety injection.
- b. ESP-1.1 is in progress and has been completed through Step 33.
- c. You are directed to perform Step 34 of ESP-1.1.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<b>START TIME</b>		
*1. Open the CTMT to R-11/R-12 isolation valves Q1E14MOV3660 & Q1E14HV3658 and R-11/12 to CTMT isolation Q1E14HV3657.	Handswitches for HV-3658 & HV-3657 AND MOV-3660 taken to open. (CUE: HV-3657 & 3658 and MOV-3660 are open.)	S / U
*2. Verify R-11 pump is started.	Handswitch taken to start. (CUE: Pump on light lit, Low Flow light off.)	S / U

## **STOP TIME**

Terminate when R-11 pump is on.
---------------------------------

**CRITICAL ELEMENTS:** Critical Elements are denoted with an asterisk (\*) before the element number.

## **GENERAL REFERENCES:**

1. FNP-1-ESP-1.1, Version 17.0
2. K/As: E02EK3.3      RO-3.9      SRO-3.9

**GENERAL TOOLS AND EQUIPMENT:**

None

**COMMENTS:**

## **CONDITIONS**

When I tell you to begin, you are to ALIGN R-11 AND R-12 TO NORMAL AS REQUIRED IN RESPONSE TO A SPURIOUS SAFETY INJECTION. The conditions under which this task is to be performed are:

- a. The Plant has experienced a spurious safety injection.
- b. ESP-1.1 is in progress and has been completed through Step 33.
- c. You are directed to perform Step 34 of ESP-1.1.

## JOB PERFORMANCE MEASURES

**CRO-065 NEW**

**TITLE:** Perform An Emergency Boration

PROGRAM APPLICABLE: SOT \_\_\_\_ SOCT \_\_\_\_ OLT X LOCT X

ACCEPTABLE EVALUATION METHOD:  X  PERFORM  X  SIMULATE DISCUSS

EVALUATION LOCATION:  X  SIMULATOR  X  CONTROL ROOM   PLANT

PROJECTED TIME: 5 MIN      SIMULATOR IC NUMBER: IC-15 EXM

**Place HOLD TAG on 1A BAT PUMP HS**

ALTERNATE PATH	TIME CRITICAL	PRA
1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000		

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

[illegible]

**JPM Approved: 2003 NRC EXAM**

**Supervisor - Operations Training or Operations**

## JPM CORRECTION FORM

LESSON TITLE: Perform An Emergency Boration

LESSON NO.: JPM CRO-065 NEW[illegible]

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to PERFORM AN EMERGENCY BORATION. The conditions under which this task is to be performed are:

- a. The Chemical and Volume Control System is in operation.
- b. 1A BAT pump is OOS for maintenance; 1B BAT pump is on service.
- c. The Plant is in Mode 3 at normal operating temperature.
- d. An error in the shutdown margin calculation has been discovered and it has been determined that actual shutdown margin is less than the requirement of Technical Specifications.
- e. The Shift Supervisor directs you to perform the actions of AOP-27.0.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
*1. Start 1B BAT pump.	1B BAT Pump handswitch taken to start. (CUE: Breaker indication red light lit.)	S / U
*2. Align normal emergency boration flowpath.	Handswitch for MOV-8104 taken to open. (CUE: Valve position indicator goes from green to red. FI-110A indicates 0 gpm.)	S / U
3. Verify at least one charging pump started.	Charging pump indications checked. (CUE: Pump breaker indicator red light lit; pump amps are 85, FI-122 flow is 108 gpm.)	S / U
4. Establish adequate letdown.	45 gpm LTDN orifice isolation valve 8149A and either 8149B or C verified open. (CUE: Valve position indicator red lights lit for 8149A and either 8149B or C letdown flow gpm 120.)	S / U

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
5. Establish adequate charging flow.	Verify charging flow greater than 40 gpm by checking FI-122. (CUE: Charging flow on FI-122 indicates 108 gpm.)	S / U
6. Verify emergency boration flow adequate.	Checks emergency boration flow greater than 30 gpm. (CUE: FI-110 indicates 0 gpm.)	S / U
<i>Alternate path starts here</i>		
7. Verify boration flow path using ATTACHMENT 1	ATTACHMENT 1 opened.	S / U
8. Verify running charging pump header valves open. (checks 1A charging pump running)	Verifies CHG PUMP SUCTION HDR ISO Q1E21MOV-8130A,8130B,8131A,8131B open. (CUE: For each item checked, valve is open, red light is lit.)	S / U
*9. Check emergency boration > 30 gpm.	Checks emergency boration flow greater than 30 gpm. (CUE: FI-110 indicates 0 gpm.)	S / U
<i>ATTACHMENT 1 alternate path starts here</i>		
*10. Align charging pump suction to RWST	Open RWST TO CHG PUMP Q1E21LCV115B and Q1E21LCV115D. Close VCT OUTLET ISO Q1E21LCV115C and Q1E21LCV115E (CUE: LCV 115B/D breaker indicator red light lit and LCV 115C/E breaker indicator Green light lit)	S / U
11. Verify CHG PUMPS TO REGENERATIVE HX MOV8107/8108 are open.	MOV 8107/8108 checked. (CUE: MOVs are open, Red light is lit.)	S / U
12. Verify only one charging line valve open, either MOV 8146 or 8147.	MOV 8146 and 8147 checked. (CUE: red light is lit on only one of the valves.)	S / U
13. Verify charging flow > 92 gpm.	Charging flow checked. (Cue: charging flow is 108 gpm.)	S / U

## **EVALUATION CHECKLIST**

### **ELEMENTS:**

### **STANDARDS:**

### **RESULTS: (CIRCLE)**

14. Notify the shift supervisor of boration status.

SS notified.

S / U

### **STOP TIME**

Terminate when SS notified.

**CRITICAL ELEMENTS:** Critical Elements are denoted by an Asterisk (\*) before the element number.

### **GENERAL REFERENCES**

1. FNP-1-AOP-27.0, Version 8.0
2. Technical Specifications
3. K/As: 024 AA1.17 RO-3.9 SRO-3.9  
024 AA2.01 RO-3.8 SRO-4.1

### **GENERAL TOOLS AND EQUIPMENT**

None

### **COMMENTS**



## **CONDITIONS**

When I tell you to begin, you are to PERFORM AN EMERGENCY BORATION. The conditions under which this task is to be performed are:

- a. The Chemical and Volume Control System is in operation.
- b. 1A BAT pump is OOS for maintenance; 1B BAT pump is on service.
- c. The Plant is in Mode 3 at normal operating temperature.
- d. An error in the shutdown margin calculation has been discovered and it has been determined that actual shutdown margin is less than the requirement of Technical Specifications.
- e. The Shift Supervisor directs you to perform the actions of AOP-27.0.

**JOB PERFORMANCE MEASURES**  
**FORMAL OJT REQUIRED PRIOR TO EVALUATION**

**CRO-177A**

TITLE: Parallel the Main Turbine Generator with the Grid.

PROGRAM APPLICABLE: SOT \_\_\_ SOCT \_\_\_ OLT X LOCT \_\_\_

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE \_\_\_ DISCUSS

EVALUATION LOCATION: X SIMULATOR X CONTROL ROOM \_\_\_ PLANT

PROJECTED TIME: 20 MIN SIMULATOR IC NUMBER: IC-20 MOL

ALTERNATE PATH \_\_\_ TIME CRITICAL \_\_\_ PRA \_\_\_

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>	<b>Trainee:</b>
<b>Evaluator/Date:</b>	
<b>Overall JPM Performance:</b> Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>	
<b>Evaluator Comments (attach additional sheets if necessary)</b>	

JPM Approved: **JOE POWELL 9/13/02**  
 Supervisor - Operations Training or Operations

## JPM CORRECTION FORM

LESSON TITLE: Parallel the Main Turbine Generator with the Grid.

LESSON NO.: JPM-CRO-177A

[illegible]

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

Unit 1 is performing a plant startup from Hot Standby to Minimum Load per UOP-1.2 and the turbine generator is ready to be synchronized to the grid. The load dispatcher has given permission to parallel the turbine generator with the grid. You are directed to parallel the turbine generator with the grid per SOP-28.1, section 4.8.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
*1. Place the Sync. Switch for 230 KV Breakers 810 & 914 in the MAN position.	Place the Sync. Switch for 230 KV Breakers 810 & 914 in MAN. (CUE: Sync. Switch in MAN.)	S / U
*2. Place the Sync. Switch for 230 KV Breaker 914 (810) in the MAN position.	The Sync. Switch for 230 KV Breaker 914 (810) is placed in MAN. (CUE: Sync. scope and lights are on.)	S / U
*3. Using the 230 KV Voltmeter Selector Switch and analog Voltmeter 4100 or digital Voltmeter 5123, compare unit and 914 (810) voltage. Adjust unit voltage to be equal to, or slightly higher than 914(810) voltage.	Unit voltage is adjusted to be equal to, or slightly higher than 914(810) voltage using automatic voltage adjust switch. (CUE: Unit 22.1 KV, 914 (810) - 22.0 KV.)	S / U
*4. Adjust Generator speed, using the appropriate DEH controls, to obtain a <u>very slow</u> synchroscope pointer rotation in the FAST direction.	Turbine speed adjusted as necessary using DEH controls. (CUE: Synchroscope pointer is rotating <u>very slowly</u> in the FAST direction.)	S / U

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
5. (Lower the valve position limit.) Move the cursor to VALVE POSITION.	Cursor is tabbed until VALVE POSITION selected. (CUE: Cursor is on VALVE POSITION.)	S / U
6. Depress the SELECT key and verify VALVE POSITION is highlighted in reverse video.	Select key depressed. (CUE: VALVE POSITION is highlighted in reverse video.)	S / U
*7. Depress the LIMIT LOWER key until the LIMIT field indicates approximately 8% greater than the POSITION DEMAND value.	LIMIT LOWER key pressed. (CUE: LIMIT field indicates approximately 8% greater than the POSITION DEMAND value.)	S / U
8. Check SYNCHRONIZATION PREREQUISITES page for conditions, which might affect generator synchronization.	The SYNCHRONIZATION PREREQUISITES page is reviewed. (CUE: No conditions affecting sync indicated.)	S / U
9. Depress the POINT DATA ENTRY pushbutton, enter INITLOAD, depress the POINT DETAIL pushbutton, and verify value for INITLOAD is less than 80.	INITLOAD is verified less than 80. (CUE: INIT LOAD = 50.)	S / U
10. Verify reactor power is being maintained at approximately 12% - 16%. Verify proper steam dump operation (Ref. IR 2-95-129)	Verifies reactor power is at approximately 12% - 16% with proper steam dump operation. (CUE: Steam Dumps are maintaining Rx Power at 15%.)	S / U
11. IF MTC is zero or positive, THEN verify rods $\leq$ approximately Control Bank D at 170 steps to ensure adequate rod worth for transient control while paralleling the Main Generator to the Grid. (Ref. IR 2-95-129)	Checks MTC and verifies rods $\leq$ approximately Control Bank D at 170 steps as applicable. (CUE: The MTC is negative and bank D rods are at 165 steps.)	S / U
12. Verify the REVERSE POWER handswitch in the IN SERVICE position.	The REVERSE POWER handswitch is verified in the IN SERVICE position. (CUE: White light is lit.)	S / U

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*13. Just before the synchroscope pointer passes through the 12 o'clock position, close the selected breaker.	The selected breaker is taken to closed just before the synchroscope pointer passes through the 12 o'clock position. (CUE: 914(810) red indication light lit; synchroscope locked at 12 o'clock.)	S / U
14. Verify that the Generator has picked up approximately 40 MW.	The MW meter is checked. (CUE: Indicates approximately 40 MW.)	S / U
15. <u>IF</u> LIMITER LIMITING is displayed above MW in the center of the screen allow the system to stabilize, <u>THEN</u> increase valve position limit to 20%. Monitor plant parameters closely during this evolution.	DEH screen checked for LIMITER LIMITING message. (CUE: LIMITER LIMITING message not displayed.)	S / U
16. <u>IF</u> the LIMITER LIMITING message is <u>NOT</u> displayed, <u>THEN</u> slowly increase the valve position limit to 8 to 10% above valve position demand during ramp.	DEH valve position limit raised using LIMIT RAISE key after VPL selected. (CUE: Valve position limit is 8 to 10% above valve position demand.)	S / U
*17. Place the Sync. Switch for 230 KV Breaker 914(810) in the OFF position.	The Sync. Switch for 230 KV Breaker 914(810) is placed in the OFF position. (CUE: The Sync switch is off.)	S / U
*18. Place the Sync. Switch for the remaining 230 KV breaker 810 (914) in the MAN position.	Place the Sync. Switch for the remaining breaker in MAN. (CUE: Sync switch in MAN.)	S / U
19. Verify that the synchroscope pointer locks in at the 12 o'clock position and close remaining breaker.	The synchroscope pointer is verified to lock in at the 12 o'clock position. (CUE: Sync scope at 12 o'clock.) Handswitch for remaining breaker taken to close. (CUE: The breaker is closed.)	S / U
20. Place the Sync. Switch for the associated 230 KV breaker in the OFF position.	The Sync. Switch is placed in the OFF position. (CUE: The Sync switch is off.)	S / U

## EVALUATION CHECKLIST

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
21. Place the Sync Switch for the 230 KV Breakers 810 & 914 in the OFF position.	The Sync Switch for the 230 KV Breakers 810 & 914 is placed in the OFF position. (CUE: The Sync switch is off.)	S / U
22. Place the PWR SYS STABILIZER CONT. SWITCH to the RESET position and allow it to return to the NEUT position. (Located in the upper left-hand compartment of the Exciter Switchgear – T.B. 155').	Request the TB SO to place the PWR SYS STABILIZER CONT. SWITCH to the RESET position and allow it to return to the NEUT position. (CUE: SO reports the PSSCS is reset and in neutral.)	S / U
23. Check that the red ON light on the front of the switchgear is illuminated.	Request the TB SO to check that the red ON light on the front of the switchgear is illuminated. (CUE: TB SO reports red light lit.)	S / U
24. Check that MCB annunciator LK2, VOLT REG. TRIP/PSS OFF, has cleared.	Checks that MCB annunciator LK2, VOLT REG. TRIP/PSS OFF, is clear. (CUE: LK2 not lit.)	S / U
25. Refer to Figure 7 concerning Load Limits vs. PSS and transmission status.	Refers to Figure 7 and determines no load limitations in effect. (CUE: No 500 KV transmission lines are out of service.)	S / U

### STOP TIME

Terminate when Figure 7 is checked.
-------------------------------------

**CRITICAL ELEMENTS:** Critical Elements are denoted with an Asterisk (\*) preceding the element number.

### GENERAL REFERENCES:

1. FNP-1-SOP-28.1, Version 78.0
2. K/As: 045A4.02 RO-2.7 SRO-2.6

### GENERAL TOOLS AND EQUIPMENT:

None

### COMMENTS:

## **CONDITIONS**

Unit 1 is performing a plant startup from Hot Standby to Minimum Load per UOP-1.2 and the turbine generator is ready to be synchronized to the grid. The load dispatcher has given permission to parallel the turbine generator with the grid. You are directed to parallel the turbine generator with the grid per SOP-28.1, section 4.8.



## JOB PERFORMANCE MEASURES

### SO-130 NEW

TITLE: Make Up To SFP From the RWST

PROGRAM APPLICABLE: SOT X SOCT     OLT X LOCT    

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE     DISCUSS

EVALUATION LOCATION:     SIMULATOR     CONTROL ROOM X PLANT

PROJECTED TIME: 30 MIN SIMULATOR IC NUMBER: N/A

ALTERNATE PATH     TIME CRITICAL     PRA    

#### JPM DIRECTIONS:

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

Trainer/Date:		Trainee:	
Evaluator/Date:			
Overall JPM Performance:	Satisfactory <input type="checkbox"/>	Unsatisfactory <input type="checkbox"/>	
Evaluator Comments (attach additional sheets if necessary)			

JPM Approved: 2003 NRC exam  
 Supervisor - Operations Training or Operations

## STANDARDS

Apply the following criteria during the performance of this JPM:

- The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to MAKE UP TO SFP FROM THE RWST. The conditions under which this task is to be performed are:

- SFP low level alarm has come in on the MCB. The shift chemist has directed the Control Room to make up to the SFP from the RWST.
- The BARS system is NOT in operation on Unit One.
- SFP level is 154'4".
- You are to makeup to the SFP to clear the MCB alarm.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<u>      </u> START TIME		
*1. Close the 1A and 1B SFP cooling loop to SFP purification inlet isolation valves 8767A/B (Q1G31V004A/B) <u>139' Rad side, SFP pump room</u>	1A and 1B SFP cooling loop to SFP purification inlet isolation valves 8767A/B are taken to the closed direction. (Cue: 8767A/B are closed)	S / U
*2. Close the SFP purification outlet to SFP 8765 (Q1G31V005) <u>155' Rad side, 1A SFP HX ROOM</u>	Locate and close Q1G31V005 by turning the handwheel clockwise. (CUE: V005 is closed.)	S / U
*3. Open the RWP pump disch iso 8792. (N1G31V008) <u>155' Rad side, SFP HX AREA</u>	Open N1G31V008 by turning the handwheel counterclockwise. (CUE: V008 is open.)	S / U
*4. Open the RWP pump suction from the RWST iso Q1G31V010 <u>130' Rad side near SGBD area</u>	Open Q1G31V010 by turning the handwheel counterclockwise. (CUE: V010 is open.)	S / U
*5. Open (one turn) the SFP purification outlet to SFP 8765 (Q1G31V005). <u>155' Rad side, 1A SFP HX ROOM</u>	Open Q1G31V005 by turning the handwheel counterclockwise one turn. (CUE: V005 is open 1 turn)	S / U

## EVALUATION CHECKLIST

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
*6. Start the RWP purification pump <u>130' Rad side near SGBD area</u>	RWP purification pump switch taken to START. (CUE: RWP purification pump is running.)	S / U
* 7. Throttle the SFP purification outlet to SFP 8765 (Q1G31V005) to establish 100 gpm on the SFP demin FI-654 <u>155' Rad side, SFP HX AREA</u>	V005 is throttled. (CUE: FI-654 reads 100 gpm.)	S / U
8. Inform the Control Room to have the shift chemist periodically sample the SFP.	Inform the CRO (CUE: The CRO acknowledges.)	S / U
9. Monitor the SFP water level. <u>155' Rad side, SFP room</u>	SFP level should be monitored to prevent over-filling the pool. (CUE: The CRO contacts you and tells you the SFP level alarm is clear. Level is 153'7".)	
<u>STOP TIME</u>		

Terminate when all elements of the task have been completed.

**CRITICAL ELEMENTS:** Critical Elements are denoted with an asterisk (\*) preceding the element number.

### **GENERAL REFERENCES:**

1. FNP-1-SOP-54.0, Version 38.0
2. K/As: 033A1.01 RO-2.7 SRO-3.3  
033A4.02 RO-2.3 SRO-2.1  
033A4.03 RO-2.3 SRO-2.4

### **GENERAL TOOLS AND EQUIPMENT:**

Locked Valve Key

### **COMMENTS:**

## **CONDITIONS**

When I tell you to begin, you are to MAKE UP TO SFP FROM THE RWST. The conditions under which this task is to be performed are:

- a. SFP low level alarm has come in on the MCB. The shift chemist has directed the Control Room to make up to the SFP from the RWST.
- b. The BARS system is NOT in operation on Unit One.
- c. SFP level is 154'4".
- d. You are to makeup to the SFP to clear the MCB alarm.

**JOB PERFORMANCE MEASURES**  
**FORMAL OJT REQUIRED PRIOR TO EVALUATION**

**SO-549A**

TITLE: Manual Operation Of SG Atmospheric Relief

PROGRAM APPLICABLE: SOT   X   SOCT   X   OLT   X   LOCT   X  

ACCEPTABLE EVALUATION METHOD:   X   PERFORM   X   SIMULATE        DISCUSS

EVALUATION LOCATION:        SIMULATOR        CONTROL ROOM   X   PLANT

PROJECTED TIME:   15 MIN   SIMULATOR IC NUMBER:   N/A  

ALTERNATE PATH        TIME CRITICAL        PRA       

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

<b>Trainer/Date:</b>		<b>Trainee:</b>	
<b>Evaluator/Date:</b>			
<b>Overall JPM Performance:</b>	<b>Satisfactory</b> <input type="checkbox"/>	<b>Unsatisfactory</b> <input type="checkbox"/>	
<b>Evaluator Comments (attach additional sheets if necessary)</b>			

**JPM Approved: Joe Powell**  
**Supervisor - Operations Training or Operations**

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to perform MANUAL OPERATION OF SG ATMOSPHERIC RELIEF. The conditions under which this task is to be performed are:

- a. A plant fire has occurred and has been extinguished.
- b. The fire has affected the operability of plant equipment.
- c. You have been directed to manually operate the "2A" SG Atmospheric Relief Valve per AOP-29.0, Attachment 12, Steps 4.4 and 4.5.
- d. Communications between the "2A" SG Atmospheric Relief Valve and the control room has been established by means of sound powered phones.

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
1. Isolate air to the "2A" SG Atmospheric Relief Valve Q2N11PV3371A	Locate and isolate air to the "A" SG Atmospheric Relief by turning the air isolation valve handwheel clockwise. (CUE: Air to the "A" SG Atmospheric relief is closed.)	S / U
2. Bleed off the air pressure to the "A" SG Atmospheric Relief Valve Q2N11PV3371A	Locate the air supply regulator petcock and bleed off the air pressure to the "A" SG Atmosphere Relief by opening the petcock by turning the petcock clockwise. (CUE: Air pressure is bled off as indicated by no more air bleeding from the petcock..)	S / U

<b>NOTE: THE CONTROL ROOM INSTRUCTS THE SYSTEM OPERATOR TO OPEN THE "A" SG ATMOSPHERIC RELIEF TWO TURNS OPEN.</b>
---

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*3. Open the "A" SG Atmospheric Relief Valve Q2N11PV3371A with the local handwheel two turns	Locate and open the "A" SG atmospheric with the local handwheel two turns <u>by turning the handwheel until the jack engages then</u> two turns counterclockwise. (CUE: "A" SG atmospheric relief is two turns open.)	S / U
4. Report to the control room valve is open two turns	Report to the control room valve is open two turns. (CUE: Control room acknowledges.)	S / U

**NOTE: CONTROL ROOM REQUEST TO FULLY CLOSE THE "A" SG ATMOSPHERIC RELIEF VALVE.**

*5. Fully closes the "A" SG Atmospheric Relief Valve Q2N11PV3371A	Fully closes the "A" SG Atmospheric Relief by turning the manual operator clockwise. (CUE: "A" SG Atmospheric relief is closed.)	S / U
6. Report to the control room valve is fully closed	Report to the control room, valve is fully closed. (CUE: Control room acknowledges.)	S / U

**NOTE: CONTROL ROOM DIRECTS YOU TO RETURN THE "A" SG ATMOSPHERIC TO ITS NORMAL LINEUP.**

*7. Close the air supply regulator petcock	Close the air supply regulator petcock by turning counter-clockwise until movement stops. (CUE: Petcock is closed.)	S / U
*8. Open air supply isolation valve to the "A" SG Atmospheric Relief Valve Q2N11PV3371A	Open air supply isolation valve to the "A" SG Atmospheric Relief by turning the handwheel counter-clockwise. (CUE: Air supply isolation is open.)	S / U
*9. Place the manual operator in the neutral position	Place the manual operator in the neutral position by turning the handwheel while observing the manual operator position pointer. (CUE: Manual operator position pointer is in the neutral position.)	S / U

## EVALUATION CHECKLIST

**ELEMENTS:**

**STANDARDS:**

**RESULTS:  
(CIRCLE)**

\_\_\_\_ **STOP TIME**

Terminate when all elements of the task have been completed.
--

**CRITICAL ELEMENTS:** Critical Elements are denoted with an Asterisk (\*) preceding the element number

### **GENERAL REFERENCES:**

1. FNP-0-AOP-29.0, Version 25.0
2. K/As: 068AA1.0 RO-4.3 SRO-4.5

### **GENERAL TOOLS AND EQUIPMENT:**

None

### **COMMENTS:**



## **CONDITIONS**

When I tell you to begin, you are to perform MANUAL OPERATION OF SG ATMOSPHERIC RELIEF. The conditions under which this task is to be performed are:

- a. A plant fire has occurred and has been extinguished.
- b. The fire has affected the operability of plant equipment.
- c. You have been directed to manually operate the "2A" SG Atmospheric Relief Valve per AOP-29.0, Attachment 12, Steps 4.4 and 4.5.
- d. Communications between the "2A" SG Atmospheric Relief Valve and the control room has been established by means of sound powered phones.

**FORMAL OJT REQUIRED PRIOR TO EVALUATION**

SO-251

**TITLE:** Bleed And Feed Generator For Hydrogen Purity

PROGRAM APPLICABLE: SOT X SOCT      OLT X LOCT     

ACCEPTABLE EVALUATION METHOD: X PERFORM X SIMULATE    DISCUSS

EVALUATION LOCATION: ☐ SIMULATOR ☐ CONTROL ROOM ☒ PLANT

PROJECTED TIME: 20 MIN      SIMULATOR IC NUMBER: N/A

ALTERNATE PATH      TIME CRITICAL \_\_\_\_\_      PRA \_\_\_\_\_

**JPM DIRECTIONS:**

1. Access to tools, equipment, and references normally used to perform this task are allowed.
2. During initial training, it is encouraged that questions be asked as part of this OJT process to assess the extent of trainee knowledge related to this task.
3. If the trainee is significantly deficient in knowledge or does not adhere to management expectations as outlined below, then a re-examination of the JPM is warranted.
  - Potential physical harm could occur to the trainee or others
  - Potential damage to equipment could occur
  - A procedure step is missed in a continuous use procedure
  - Significant margin to reactor safety is eroded
  - Wrong unit/train/component is potentially operated
4. All unsuccessful attempts, deficiencies, and other comments must be documented in the space below and forwarded to a Training Administrative Assistant for tracking.

[illegible]

**JPM Approved: JOE POWELL**  
**Supervisor - Operations Training or Operations**

## STANDARDS

Apply the following criteria during the performance of this JPM:

- a. The task must be performed using the appropriate plant procedures, Technical Specifications, or other references.
- b. All critical elements must be performed, simulated, or discussed without error, prompting or unnecessary queuing.
- c. Management expectations regarding human performance tools (three way communications, STAR, procedural adherence, etc.), radiological controls, and industrial safety.

## CONDITIONS

When I tell you to begin, you are to BLEED AND FEED GENERATOR FOR HYDROGEN PURITY. The conditions under which this task is to be performed are:

- a. The Plant is in Mode 1.
- b. Fan  $\Delta p$  in the main generator is high at  $\approx 110''$  H<sub>2</sub>O.
- c. You are directed by control room operator to perform a generator hydrogen feed and bleed in accordance with SOP-27.0, Appendix 3 to lower Fan  $\Delta p$  to  $\approx 95''$  H<sub>2</sub>O. The initial conditions for Appendix 3 have been met.

**NOTE: THIS JPM MAY BE PERFORMED ON EITHER UNIT. UNIT TWO NUMBERS ARE [BRACKETED].**

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<u>        </u> START TIME		
*1. Verify PI550 installed, then open isolation valves and record pressure	Verify N1N43PI550 installed then open isolation valves N1[2]N43V525(V-15) and N1[2]N43V627 by turning the handwheel counterclockwise and record pressure by writing the pressure observed on PI-550 on the appropriate space on SOP-27.0, App. 3. (CUE: PI-550 is installed, the isolation valves are open, PI-550 indicates 68 psig.)	S / U

## EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*2. Open hydrogen supply valves	H <sub>2</sub> supply valves N1[2]N43V543(V-53), N1[2]N43V542(V-52), N1[2]N43V540(V-50), & N1[2]N43V562(-91) opened by turning handwheels counter- clockwise. (CUE: The H <sub>2</sub> supply valves are open.)	S / U

**NOTE: STEP THREE (3) IS PERFORMED ON UNIT 1 ONLY.**

*3. Open vent header isolation valve	N1N43V579 opened by turning hand-wheel counterclockwise. (CUE: V579 is open.)	S / U
*4. Open slowly hydrogen supply valve and carbon dioxide manifold to vent header valve to establish a feed and bleed	N1[2]N43V518(V-8) and N1[2]N43V516(V-6) are opened to maintain pressure within limits specified in SOP-27.0 and recorded in step 4.1. (CUE: H <sub>2</sub> pressure has decreased .5 psig below the initial recorded value.)	S / U
*5. Maintain generator H <sub>2</sub> pressure.	N1[2]N43V518 AND N1[2]N43V516 are adjusted to maintain generator H <sub>2</sub> pressure. (CUE: Generator H <sub>2</sub> pressure is stable and within limits.)	S / U

**(CUE: GENERATOR FAN ΔP INDICATES ≈ 95" H<sub>2</sub>O.)**

*6. Slowly close hydrogen supply valve	N1[2]N43V518 is slowly closed by turning handwheel clockwise. (CUE: V518 is closed.)	S / U
*7. Close CO <sub>2</sub> manifold to vent header valve	N1[2]N43V516 is closed by turning handwheel clockwise. (CUE: V516 is closed.)	S / U

**NOTE: STEP EIGHT (8) IS PERFORMED ON UNIT 1 ONLY**

*8. Close vent header isolation valve	N1N43V579 is closed by turning hand-wheel clockwise. (CUE: V579 is closed.)	S / U
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## EVALUATION CHECKLIST

<b>ELEMENTS:</b>	<b>STANDARDS:</b>	<b>RESULTS: (CIRCLE)</b>
*9. Close hydrogen supply valves	H <sub>2</sub> supply valves N1[2]N43V543, N1[2]N43V542, N1[2]N43V540, and N1[2]N43V562 are closed by turning handwheel clockwise. (CUE: The H <sub>2</sub> supply valves are closed.)	S / U
*10. Close generator water detector drain valve and generator H <sub>2</sub> pressure PI isolation valve	N1[2]N43V525 and N1[2]N43V627 are closed by turning handwheels clockwise. (CUE: Valves are closed.)	S / U
11. Notify control room the generator feed and bleed line up is secured	Control room is notified. (CUE: Control room has been notified.)	S / U

### STOP TIME

Terminate when the control room has been notified.
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**CRITICAL ELEMENTS:** Critical Elements are denoted with an asterisk (\*) preceding the element number.

### GENERAL REFERENCES:

1. FNP-1-SOP-27.0, Version 55.0
2. FNP-2-SOP-27.0, Version 49.0
3. K/As: 045K1.05      RO-1.9      SRO-2.1  
          045K5.01      RO-2.8      SRO-3.2

### GENERAL TOOLS AND EQUIPMENT:

None

### COMMENTS:

## CONDITIONS

When I tell you to begin, you are to BLEED AND FEED GENERATOR FOR HYDROGEN PURITY.  
The conditions under which this task is to be performed are:

- a. The Plant is in Mode 1.
- b. Fan  $\Delta p$  in the main generator is high at  $\approx 110''$  H<sub>2</sub>O.
- c. You are directed by control room operator to perform a generator hydrogen feed and bleed in accordance with SOP-27.0, Appendix 3 to lower Fan  $\Delta p$  to  $\approx 95''$  H<sub>2</sub>O. The initial conditions for Appendix 3 have been met.