



**NUCLEAR TRAINING DEPARTMENT**  
**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

**TITLE:**               **PERFORM A QPTR CALCULATIONS**

**JPM NO.:**           **A1**

**REVISION:**       **1**

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** PERFORM A QPTR CALCULATION

**JPM No.:** A1

**Rev. No.:** 1

**STP Task:** 37750, Perform a Quadrant Power Tilt Ratio calculation

**STP Objective:** Perform a Quadrant Power Tilt Ratio calculation in accordance with 0PSP10-NI-0002.

**Related  
K/A Reference:** 2.1.20 (4.3) Ability to execute Procedure Steps

**References:** T.S. 3/4.2.4 Quadrant Power Tilt Ratio  
0POP09-AN-05M3 (05M3-B-3) PR Lower Det Flux Dev  
Hi/Auto Def  
0PSP10-NI-0002, Rev. 8, Excore QPTR Determination

**Task Normally  
Completed By:** RO

**Method  
of Testing:** Performance

**Location  
of Testing:** N/A

**Time  
Critical Task:** NO

**Validation  
Time:** 30 minutes

**Required Materials (Tools/Equipment):**

Calculator  
Technical Specifications

## JOB PERFORMANCE MEASURE INFORMATION SHEET

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK**

### INITIAL CONDITIONS:

Unit 1 has been at approximately 100% steady state power (currently at 99.9%) for 5 days. Control Room Annunciator 05M03 Window B-3, PR LOWER DET FLUX DEV HI/AUTO DEF, alarms. Initial action of 0POP09-AN-05M3 for Window B-3 to verify all Control Rods are properly aligned, is complete. All Excore Nuclear Instrumentation Channels are operable and the detector currents (in microamps) are:

N41U = 536	N42U = 567	N43U = 542	N44U = 588
N41L = 559	N42L = 577	N43L = 587	N44L = 549

- All meter readings were taken with the Current Meter Range Switch Scale in the "1" position.
- Reactor Power is 99.9% by U1169

### INITIATING CUE:

The Unit Supervisor instructs you to do the following:

- Manually calculate QPTR per 0PSP10-NI-0002, Excore QPTR Determination.
- Determine any applicable Technical Specification action(s).

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### COMPLETION CRITERIA:

*Applicant determines:*

- *Upper Tilt Ratio = 1.002 ( $\pm 0.003$ ), Lower Tilt Ratio = 1.027 ( $\pm 0.003$ ), and QPTR = 1.027 ( $\pm 0.003$ ) and identifies the Acceptance Criteria is NOT met.*
- *That Reactor Power must be reduced to at least 91.9% within two (2) and that the Power Range High Flux Trip Setpoints must be reduced to 100.9% within the next four (4) hours.*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

0PSP10-NI-0002, Excore QPTR Determination.

### **NOTES:**

- Examiner has a “KEY” of Form 1 and Form 3 of 0PSP10-NI-0002, Excore QPTR Determination. DO NOT give applicant copy of the procedure marked “KEY”.
- Examiner has a “NRC EXAM JPM USE ONLY” copy of Figure 5.1, Incore-Excore Cross-Calibration Constants. After the applicant obtains the Plant Curve Book and locates Figure 5.1, provide the applicant the “NRC EXAM JPM USE ONLY” copy of Figure 5.1. The data on this copy may be different from that contained in the current Plant Curve Book. The calculations performed in the “KEY” are based on the data from the “NRC EXAM JPM USE ONLY” copy of Figure 5.1.
- The calculated QPTR is equal to approximately 1.027 ( $\pm 0.003$ ) and does not meet the procedure acceptance criteria and T.S. LCO actions 3.2.4. and 3.2.4.b are entered.

**JOB PERFORMANCE MEASURE INFORMATION SHEET (cont'd)**

***NOTE:***

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

**SAT/UNSAT Performance Step:** 1

Obtain the procedure.

**Standard:**

*Applicant obtains current revision of 0PSP10-NI-0002, Excore QPTR Determination.*

**Comment:**

The Handout Copy of 0PSP10-NI-0002, Excore QPTR Determination includes partially completed Forms 1 and 3.

**Cue:**

Provide the Handout Copy of 0PSP10-NI-0002, Excore QPTR Determination.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 2

Review 0PSP10-NI-0002, Excore QPTR Determination, for applicability and prerequisites.

**Standard:**

*Applicant reviews procedures and verifies prerequisites are met and signs Form 1.*

**Comment:**

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 3

Obtain latest Figure 5.1 in the Unit 1 Plant Curve Book.

**Standard:**

*Obtains Figure 5.1 of the Unit 1 Plant Curve Book.*

**Comment:**

The “NRC EXAM JPM USE ONLY” copy of Figure 5.1, Incore-Excore Cross-Calibration Constants, may not be the current data in the Unit 1 Plant Curve Book, but contains the data applicable to this JPM. The data on this copy of Figure 5.1 should be used in the QPTR calculation.

**Cue:**

After the applicant locates the Plant Curve Book and obtains Figure 5.1, provide the applicant with the copy of Figure 5.1, Incore-Excore Cross-Calibration Constants, marked “FOR NRC EXAM JPM USE ONLY”.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 4

100% Power Detector Currents from Figure 5.1 and the current Indicated Detector Currents for the Upper and Lower Detectors are entered into Form 3.

**Standard:**

*Enters the 100% and Indicated Power Currents onto Form 3.*

**Comment:**

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 5

For each channel of Upper Detectors, calculate Normalized Current, then the sum of normalized currents, and average of normalized current.

**Standard:**

*Calculates the Average Normalized Upper Current to be 1.003 ( $\pm 0.003$ ).*

**Comment:**

**Cue:**

**Notes:**

---



## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 6(C)

Calculate Upper Tilt Ratio.

**Standard:**

*Calculates the Upper Tilt Ratio to be 1.002 ( $\pm 0.003$ ).*

**Comment:**

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 7

For each channel of Lower Detectors, calculate Normalized Current, then the sum of normalized currents, and average of normalized currents.

**Standard:**

*Calculates the Average Normalized Lower Current to be 1.017 ( $\pm 0.003$ ).*

**Comment:**

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 8(C)

Calculate Lower tilt Ratio.

**Standard:**

*Calculates the Lower Tilt Ratio to be 1.027 ( $\pm 0.003$ ).*

**Comment:**

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 9(C)

Determines QPTR.

**Standard:**

*Determines the QPTR to be 1.027 ( $\pm 0.003$ ).*

**Comment:**

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 10

Obtain independent verification of calculations.

**Standard:**

*Applicant informs the evaluator that independent verification is needed.*

**Comment:**

**Cue:**

Inform the applicant that the independent verification is complete with no changes.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 11(C)\*

Determine applicable Technical Specification action(s) to take.

**Standard:**

*Applicant determines:*

- *\* Within 2 hours, THERMAL POWER must be reduced at least 3% from RATED THERMAL POWER for each 1% of indicated QUADRANT POWER TILT RATIO in excess of 1. This requires a power reduction to at least 91.9%*
- *\* Within the following 4 hours, the Power Range Neutron Flux-High Trip Setpoints must be reduced at least 3% from RATED THERMAL POWER for each 1% of indicated QUADRANT POWER TILT RATIO in excess of 1. This requires a trip setpoint reduction to at least 100.9%.*
- *Within 24 hours and every 7 days thereafter, verify that  $F_Q(Z)$  (by  $F_{XY}$  evaluation) and  $F_{?H}^N$  are within their limits by performing Surveillance Requirements 4.2.2.2 and 4.2.3.2. THERMAL POWER and setpoint reductions shall then be in accordance with the ACTION statements of Specifications 3.2.2 and 3.2.3.*

**Comment:**

Items designated with a (\*) are the Critical Portions of this step.

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 12

Notify Reactor Engineering Supervisor to prepare to take action per Technical Specification 3.2.4 action b.

**Standard:**

*Applicant informs the Reactor Engineering Supervisor to take action per Technical Specification 3.2.4 action b.*

**Comment:**

**Cue:**

Inform the applicant that the Reactor Engineering Supervisor has been notified.

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:** A1, PERFORM A QPTR CALCULATION

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**                      **Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature**

\_\_\_\_\_  
**Date** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EXAMINER WHEN YOU'VE COMPLETED THE TASK**

**INITIAL CONDITIONS:**

Unit 1 has been at approximately 100% steady state power (currently at 99.9%) for 5 days. Control Room Annunciator 05M03 Window B-3, PR LOWER DET FLUX DEV HI/AUTO DEF, alarms. Initial action of 0POP09-AN-05M3 for Window B-3 to verify all Control Rods are properly aligned, is complete. All Excore Nuclear Instrumentation Channels are operable and the detector currents (in microamps) are:

N41U = 536	N42U = 567	N43U = 542	N44U = 588
N41L = 559	N42L = 577	N43L = 587	N44L = 549

- All meter readings were taken with the Current Meter Range Switch Scale in the "1" position.
- Reactor Power is 99.9% by U1169

**INITIATING CUE:**

The Unit Supervisor instructs you to do the following:

- Manually calculate QPTR per 0PSP10-NI-0002, Excore QPTR Determination.
- Determine any applicable Technical Specification action(s).

311

**NUCLEAR TRAINING DEPARTMENT**  
**JOB PERFORMANCE MEASURE**

**TITLE:** **PERFORM INSTRUMENTATION CHANNEL  
CHECKS**

**JPM NO.:** **A2**

**REVISION:** **1**

**LOCATION:** **Simulator**



## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** PERFORM INSTRUMENTATION CHANNEL CHECKS

**JPM No.:** A2

**Rev. No.:** 1

**Task No.:** 68900

**STP Objective:** 68900, Maintain required logs records, charts, printouts and status reports in accordance with 0POP01-ZQ-0022.

**Related  
K/A Reference:** 2.1.20 (4.3) Ability to execute procedure steps

**References:** 0PSP03-SP-0001, Remote Shutdown Monitoring and Accident Monitoring Instrumentation Channel Checks

**Task Normally  
Completed By:** RO

**Method  
of Testing:** Actual Performance

**Location  
of Testing:** NTF

**Time  
Critical Task:** NO

**Alternate  
Path JPM:** NO

**Validation  
Time:** 20 minutes

**Required Materials (Tools/Equipment):**

- Red Pen
- Calculator

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **READ TO PERFORMER:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EXAMINER WHEN YOU HAVE COMPLETED THE TASK

### **INITIAL CONDITIONS:**

Unit 2 is at 100% power. Surveillance Procedure 0PSP03-SP-0001, Remote Shutdown Monitoring and Accident Monitoring Instrumentation Channel Checks, is in progress. Steps have been completed through step 5.4 (data gathering).

From the OAS Log, the following Core Exit Thermocouples (CETs) are inoperable:

TE07, TE08, TE10, TE12, TE31, TE32, TE44, TE48, TE49

### **INITIATING CUE:**

The Unit Supervisor directs you to complete the surveillance beginning with step 5.5 (comparison of channel indications on Data Sheet 1 and 2 with Acceptance Criteria) and inform him if any Acceptance Criteria are not met.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### **COMPLETION CRITERIA:**

*The student notes the following critical items:*

- 1. The channel check for SG 'B' Pressure does not meet acceptance criteria (Critical item)*
- 2. Quadrant 'A' or 'B' thermocouples do not meet the Acceptance Criteria for Center Area CET's because TE11 can only be used to satisfy the requirements for one of these quadrants, not both. (Critical Item)*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

Student copy of 0PSP03-SP-0001

### **NOTES:**

A Key is provided for the evaluator. **Do NOT hand this out to the student.**

## JOB PERFORMANCE MEASURE CHECK SHEET

**NOTE:**

- \$ Critical steps are identified by (C).
- \$ Sequenced steps are identified by ( $S_1, S_2, \dots$ ).

### JPM START TIME

**SAT/UNSAT Performance Step:** 1

Obtain a copy of 0PSP03-SP-0001, Remote Shutdown Monitoring and Accident Monitoring Instrumentation Channel Checks

**Standard:**

*Obtains a copy of 0PSP03-SP-0001, Remote Shutdown Monitoring and Accident Monitoring Instrumentation Channel Checks*

**Comment:**

Provide the student with the handout copy of 0PSP03-SP-0001, Remote Shutdown Monitoring and Accident Monitoring Instrumentation Channel Checks

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 2 (C)

Compare the channel indication with the Acceptance Criteria

**Standard:**

*Determines the channel check for SG 'B' Pressure does not meet acceptance criteria*

**Comment:**

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 3 (C)

Compare the channel indication with the Acceptance Criteria

**Standard:**

*Determines Quadrant 'A' or 'B' thermocouples do not meet the Acceptance Criteria for Center Area CET's because TE11 can only be used to satisfy the requirements for one of these quadrants, not both.*

**Comment:**

**Cue:**

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:** A2, PERFORM INSTRUMENTATION CHANNEL CHECKS

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**                      **Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EXAMINER WHEN YOU HAVE COMPLETED THE TASK**

**INITIAL CONDITIONS:**

Unit 2 is at 100% power. Surveillance Procedure 0PSP03-SP-0001, Remote Shutdown Monitoring and Accident Monitoring Instrumentation Channel Checks, is in progress. Steps have been completed through step 5.4 (data gathering).

From the OAS Log, the following Core Exit Thermocouples (CETs) are inoperable:

TE07, TE08, TE10, TE12, TE31, TE32, TE44, TE48, TE49

**INITIATING CUE:**

The Unit Supervisor directs you to complete the surveillance beginning with step 5.5 (comparison of channel indications on Data Sheet 1 and 2 with Acceptance Criteria) and inform him if any Acceptance Criteria are not met.

**NUCLEAR TRAINING DEPARTMENT**  
**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

*TITLE: REVIEW COMPLETED SURVEILLANCE*

*JPM NO.: A3*

**REVISION: 1**



## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** REVIEW COMPLETED SURVEILLANCE

**JPM No.:** A3

**Rev. No.:** 1

**STP Task:** 41600, Perform Essential Cooling Water Inservice Test

**STP Objective:** 41600, Perform an Essential Cooling Water Pump Inservice Test in accordance with 0PSP03-EW-0017, 0018, or 0019

**Related  
K/A Reference:** 2.2.12 [3.0], Knowledge of Surveillance procedures

**References:** 0PSP03-EW-0018, Rev 28, Essential Cooling Water System Train B Testing

**Task Normally  
Completed By:** RO

**Method  
of Testing:** Actual Performance

**Location  
of Testing:** N/A

**Time  
Critical Task:** NO

**Validation  
Time:** 20 minutes

**Required Materials (Tools/Equipment):**

Calculator

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK**

### **INITIAL CONDITIONS:**

Unit 1 is at 100% power during a "Train B" workweek. Essential Cooling Water System Train B testing per OPSP03-EW-0018 is in progress. Essential Cooling Water Pump 1B was tested per Step 5.4 of OPSP03-EW-0018.

### **INITIATING CUE:**

Perform a Peer Check of the data collected per Step 5.4, OPSP03-EW-0018, and determine if acceptance criteria are met taking into account any errors found.

THREE errors have been inserted into the surveillance, two (2) Critical and one (1) Non-Critical. As a MINIMUM, you are to IDENTIFY both critical errors. Editorial errors such as spelling, grammar, or punctuation are unintentional and DO NOT count. All steps have been initialed or N/A'd appropriately in accordance with the data provided.

You are to take the following into account during your review:

- Carryover errors count as only one error (i.e., a single error that carries over from calculation to calculation or multiple line items with the same incorrect information)

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### **COMPLETION CRITERIA:**

*Both critical errors have been identified AND it is determined that the acceptance criteria for the test are NOT met.*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

- 0PSP03-EW-0018, Essential Cooling Water System Train B Testing

### **NOTES:**

- The examiner is provided with a KEY of 0PSP03-EW-0018. Critical errors are identified on page 25 of 61 and on page 61 of 61; non-critical error is identified on page 19 of 61.

**JOB PERFORMANCE MEASURE INFORMATION SHEET (cont'd)**

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

**SAT/UNSAT Performance Step:** 1 (C) \*

Review the surveillance.

**Standard:**

*Identifies the following ERRORS:*

- 1) *Incorrect Bay Level Correction Factor was taken from Addendum 1 in Step 5.4.6.*
- 2) \* *Flows are incorrectly totaled on Data Sheet 1*
- 3) \* *Step 5.4.14.3 is incorrectly marked as “ECW Pump 1B Delta P is within Acceptable Range”.*

**Comment:**

- \* Denotes Critical Error. Error #2 causes the incorrect flow range to be used in Table 2. Error #3 indicates that the pump is operable when it is in actuality inoperable and an LCO should be entered.
- Error #1 is not critical because it does not affect the outcome of the surveillance, only makes the pump closer to the limit (but still inoperable).
- Error #2 results in incorrect calculations for average flow on Table 1, TOTAL ECW SYSTEM FLOW (step 5.4.13), and use of the incorrect flow range (step 5.4.14.1). If the applicant considers this 2 or more errors, remind the applicant of Initiating Cue Assumptions. This is considered only 1 error.

**STEP CONTINUED ON NEXT PAGE**

**JOB PERFORMANCE MEASURE INFORMATION SHEET (cont'd)**

**Cue:**

After applicant finds flow calculation error, tell applicant to continue using the new number.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 2

Report the error to the Unit/Shift Supervisor.

**Standard:**

*Inform the Unit/Shift Supervisor of the errors found and that the acceptance criteria of the procedure are NOT met.*

**Comment:**

**Cue:**

The Shift Supervisor acknowledges the report.

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:** A3, REVIEW COMPLETED SURVEILLANCE

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**                      **Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature**

\_\_\_\_\_  
**Date** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EXAMINER WHEN YOU'VE COMPLETED THE TASK**

**INITIAL CONDITIONS:**

Unit 1 is at 100% power during a "Train B" workweek. Essential Cooling Water System Train B testing per 0PSP03-EW-0018 is in progress. Essential Cooling Water Pump 1B was tested per Step 5.4 of 0PSP03-EW-0018.

**INITIATING CUE:**

Perform a Peer Check of the data collected per Step 5.4, 0PSP03-EW-0018, and determine if acceptance criteria are met taking into account any errors found.

THREE errors have been inserted into the surveillance, two (2) Critical and one (1) Non-Critical. As a MINIMUM, you are to IDENTIFY both critical errors. Editorial errors such as spelling, grammar, or punctuation are unintentional and DO NOT count. All steps have been initialed or N/A'd appropriately in accordance with the data provided.

You are to take the following into account during your review:

- Carryover errors count as only one error (i.e., a single error that carries over from calculation to calculation or multiple line items with the same incorrect information)



**NUCLEAR TRAINING DEPARTMENT**

**JOB PERFORMANCE MEASURE**

**TITLE:                                 DETERMINE RADIOLOGICAL REQUIREMENTS  
TO ENTER A HIGH RAD AREA**

**JPM NO.:                                 A4**

**REVISION:                                 1**

**LOCATION:                                 UNIT 1 OR 2**

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** DETERMINE RADIOLOGICAL REQUIREMENTS TO ENTER  
A HIGH RAD AREA

**JPM No.:** A4

**Rev. No:** 1

**STP Task:** T49250, Place in or remove a mixed bed or cation bed  
demineralizer.

**STP Objective:** NLO49250, When directed by designated Control Room personnel,  
remove/place in service a CVCS mixed bed demineralizer in accordance  
with OPOP02-CV-0004.

**Related K/ A  
Reference:** G 2.3.10 [2.9/3.3] Ability to perform procedures to reduce excessive  
levels of radiation and guard against personnel exposure.

**References:** Technical Specification 6.12.2  
OPOP02-CV-0005, Rev. 18, CVCS Pre-Start System Alignment  
OPGP03-ZR-0051, Rev. 14, Radiological Access and Work Controls

**Task Normally  
Completed By:** PO

**Method  
of Testing:** Simulated

**Location  
of Testing:** Unit 1 or 2 RCA

**Time  
Critical Task:** NO

**Validation  
Time:** 15 minutes

**Required Materials (Tools/Equipment):** None

## JOB PERFORMANCE MEASURE INFORMATION SHEET

### READ TO PERFORMER:

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

### INITIAL CONDITIONS:

The unit is initially increasing power from an unplanned shutdown. Mixed Bed Demineralizer 1(2) "B" was recently placed in service and subsequently removed when an increase in RCS leakage was observed. 1(2) CV-0430, the demineralizer "B" inlet vent valve is suspected of causing the leakage because it was recently replaced.

### INITIATING CUE:

The Unit Supervisor directs you to find the location of the valve and to determine the radiological entry requirements necessary to access the valve itself.

- It is not necessary to go to the valve's location.
- You are to discuss all requirements with the evaluator.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### COMPLETION CRITERIA:

*Determines valve is in Room 244T, and discusses the radiological requirements for entering a GRAVE DANGER, Very High Radiation Area (VHRA)/Locked High Radiation Area (LHRA).*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

The Evaluator is provided with a Radiological Area maps handout for the MAB 60' elevation that this JPM is based on. The applicant may access current survey maps by either contacting the HP desk or observing them on the wall to the men's RCA access, if posted. Once the applicant has located the correct map, provide the handout.

### **NOTES:**

1. This JPM should be given as the first JPM prior to entering the RCA. It should be performed in conjunction with, and just prior to, JPM P1, "Perform Channel Check and Source Check of RT-8038".
2. This JPM is based on the handout maps provided. The JPM may be performed in its entirety outside of the RCA. The applicant may want to enter the RCA to locate the valve access area; however, this JPM is based on the handout maps provided which may differ with current conditions.
3. **The NRC Evaluator will use the following for RCA access:**
  - Unit 1: RWP- 2003-1-0033, Rev.3, and use 9701 for the WAN**
  - Unit 2: RWP- 2003-0-0003, Rev.1, and use 9702 for the WAN**
4. There is **no** answer KEY associated with this JPM. Answer information is included within the JPM.
5. Applicant may discuss entry requirements with Health Physics personnel, however; entry requirements should be confirmed using plant references.

## JOB PERFORMANCE MEASURE CHECK SHEET

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

**SAT/UNSAT Performance Step:** 1

Access references to determine valve location.

**Standard:**

*Accesses ORACLE or the Chemical and Volume Control Procedure (0POP02-CV-0005), to determine location of valve.*

**Comment:**

Applicant may know location from memory or may determine location using a computer either inside or outside of the RCA or 0POP02-CV-0005, Lineup 2, Page 35 of 38 (procedure page 55 of 83).

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 2 (C)

Determine valve location.

**Standard:**

*Determines 1(2) CV-0430 is in the MAB Room 244T Valve Pit.*

**Comment:**

Room 244T is accessed from Room 329, Demineralizer access area on the MAB 60' elevation.

Room 244T is a valve pit, with a shielding plug as its access point.

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 3(C)

Determine Room Radiological Conditions for Room 244T.

**Standard:**

*Determines that Room 244T is in a GRAVE DANGER/Very High Radiation Area (VHRA) and Locked High Radiation Area (LHRA).*

**Comment:**

On the survey maps provided the area is marked as Grave Danger/Very High Radiation Area and a Locked High Radiation Area.

**Cue:**

Once applicant shows that he/she can locate the correct survey, provide then with the handout of the area survey maps.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

### **SAT/UNSAT Performance Step:**

4 (C)\*

Determine radiological entry requirements for a GRAVE DANGER/Very High Radiation Area (VHRA) and Locked High Radiation Area (LHRA).

### **Standard:**

*Discusses the following radiological requirements for entering a LHRA and VHRA (in general terms).*

1)\* *Personnel entering a LHRA SHALL be assigned an active RWP that permits such entry. (RWP)*

*Personnel entering a LHRA SHALL be assigned an individual monitoring device. (TLD)*

3)\* *Personnel entering a LHRA SHALL be provided with or accompanied by one or more of the following:*

- *A radiation monitoring device that continuously indicates the dose rate in the area (dose rate meter), **OR***
- *A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received (alarming dosimeter or Siemens EPD), **OR***
- *An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, and positive control over the activities within the area. (Health Physics Technician)*

*Additional requirements for entry into a GRAVE DANGER, VHRA.*

*The access keys for a VHRA shall be unique and controlled.*

*A pre-job ALARA evaluation approved by the ALARA Review Committee is required.*

*The Radiation Protection Manager and the Plant Manager must approve entry.*

### **Comment:**

\* - Denotes critical portion of step which is based on license compliance (Tech Spec 6.12).

The acceptable general term or phrase may be as short as the underlined portions above.

The above information is accessed in either Technical Specification 6.12 (for LHRA) or OPGP03-ZR-0051, "Radiological Access and Work Controls" (for LHRA and VHRA) or may ask Health Physics.

*STEP CONTINUED ON NEXT PAGE*



## **JOB PERFORMANCE MEASURE CHECK SHEET**

**Cue:**

If the applicant appears that they want to discuss the requirements from memory, tell the applicant that references are available and can be used to determine entry requirements.

**Notes:**

---

- **TERMINATE THE JPM -**

**JPM STOP TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:** A4, DETERMINE RADIOLOGICAL REQUIREMENTS TO  
ENTER A HIGH RAD AREA

**Applicant's Name:** \_\_\_\_\_

**Date Performed:**

**Time to Complete:**

**JPM Results:**

**Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.

**CAUTION:** Do not operate or alter equipment configuration in the plant without proper authorization.

**INITIAL CONDITIONS:**

The unit is initially increasing power from an unplanned shutdown. Mixed Bed Demineralizer 1(2) "B" was recently placed in service and subsequently removed when an increase in RCS leakage was observed. 1(2) CV-0430, the demineralizer "B" inlet vent valve is suspected of causing the leakage because it was recently replaced.

**INITIATING CUE:**

The Unit Supervisor directs you to find the location of the valve and to determine the radiological entry requirements necessary to access the valve itself.

- It is not necessary to go to the valve's location.
- You are to discuss all requirements with the evaluator.

**NUCLEAR TRAINING DEPARTMENT**  
**JOB PERFORMANCE MEASURE**

**TITLE:** **REVIEW RCS INVENTORY AND DETERMINE  
TECH SPEC APPLICABILITY**

**JPM NO.:** **A5**

**REVISION:** **1**

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** REVIEW RCS INVENTORY AND DETERMINE TECH SPEC APPLICABILITY

**JPM No.:** A5

**Rev. No.:** 1

**Task No.:** 10300, Interpret Technical Specifications.

**STP Objective:** 10300, Given that a condition exists requiring entry into a Technical Specification action statement, interpret Technical Specifications accurately, such that plant activities occur safely and smoothly, and that contacting superiors for advice is unnecessary.

**Related K/A Reference:** 2.1.7 [4.4] Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument response.

**References:** OPSP03-RC-0006, Rev. 9, Reactor Coolant Inventory  
South Texas Project Technical Specifications

**Task Normally Completed By:** SRO

**Method of Testing:** Actual Performance

**Location of Testing:** N/A

**Time Critical Task:** NO

**Alternate Path JPM:** NO

**Validation Time:** 25 minutes

**Required Materials (Tools/Equipment):** Calculator  
Technical Specifications

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **READ TO PERFORMER:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EXAMINER WHEN YOU'VE COMPLETED THE TASK

### **INITIAL CONDITIONS:**

Unit 1 is at 100% steady state power with indications of increased RCS leakage. 0PSP03-RC-0006, Reactor Coolant Inventory, has just been completed using a manual calculation and indicates a Technical Specification Allowable Value has been exceeded.

### **INITIATING CUE:**

You are the Unit Supervisor and are to complete the Plant Operations Review of the completed surveillance, including Technical Specification applicability.

\$ Primary to Secondary leakage is 13 gpd.

\$ There is no other known leakage.

THREE errors have been inserted into the surveillance, one (1) Critical and two (2) Non-Critical. As a MINIMUM, you are to IDENTIFY the Critical error. Editorial errors such as spelling, grammar, or punctuation are unintentional and DO NOT count.

You are to take the following into account during your review:

1. There are **NO** intended errors in the "Instrument", "Start" or "Stop" columns of Data Sheet 1.
2. Carryover errors count as only one error (i.e., a single error that carries over from calculation to calculation or multiple line items with the same incorrect information).

**JOB PERFORMANCE MEASURE INFORMATION SHEET CON-T**

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

**COMPLETION CRITERIA:**

*The critical error has been identified AND it is determined that Technical Specification LCO entry is NOT required.*

**HANDOUTS:**

Handout Copy of the completed surveillance.

**NOTES:**

- A completed Answer KEY is provided for the Evaluator. The Key contains the same errors as the handout. The location of the errors will be highlighted and described on the evaluator copy. **Do Not Hand to the Applicant**
- If the applicant asks for additional data (e.g. Figures 10.8 and 10.9), emphasize that in the Initiating Cue it indicates that there are NO intended errors in the “Instrument”, “Start”, or “Stop” columns. If the student locates the Plant Curve Book and obtains Figures 10.8 and/or Figure 10.9, provide the applicant with the copies if Figures 10.8 and 10.9 that are marked “FOR NRC JPM USE ONLY”.

## JOB PERFORMANCE MEASURE CHECK SHEET

### NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

### JPM START TIME

**SAT/UNSAT Performance Step:** 1 (C)\*

Review the completed surveillance.

### Standard:

*Identifies the following ERRORS:*

- 1)\*VCT level change calculation is reversed ( “STOP-START” was used instead of “START-STOP”)
- 2) “Data Transcription or Calculations Verified By” signature block is N/A’d instead of being signed.
- 3) Data entry points at the bottom of page 2 of Data Sheet 1 are blank instead of being filled in.

### Comment:

- 1) \* Denotes Critical Error. Error #1 potentially causes an LCO entry and possible plant shutdown.
- 2) Error #2 is a requirement of procedure step 3.2 (if a manual calculation is performed) and is not considered critical because it is an administrative requirement. Error #3 is not considered critical because it does not affect the outcome of the surveillance, only makes the surveillance easier to reconstruct once vaulted.

**STEP CONTINUED ON NEXT PAGE**



## **JOB PERFORMANCE MEASURE CHECK SHEET**

**Cue:**

Error #1 results in incorrect calculations for GROSS Leakage rate (steps 5.8.1 and 5.8.2) and UNIDENTIFIED LEAKAGE Rate (step 5.11). If the applicant considers this 2 or more errors remind him/her of Initiating Cue assumption #2 - this is considered only 1 error.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 2 (C)

Determine Technical Specification applicability.

**Standard:**

*Determines that the Acceptance Criteria of the surveillance are NOT met (GROSS Leakage Rate is >1 gpm), however Technical Specification limits have NOT been exceeded and LCO entry is NOT required.*

**Comment:**

This surveillance is unique in that the Acceptance Criteria may not be met; yet an entry into a Technical Specification LCO may not be required.

**Cue:**

**Notes:**

Technical Specification limits are as follows:

- \$ No Pressure Boundary leakage
- \$ 1 gpm Unidentified Leakage
- \$ 150 gpd primary-to-secondary leakage through any one steam generator
- \$ 10 gpm Identified Leakage

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:** A5, REVIEW RCS INVENTORY AND DETERMINE TECH  
SPEC APPLICABILITY

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**

**Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EXAMINER WHEN YOU'VE COMPLETED THE TASK**

**INITIAL CONDITIONS:**

Unit 1 is at 100% steady state power with indications of increased RCS leakage. OPSP03-RC-0006, Reactor Coolant Inventory, has just been completed using a manual calculation and indicates a Technical Specification Allowable Value has been exceeded.

**INITIATING CUE:**

You are the Unit Supervisor and are to complete the Plant Operations Review of the completed surveillance, including Technical Specification applicability.

\$ Primary to Secondary leakage is 13 gpd.

\$ There is no other known leakage.

THREE errors have been inserted into the surveillance, one (1) Critical and two (2) Non-Critical. As a MINIMUM, you are to IDENTIFY the Critical error. Editorial errors such as spelling, grammar, or punctuation are unintentional and DO NOT count.

You are to take the following into account during your review:

There are **NO** intended errors in the "Instrument", "Start" or "Stop" columns of Data Sheet 1.

Carryover errors count as only one error (i.e., a single error that carries over from calculation to calculation or multiple line items with the same incorrect information)

**NUCLEAR TRAINING DEPARTMENT**  
**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

*TITLE: DETERMINE SHIFT STAFFING REQUIREMENTS*

*JPM NO.:*     *A6*

**REVISION:**         **1**

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** DETERMINE SHIFT STAFFING REQUIREMENTS

**JPM No.:** A6

**Rev. No.:** 1

**STP Task:** T31100, Ensure that shift is properly manned.

**STP Objective:** US31100, Ensure that operating shift is properly manned, fulfilling the requirements of Technical Specification 6.2.2.

**Related  
K/A Reference:** G2.1.5 [2.3/3.4] Ability to locate and use procedures and directives related to shift staffing and activities.

**References:** Technical Specifications Table 6.2-1, Minimum Shift Crew Composition  
0POP03-ZG-0001, Rev. 38, Plant Heatup  
0POP03-ZG-0007, Rev. 38, Plant Cooldown

**Task Normally  
Completed By:** SRO

**Method  
of Testing:** Actual Performance

**Location  
of Testing:** N/A

**Time  
Critical Task:** NO

**Validation  
Time:** 10 minutes

**Required Materials (Tools/Equipment):**

None

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK**

### **INITIAL CONDITIONS:**

You are the oncoming Unit 2 Shift Supervisor and the following plant conditions exist:

- Unit 1 is at 367 °F/2235 psig and cooling down at exactly the administrative cooldown rate limit for an upcoming outage.
- Unit 2 is at 138 °F/400 psig and heating up at exactly half of the administrative heatup rate limit for an upcoming plant startup.
- Both units have adequate manning and are prepared for impending MODE changes as required.

### **INITIATING CUE:**

Assuming that the respective heatup and cooldown rates continue without change, determine the Technical Specifications Minimum Shift Crew Composition for Unit 2 in exactly 2 hours. DO NOT include HP and Fire Brigade requirements.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### **COMPLETION CRITERIA:**

*Determines the correct shift manning requirements required by Technical Specifications.*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

- 1) No handouts are provided for the performer.
- 2) A Key is provided for the evaluator with the applicable pages of Technical Specifications Table 6.2-1, 0POP03-ZG-0001, Plant Heatup, and 0POP03-ZG-0007, Plant Cooldown.

### **NOTES:**

- None



**JOB PERFORMANCE MEASURE INFORMATION SHEET (cont'd)**

***NOTE:***

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

**SAT/UNSAT Performance Step:** 1

Obtain a copy of Technical Specifications.

**Standard:**

*Obtains a copy of Technical Specifications.*

**Comment:**

A procedural handout will not be provided. The Operator is expected to access a controlled or working copy of the required procedure.

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

### **SAT/UNSAT Performance Step:** 2

Determine Heatup and Cooldown Rates.

#### **Standard:**

*Determines administrative cooldown limit is 80 °F per hour and administrative heatup limit is 50° per hour.*

#### **Comment:**

The site administrative cooldown limit is mentioned in Section 4 of OPOP03-ZG-0007, Plant Cooldown and in Section 4 of OPOP03-ZG-0001, Plant Heatup.

#### **Cue:**

#### **Notes:**

---

### **SAT/UNSAT Performance Step:** 3

Determine Unit conditions in 2 hours.

#### **Standard:**

*Determines Unit 1 will be in Mode 4 and Unit 2 will be in Mode 5 in two hours.*

#### **Comment:**

MODE 4 is 200 – 350°F. In two hours Unit 1 will have decreased temperature by 160°F to be at 207°F.  $(367 - [2 \times 80] = 207)$

MODE 5 is < 200°F. In two hours Unit 2 will have increased temperature by 50 °F to be at 188°F.  $(138 + 2[.5 \times 50] = 188)$

#### **Cue:**

#### **Notes:**

---

### **SAT/UNSAT Performance Step:** 2

## JOB PERFORMANCE MEASURE CHECK SHEET

Determine Technical Specification Minimum Shift Composition required for Unit 2 in two hours.

**Standard:**

*Determines the correct Minimum Shift Composition requirement in accordance with Technical Specifications is:*

- 1 - Shift Supervisor\* (SS)*
- 0 - Senior Reactor Operators (SRO)*
- 1 - Reactor Operator (RO)*
- 1 - Plant Operator (PO)*
- 0 - Shift Technical Advisors\*\* (STA)*

**Comment:**

- 1) Technical Specifications Table 6.2-1 is applicable. The correct table quadrant to be used is "Mode 5 or 6 with Opposite Unit in Mode 1, 2, 3, or 4".
- 2) \* - The SS may fill the same position in Unit 1.
- 3) \*\* - The STA position SHALL be manned for Unit 1 (MODES 1-4) unless the SS or an SRO meets the qualifications for the STA as required by the NRC.

**Cue:**

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:** DETERMINE SHIFT STAFFING REQUIREMENTS

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**                      **Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature**

\_\_\_\_\_

**Date** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EXAMINER WHEN YOU'VE COMPLETED THE TASK**

**INITIAL CONDITIONS:**

You are the oncoming Unit 2 Shift Supervisor and the following plant conditions exist:

- Unit 1 is at 367 °F/2235 psig and cooling down at exactly the administrative cooldown rate limit for an upcoming outage.
- Unit 2 is at 138 °F/400 psig and heating up at exactly half of the administrative heatup rate limit for an upcoming plant startup.
- Both units have adequate manning and are prepared for impending MODE changes as required.

**INITIATING CUE:**

Assuming that the respective heatup and cooldown rates continue without change, determine the Technical Specifications Minimum Shift Crew Composition for Unit 2 in exactly 2 hours. DO NOT include HP and Fire Brigade requirements.

**NUCLEAR TRAINING DEPARTMENT**  
**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

**TITLE:** **REVIEW ESF POWER AVAILABILITY SURVEILLANCE RESULTS**

**JPM NO.:** **A7**

**REVISION:** **1**

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** REVIEW ESF POWER AVAILABILITY SURVEILLANCE RESULTS

**JPM No.:** A7

**Rev. No.:** 1

**STP Task:** 12000, Authorize Start Of And Review Surveillance Tests.

**STP Objective:** 12000, Authorize the start of surveillance tests, and review completion IAW OPGP03-ZE-0004, Plant Surveillance Program.

**Related K/A Reference:** 2.1.33 [4.0], Ability to recognize indications for system operating parameters which are entry level conditions for Technical Specifications.

**References:** OPSP03-EA-0002, ESF Power Availability

**Task Normally Completed By:** SRO

**Method of Testing:** Actual Performance

**Location of Testing:** N/A

**Time Critical Task:** NO

**Validation Time:** 20 minutes

**Required Materials (Tools/Equipment):**

None

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK**

### **INITIAL CONDITIONS:**

Unit 1 is at 100% power when an electrical transient occurred that resulted in the loss of the #1 Standby Transformer. Subsequently, the breaker from 4160 Volt AC bus E1B to 480 Volt Load Center E1B1 tripped open (supply breaker upstream of 480 Volt Load Center E1B1 transformer). The #12 ESF Diesel Generator later tripped due to a lube oil leak. The crew is currently in OPOP04-AE-0004, Loss Of Power To One Or More 4.16 KV ESF Bus, and has performed OPSP03-EA-0002, ESF Power Availability, to satisfy Technical Specification 3.8.1.1.

### **INITIATING CUE:**

You are to perform the "Test Results Second Review" for the completed ESF Power Availability Surveillance, and document your review by completing Step 4 of the Data Package Cover Sheet.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### **COMPLETION CRITERIA:**

*Determines that Surveillance Test results should be "unacceptable based on failing to meet surveillance acceptance criteria 6.3, and that the Technical Specification LCOs 3.8.3.1.a\*, 3.8.1.1.b, and 3.8.1.1.d should be entered.*

*\* Denotes Critical LCO*

### **HANDOUTS:**

Copy of completed Surveillance OPSP03-EA-0002.

### **NOTES:**

The evaluator is provided with an ANSWER KEY which is appropriately marked "KEY". The evaluator shall not hand out any page(s) marked as "KEY" to the applicant.



**JOB PERFORMANCE MEASURE INFORMATION SHEET (cont'd)**

***NOTE:***

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

**SAT/UNSAT Performance Step:** 1

Obtain completed ESF Power Availability Surveillance.

**Standard:**

*The applicant obtains a copy of the ESF Power Availability.*

**Comment:**

When the applicant has been read the Initiating Cues and has no questions, give the applicant a copy of the surveillance.

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 2

Review ESF Power Availability Surveillance.

**Standard:**

*The applicant reviews the ESF Power Availability Surveillance for accuracy.*

**Comment:**

While there is no time limit associated with this JPM, the applicant is expected to make reasonable progress during the review process.

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 3 (C) \*

Complete “Test Results Second Review” section

**Standard:**

*The applicant records the following on the “Test Results Second Review” section:*

- 1) **Test Results – Unacceptable\***
- 2) **Refer to T.S. – 3.8.3.1.a\*, 3.8.1.1.b, and 3.8.1.1.d**
- 3) **Is this condition a potentially reportable occurrence? – NO**
- 4) **Should an LCO action statement be entered? – YES**
- 5) **Explain – Words to the effect of:**

Surveillance Acceptance Criteria 6.3 is not satisfied\*. (480 V Load Center E1B1 is not energized via its respective load center transformer.) Technical Specification LCO action statements 3.8.3.1.a, 3.8.1.1.b, and 3.8.1.1.d should be entered based on the loss of the normal power supply to the 480 V Load Center E1B1 (T.S. 3.8.3.1.a) and the ESF Diesel Generator inoperability. (T.S. 3.8.1.1.b/d)

**Comment:**

- 1) (\*) Denotes the Critical portions. The applicant is expected to determine that the surveillance is unsatisfactory based on failing to meet acceptance criteria 6.3. The applicant should also know that the most limiting LCO to be entered is T.S. 3.8.3.1.a.
- 2) The loss of the Standby Transformer does not constitute a loss of an offsite source according to Technical Specification 3.8.1.1.a, therefore surveillance acceptance criteria 6.1 is satisfied.

**Cue:**

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

VERIFICATION OF COMPLETION

**Job Performance Measure:** A7, REVIEW ESF POWER AVAILABILITY  
SURVEILLANCE RESULT

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:** Sat / Unsat

**Evaluator:** \_\_\_\_\_

**Signature**  
\_\_\_\_\_

**Date** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EXAMINER WHEN YOU'VE COMPLETED THE TASK**

**INITIAL CONDITIONS:**

Unit 1 is at 100% power when an electrical transient occurred that resulted in the loss of the #1 Standby Transformer. Subsequently, the breaker from 4160 Volt AC bus E1B to 480 Volt Load Center E1B1 tripped open (supply breaker upstream of 480 Volt Load Center E1B1 transformer). The #12 ESF Diesel Generator later tripped due to a lube oil leak. The crew is currently in OPOP04-AE-0004, Loss Of Power To One Or More 4.16 KV ESF Bus, and has performed OPSP03-EA-0002, ESF Power Availability, to satisfy Technical Specification 3.8.1.1.

**INITIATING CUE:**

You are to perform the "Test Results Second Review" for the completed ESF Power Availability Surveillance, and document your review by completing Step 4 of the Data Package Cover Sheet.

311

**NUCLEAR TRAINING DEPARTMENT**  
**JOB PERFORMANCE MEASURE**

**TITLE:                      DECLARE EMERGENCY ACTION LEVEL**

**JPM NO.:                      A8**

**REVISION:                      1**

**LOCATION:                      Simulator**

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** DECLARE EMERGENCY ACTION LEVEL

**JPM No.:** A8

**Rev. No.:** 1

**Task No.:** 74026 (SRO), Classify emergency conditions.

**STP Objective:** Given an emergency condition and a copy of the emergency classification tables from 0ERP01-ZV-IN01, Emergency Classification, classify the emergency condition.

**Related K/A Reference:** 2.4.41 [4.0], Knowledge of the emergency action level thresholds and classifications.

**References:** 0ERP01-ZV-IN01, Rev. 5, Emergency Classification  
0ERP01-ZV-SH01, Rev. 16, Shift Supervisor

**Task Normally Completed By:** SRO

**Method of Testing:** Actual Performance

**Location of Testing:** Simulator

**Time Critical Task:** YES (15 minutes based on E-Plan Evaluation criteria)

**Alternate Path JPM:** NO

**Validation Time:** 15 minutes

**Required Materials (Tools/Equipment):** NONE

## JOB PERFORMANCE MEASURE INFORMATION SHEET

### READ TO PERFORMER:

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EXAMINER WHEN YOU HAVE COMPLETED THE TASK

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

### INITIAL CONDITIONS:

Unit 1 was at 100% power when a Steam Generator Tube Rupture (SGTR) occurred on SG 1B that resulted in a Reactor Trip and Safety Injection. These are the basic conditions associated with the exam scenario just completed.

The Simulator is in FREEZE (not running) with the conditions that existed at the end of the exam scenario and is available for you to use in your Emergency Plan Classification determination. No Control Board controls are functional, however computer system screens may be selected to obtain additional information.

### INITIATING CUE:

You are the Unit 1 Shift Supervisor. Based on the CURRENT, EXISTING Plant (simulator) conditions, classify the event at its MINIMUM Emergency Action Level. **Portions of this JPM are time critical.**

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

**The 15 minute time limit for declaring the Emergency Action Level starts when the applicant understands the initial conditions and initiating cue. Ensure the applicant understands this.**

### COMPLETION CRITERIA:

*An ALERT is declared based on Emergency Action Level FAI, Any Loss or Any Potential Loss of Fuel Clad or RCS.*



## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

NONE

### **NOTES:**

- \$ This JPM is to be performed in the Simulator immediately following exam Scenario #1. The plant conditions the Emergency Action Level declaration is based on are those that exist at the time Scenario #1 is stopped. The 'Initial Conditions' given in this JPM represent the major plant conditions of Scenario #1 relevant to the Emergency Plan Classification.
- \$ No handouts are provided for the performer. The student is to use the copy of the Emergency Plan in the Simulator.
- \$ A Key is provided for the evaluator with the applicable pages of 0ERP01-ZV-IN01, EMERGENCY CLASSIFICATION. **Do NOT hand this out to the student.**

## JOB PERFORMANCE MEASURE CHECK SHEET

**NOTE:**

\$ Critical steps are identified by (C).

\$ Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

### JPM START TIME

**SAT/UNSAT Performance Step:** 1

Obtain a copy of 0ERP01-ZV-IN01, Emergency Classification.

**Standard:**

*Obtains a copy of 0ERP01-ZV-IN01, Emergency Classification.*

**Comment:**

A procedural handout will not be provided. The student is to use the Emergency Plan available in the Simulator

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 2 (C)

Classify the event in accordance with Addendum 1 in 0ERP01-ZV-IN01.

**Standard:**

*Classifies the event as an ALERT based on Initiating Condition FA1, Any Loss or Any Potential Loss of Fuel Clad or RCS.*

**Comment:**

- \$ The ALERT classification is based on Recognition Category F, Fission Product Barrier Degradation, for the RCS. Refer to the KEY for details of classification.
- \$ Addendum 2 of 0ERP01-ZV-IN01 may also be consulted as it gives bases information for the various Emergency Action Levels.

**Cue:**

If necessary, ensure the student understands he/she can tour the simulator and call up various computer displays as needed.

**Notes:**

**This step must be completed within 15 minutes of the time when the applicant understands the initial conditions and initiating cue.**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:** A8, DECLARE EMERGENCY ACTION LEVEL

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**                      **Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EXAMINER WHEN YOU HAVE COMPLETED THE TASK

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

**INITIAL CONDITIONS:**

Unit 1 was at 100% power when a Steam Generator Tube Rupture (SGTR) occurred on SG 1B that resulted in a Reactor Trip and Safety Injection. These are the basic conditions associated with the exam scenario just completed.

The Simulator is in FREEZE (not running) with the conditions that existed at the end of the exam scenario and is available for you to use in your Emergency Plan Classification determination. No Control Board controls are functional, however computer system screens may be selected to obtain additional information.

**INITIATING CUE:**

You are the Unit 1 Shift Supervisor. Based on the CURRENT, EXISTING Plant (simulator) conditions, classify the event at its MINIMUM Emergency Action Level. **Portions of this JPM are time critical.**

**NUCLEAR TRAINING DEPARTMENT**  
**OPERATING JOB PERFORMANCE MEASURE**

**TITLE:** **RECOVER A DROPPED CONTROL ROD**

**JPM NO.:** **S1**

**REVISION:** **1**

**LOCATION:** **SIMULATOR**

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** RECOVER A DROPPED CONTROL ROD

**JPM No.:** S1

**Rev. No:** 1

**STP Task:** T86850, Respond to a stuck or dropped Control Rod.

**STP Objective:** CRO 86850, Respond to a stuck or dropped Control Rod in accordance with OPOP04-RS-0001.

**Related  
K/A Reference:** 001A2.03 [3.5/4.2] Ability to predict the impacts of a stuck or misaligned Rod on the CRDS, and based on those predictions, use procedures to correct, control, or mitigate the consequences.

**References:** OPOP04-RS-0001, Rev. 15, Control Rod Malfunction

**Task Normally  
Completed By:** RO

**Method  
of Testing:** Actual Performance

**Location  
of Testing:** Simulator

**Time  
Critical Task:** NO

**Alternate  
Path JPM:** NO

**Validation  
Time:** 25 minutes

**Required Materials (Tools/Equipment):**

None

## JOB PERFORMANCE MEASURE INFORMATION SHEET

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

### INITIAL CONDITIONS:

The unit is at 73% power. Control Bank "B" Rod K-14 dropped due to a blown fuse 30 minutes ago. The immediate and subsequent actions of OPOP04-RS-0001, "Control Rod Malfunction" have been completed to step 3. I&C has completed troubleshooting, replaced the fuse, inspected the remaining fuses and reported the rod ready for recovery. All other Control Bank "B" rods are at 249 steps.

### INITIATING CUE:

The Unit Supervisor directs you to recover and realign Control Bank Rod K-14 to 249 steps per OPOP04-RS-0001, Addendum 1. Reactor Engineering has requested that Tave be allowed to recover during the rod retrieval rather than reducing turbine load.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### COMPLETION CRITERIA:

*Control Bank Rod K-14 is recovered and realigned to 249 steps per OPOP04-RS-0001.***HANDOUTS:**

Working copy of OPOP04-RS-0001, Control Rod Malfunction



## JOB PERFORMANCE MEASURE INFORMATION SHEET

### NOTES:

- 1) JPMs S1 and S3 are to run together. The following steps will set up the simulator for **BOTH** JPMs.
- 2) This JPM is formatted for dynamic simulator performance only. The cues provided are related to communications and other general information needed for dynamic performance. (NO Indication type Cues are provided).
- 3) The following information is provided concerning information recorded at step 16.0 of OPOP04-RS-0001, if requested by the applicant:
  - Core location of malfunctioned rod – **K14**
  - Digital Rod Position Indication (DRPI) for malfunctioned rod - **0 steps**
  - Affected Bank – **Bravo Control Bank**
  - Group Step Counter Demand position - **249**
  - Type of malfunction - **dropped**
  - Date and time malfunction occurred - **current date/30 min. before present time**
- 4) RCS average temperature (Tavg) will be approximately 3°F below Tref prior to Rod recovery due to the dropped rod. When applicant mentions this temperature deviation, inform him/her that actions to adjust RCS temperature will be deferred until rod recovery is completed.

### SIMULATOR SETUP:

- 1) Ensure Radio volume for both stations are set to a reasonable level.
- 2) Ensure the PA buttons on the communications consoles are taped to help eliminate usage.
- 3) Reset to IC storepoint #134 and verify:
  - Step counter position annunciator light is out on CP-005
  - Red light at the end of CP-010 is out
- 4) Check and clean the following procedures (JPM specific):
  - OPOP04-RS-0001, Control Rod Malfunction
- 5) Place simulator in run. Silence/acknowledge/reset alarms as appropriate.

ADDITIONAL INSTRUCTIONS ON NEXT PAGE

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

- 6) Verify the following:
  - Verify Control Bank B Rod K-14 is at 0 steps by DRPI indication.
  - Verify Control Bank B step counters for groups #1 and #2 are 249 steps.
- 7) Execute lesson plan # 7 under Lesson Plan Group 'nrc2003' AND go to 'Start Lesson'.
- 8) Place the simulator in 'FREEZE' until the examiners are ready to proceed.

### **INSTRUCTOR ACTIONS:**

When directed to reset the Pulse to Analog Converter (Addendum 1, Step 14.0 of 0POP04-RS-0001, Control Rod Malfunction), THEN perform the following:

- a) Go the ACTIVE INSTRUCTOR ACTIONS page and remove the Rod K14 drop malfunction.
- b) Go to the REMOTE FUNCTIONS Page. Scroll down to the ROD CONTROL SYSTEM and open this page (Rod Control Remote Page 751). Locate the PADIS, Pulse to Analog Display, indication. It is located approximately two-thirds of the way down on the page. DO NOT click on this display. It will be used for indication only.
- c) TRIGGER Step #2 of Lesson Plan, Resetting P-A Converter Part 1
- d) WHEN Step #2 is triggered, PADIS will go to an indication of 249 and start counting down towards zero.
- e) WHEN the PADIS indication indicates zero, THEN trigger Step #3 of Lesson Plan, Reset P-A Converter Part 2.
- f) Now inform the Control Room that the Pulse to Analog Converter has been reset.
- g) WHEN both JPMs S1 and S3 are complete, THEN TERMINATE Lesson Plan #7.

## JOB PERFORMANCE MEASURE CHECK SHEET

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

---

**SAT/UNSAT Performance Step:** 1

Obtain a copy of OPOP04-RS-0001 and transition to addendum 1.

**Standard:**

*Obtains a copy of OPOP04-RS-0001 and transitions to addendum 1, Recovery of Single Dropped or Misaligned Rod.*

**Comment:**

The applicant should use the simulator copy of the procedure. No working copy is to be provided by the evaluator.

The applicant may choose to review the notes and precautions again, however it is intended that he/she transition to Addendum 1 as quickly as possible for time considerations. Provide cues as necessary to ensure this occurs.

**Cue:**

(If asked about RCS Temperature)

Inform applicant that actions to adjust RCS temperature will be deferred until rod recovery is completed.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 2

Document entry into T.S. Action Statement 3.1.3.1.b.3 in the Control Room Logbook.  
(Addendum 1, step 1.0)

**Standard:**

*Ensures Control Room Logbook entry is made regarding entry into T.S. Action Statement 3.1.3.1.b.3 or indicates one is required.*

**Comment:**

**Cue:**

A Control Room Logbook entry has been made.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 3

Verify power reduction requirements. (Addendum 1, steps 2.0 – 8.0)

**Standard:**

*Verifies the following are NOT required at this time:*

- 1) Power reduction to 75%
- 2) Notification to Reactor Engineering to perform core flux map
- 3) Notification to I&C to perform NI setpoint reduction

**Comment:**

The applicant may choose to notify Reactor Engineering anyway as a courtesy.

**Cue:**

- 1) If asked, 30 minutes have elapsed since rod K-14 dropped.
- 2) If asked, the Unit Supervisor determines power reduction is not required.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 4

Ensure both groups of each bank are at the same step counter position. (Addendum 1, step 9.0)

**Standard:**

*Verifies groups 1 and 2 step counters for Control Bank “B” are both at 249 steps.*

**Comment:**

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 5(C)

Select the affected bank on “ROD BANK SELECTOR SW”. (Addendum 1, step 10.0)

**Standard:**

*Selects Control Bank “B” at CP-005.*

**Comment:**

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 6(C)

Open the Lift Coil Disconnect Switches for all rods in the affected bank except the misaligned rod. (Addendum 1, step 11.0)

**Standard:**

*Opens the Lift Coil Disconnect Switches for "B" Control Bank Rods at the Control Rod Disconnect Switch box N1RSZCP020:*

- \$ Group 1 Rods F-2, B-10, and P-6
- \$ Group 2 Rods B-6, F-14, P-10, and K-2

**Comment:**

- 1) The disconnect switch box is located behind the simulator on the south wall, west of the transfer panels.
- 2) The Lift Coil is disconnected when its applicable switch is pulled upward.

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 7

Set the affected Group Step Counter to the position of the misaligned rod. (Addendum 1, step 12.0)

**Standard:**

*Sets Control Bank "B" Group 1 Step Counter to 0 steps at CP-005.*

**Comment:**

The Step Counters used in the simulator are different than those used in the actual plant. The ones used in the simulator are Electronic Step Counters, while the ones in the plant are Electro-mechanical. The method used to manually set each is different. This JPM is performed in the simulator, therefore the applicant should perform the following:

- 1) Open cover on Control Bank "B" Group 1 Step Counter (one on the left)
- 2) Depress and hold or push repeatedly the Upper Button of the three buttons on the left side of the Step Counter under its cover. This is done until the indication is "000".

**Cue:**

**Notes:**

---



## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 8

Check Malfunctioned Rod located in a Control Bank (Addendum 1, Step 13.0)

**Standard:**

*Determines that rod is located in a Control Bank and proceeds on to Step 14.0 of Addendum 1.*

**Comment:**

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 9

Setting Pulse to Analog Converter for Misaligned Control Rod (Addendum 1, Step 14.0)

**Standard:**

*Dispatches an Operator with key to EAB 60 ft Room 323. Directs the operator to perform Steps to align the Pulse to Analog Converter for Control Bank B at zero steps.*

**Comment:**

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 10

Maintain Tavg within 1.5°F of Tref during rod movement by adjusting the following as necessary while maintaining reactor power stable:

- \$ Turbine load or
- \$ RCS boron concentration

(Addendum 1, Step 15.0)

**Standard:**

*Mentions need to maintain Tave within 1.5°F of Tref by adjusting turbine load and/or boron concentration as necessary.*

**Comment:**

The Primary Reactor Operator would not be responsible for RCS temperature during Control Rod recovery; also temperature is expected to rise by almost 3°F when the rod is recovered.

**Cue:**

(When mentioned) Inform applicant that actions to adjust RCS temperature will be deferred until rod recovery is completed.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 11(C)

Withdraw the rod using the IN-HOLD-OUT switch until the rod is aligned with the affected bank. (Addendum 1, step 16.0)

**Standard:**

*Withdraws Control Bank Rod K-14 to 249 steps using the IN-HOLD-OUT switch at CP-005.*

**Comment:**

**Cue:**

If asked, No Control Rod withdrawal restrictions apply. (Max speed in "CB B" position is 48 steps/minute)

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 12(C)

Place all lift coil disconnect switches in the ROD CONNECTED position. (Addendum 1, Step 17.0)

**Standard:**

*Places all Lift Coil Disconnect Switches previously opened for the unaffected rods in Shutdown Bank "B" in the ROD CONNECTED position.*

**Comment:**

The Lift Coil is connected when its applicable switch is pulled downward.

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 13

Record the time of realignment in the Control Room Logbook. (Addendum 1, step 18.0)

**Standard:**

*Verifies Control Room logbook entry is made regarding recovered rod C-9 realignment.*

**Comment:**

**Cue:**

Control Room Logbook entry has been made.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 14(C)

Reset the Urgent Alarm. (Addendum 1, step 19.0)

**Standard:**

*Resets the Rod Control Urgent Alarm by depressing the "ROD CONT ALARM RESET" pushbutton at CP-005.*

**Comment:**

- 1) This pushbutton resets all internal inputs for the Rod Control Urgent Alarm annunciator.
- 2) 5M03/B5 ROD CONT URGENT ALARM will clear.

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 15

Place "ROD BANK SELECTOR SW" in manual. (Addendum 1, step 20.0)

**Standard:**

*Places the "ROD BANK SELECTOR SW" at CP-005 in manual.*

**Comment:**

**Cue:**

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:** S1, RECOVER A DROPPED CONTROL ROD

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**        **Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature**

**Date**

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.**

**CAUTION:** Do not operate or alter equipment configuration in the plant without proper authorization.

**INITIAL CONDITIONS:**

The unit is at 73% power. Control Bank "B" Rod K-14 dropped due to a blown fuse 30 minutes ago. The immediate and subsequent actions of OPOP04-RS-0001, "Control Rod Malfunction" have been completed to step 3. I&C has completed troubleshooting, replaced the fuse, inspected the remaining fuses and reported the rod ready for recovery. All other Control Bank "B" rods are at 249 steps.

**INITIATING CUE:**

The Unit Supervisor directs you to recover and realign Control Bank Rod K-14 to 249 steps per OPOP04-RS-0001, Addendum 1. Reactor Engineering has requested that Tave be allowed to recover during the rod retrieval rather than reducing turbine load.

**NUCLEAR TRAINING DEPARTMENT**  
**OPERATING JOB PERFORMANCE MEASURE**

**TITLE: ESTABLISH RCP SEALS WITH THE PDP**

**JPM NO.: S2**

**REVISION: 1**

**LOCATION: SIMULATOR**



## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** ESTABLISH RCP SEALS WITH THE PDP

**JPM No.:** S2

**Rev. No:** 1

**STP Task:** T502700, Place the Positive Displacement Charging Pump in service.

*STP Objective:* ***CRO 502700, When directed by plant procedure or at Unit Supervisor direction, START the Positive Displacement Charging Pump in accordance with OPOP02-CV-0004, Chemical and Volume Control System Subsystem operating procedure.***

**Related**

**K/A Reference:** 015/017 AA1.07, Ability to operate and/or monitor the following as they apply to the RCP malfunctions: RCP seal water injection system, 3.5/3.4

**References:** OPOP02-CV-0004, Rev 32, Chemical and Volume Control System Subsystem

**Task Normally Completed By:** RO

**Method of Testing:** Actual Performance

**Location of Testing:** Simulator

**Time Critical Task:** NO

**Alternate Path JPM:** NO

**Validation Time:** 15 minutes

**Required Materials (Tools/Equipment):**

None

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

*READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):*

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.**

**CAUTION:** Do not operate or alter equipment configuration in the plant without proper authorization.

### ***INITIAL CONDITIONS:***

The Unit is at 50% power. Centrifugal Charging Pump (CCP) 1B has been removed from service for motor replacement due to motor failure. Work on the motor replacement has been in progress for 2 days and is expected to take an additional 2 days.

CCP 1A has tripped due to motor overload and cannot be restarted. Charging Flow Control Valve, FCV-0205 has been taken to manual and closed. Letdown Orifice Header Isolation Valve, FV-0011 has been closed. Component Cooling Water (CCW) flows has been verified to the RCP Thermal Barriers.

### **INITIATING CUE:**

The Unit Supervisor directs you to place the Positive Displacement Charging Pump (PDP) in service and establish RCP seal injection between 8-13 gpm for each RCP in accordance with OPOP02-CV-0004, Chemical and Volume Control System Subsystem, Section 30.0, Positive Displacement pump Operations.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### ***COMPLETION CRITERIA:***

*Positive Displacement Charging Pump is started and RCP seal injection for each RCP is established between 8-13 gpm.*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

Working copy of 0POP02-CV-0004, Chemical and Volume Control System Subsystem

### **NOTES:**

This JPM is formatted for dynamic simulator performance only. The cues provided are related to communications and other general information needed for dynamic performance. (NO Indication type Cues are provided).

### **SIMULATOR SETUP:**

- 1) JPMs S2 and S5 are to run together. The following steps will set up the simulator for **BOTH** JPMs.
- 2) Ensure Radio volume for both stations are set to a reasonable level.
- 3) Ensure the PA buttons on the communications consoles are taped to help eliminate usage.
- 4) Reset to IC # 135 and verify:
  - Step counter position annunciator light is out on CP-005
  - Red light at the end of CP-010 is out
- 5) Check and clean the following procedures (JPM specific):
  - 0POP02-CV-0004, Chemical and Volume Control System Subsystem
- 6) Place simulator in run. Silence/acknowledge/reset alarms as appropriate.

ADDITIONAL INSTRUCTIONS ON NEXT PAGE

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

7) Verify the following:

- CCP 1B Control Room Handswitch is in the PTL position.
- CCP 1B Red and Green Light Indications are both OFF.
- CCP 1B Discharge Isolation MOV-8377B Red and Green Light Indications are both OFF.
- CCP 1B LO Available White Light is OFF.
- FV-0011 is CLOSED.
- FCV-0205 is in MANUAL and CLOSED.
- CCB 1A is not running. Control room Handswitch is in the NEUTRAL Position.
- Place Equipment Clearance Order (ECO) Danger tags on the following:
  - CCP 1B Control Room Handswitch
  - CCP 1B Discharge Isolation MOV-8377B Control Room Handswitch

8) Place the simulator in 'FREEZE' until the examiners are ready to proceed.

9) There is no Simulator Lesson Plan associated with this JPM.

### ***INSTRUCTOR ACTIONS:***

- 1) If contacted as a Plant Operator to check the PDP ready for start, report that it is ready to be started.
- 2) If contacted as a Plant Operator to report pump status after the start, report the start was satisfactory.

## JOB PERFORMANCE MEASURE CHECK SHEET

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by ( $S_1, S_2, \dots$ ).

*JPM START TIME* \_\_\_\_\_

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step: 1**

Obtain a copy of OPOP02-CV-0004, Chemical and Volume Control System Subsystem and transitions to Section 30.0.

**Standard:**

*Obtains a copy of OPOP02-CV-0004, Chemical and Volume Control System Subsystem and transitions to Section 30.0, Positive Displacement Pump Operation.*

**Comment:**

The applicant should use the simulator copy of the procedure. No working copy is to be provided by the evaluator.

The applicant may choose to review the notes and precautions again, however it is intended that he/she transition to Section 30.0 as quickly as possible for time considerations. Provide cues as necessary to ensure this occurs.

The Applicant may choose to review applicable Annunciator Response Procedures for alarms caused by this plant condition, however it is intended that he/she transition to Section 30.0 of OPOP02-CV-0004 as quickly as possible for time considerations. Provide cues as necessary to ensure this occurs.

**Cue:**

If the applicant wants to use the steps in the Annunciator Response Procedures to start and place the PDP in service, inform him/her that the Unit Supervisor wants them to use the steps contained in Section 30.0 of OPOP02-CV-0004.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 2

Ensure HCV-0285, Recirc Throttle Valve controller set at full open position.

**Standard:**

*Ensures that HCV-0285, Recirc Throttle Valve controller is set at the full open position on CP004.*

**Comment:**

HCV-0285 is a Hagan Controller utilizing a ten-turn potentiometer. Full open is when the potentiometer is fully clockwise and the red pointer is pointing to 100 on the scale.

*Cue:*

**Notes:**

---

**SAT/UNSAT Performance Step:** 3(C)

Start the PDP.

**Standard:**

*Starts the PDP by momentarily turning its handswitch to the "START" position on CP-004.*

**Comment:**

The applicant may dispatch a Plant Operator to check the PDP ready for start. Following the start the applicant will expect the Plant Operator to report the start was satisfactory if no problems are noted. Also, the applicant will likely want to make PA announcement before starting the pump (DO NOT let him/her make an actual announcement).

*Cue:*

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step: 4**

Ensure PDP Pump Cubicles Cooler (PDP SUPP CLR) HM-VAH006 is running at CP022.

**Standard:**

*Verifies that the PDP Pump Cubicle Cooler (PDP SUPP CLR) HM-VAH006 is running at CP022.*

**Comment:**

**Cue:**

**Notes:**

---



## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step: 5(C)**

Slowly throttle close HCV-0285, Recirc Throttle Valve on CP004 to obtain necessary seal injection flow or discharge pressure.

**Standard:**

*Takes HCV-0285 controller potentiometer slowly counter-clockwise while monitoring the following indications:*

- *Charging Header Pressure PI-0204 (If this pressure approaches 2800 psig, the candidate should inform the Unit Supervisor)*
- *RCP Seal Injection flow maintained between 8 and 13 gal/min and is monitored on:*

- ◇ *RCP 1A Seal Flow Recorder FR0156 (Green Pen)*
- ◇ *RCP 1B Seal Flow Recorder FR0157 (Green Pen)*
- ◇ *RCP 1C Seal Flow Recorder FR0158 (Green Pen)*
- ◇ *RCP 1D Seal Flow Recorder FR0159 (Green Pen)*

*or*

- ◇ *Seal Injection Flows on the Integrated Computer System (ICS) Normal Inventory Screen.*

**Comment:**

RCP seal injection flow/pressure may have to be adjusted using a coordination of HCV-0285, Recirc Throttle Valve and Seal Injection Control Valve, HCV-0218.

**Cue:**

**Notes:**

---

**- TERMINATE THE JPM -**

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

**JOB PERFORMANCE MEASURE CHECK SHEET**

## VERIFICATION OF COMPLETION

**Job Performance Measure:**

**Applicant's Name:** \_\_\_\_\_

**Date Performed:** \_\_\_\_\_

**Time to Complete:** \_\_\_\_\_

**JPM Results:**                      **Sat / Unsat**

**Evaluator:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**READ TO PERFORMER:**

**The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.**

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

**INITIAL CONDITIONS:**

The Unit is at 50% power. Centrifugal Charging Pump (CCP) 1B has been removed from service for motor replacement due to motor failure. Work on the motor replacement has been in progress for 2 days and is expected to take an additional 2 days.

CCP 1A has tripped due to motor overload and cannot be restarted. Charging Flow Control Valve, FCV-0205 has been taken to manual and closed. Letdown Orifice Header Isolation Valve, FV-0011 has been closed. Component Cooling Water (CCW) flows has been verified to the RCP Thermal Barriers.

**INITIATING CUE:**

The Unit Supervisor directs you to place the Positive Displacement Charging Pump (PDP) in service and establish RCP seal injection between 8-13 gpm for each RCP in accordance with 0POP02-CV-0004, Chemical and Volume Control System Subsystem, Section 30.0, Positive Displacement pump Operations.

311

**NUCLEAR TRAINING DEPARTMENT**  
**OPERATING JOB PERFORMANCE MEASURE**

**TITLE:** MANUALLY ENERGIZE AN ESF BUS

**JPM NO.:** S3

**REVISION:** 1

**LOCATION:** SIMULATOR

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** MANUALLY ENERGIZE AN ESF BUS

**JPM No.:** S3

**Rev. No:** 1

**STP Task:** 62550, Energize an Engineered Safeguards Bus

**STP Objective:** CRO 62550, Energize an ESF 4160v Bus per OPOP04-AE-0001

**Related K/A Reference:**

062 A4.01, Ability to manually operate and/or monitor in the control room: All breakers (including available switchyard), 3.3/3.1

062 A2.05, Ability to (a) predict the impacts of the following malfunctions or operations on the AC distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Methods for energizing a dead bus, 2.9/3.3

**References:** OPOP04-AE-0001, Rev. 27, First Response to Loss of Any or All 13.8 kV or 4.16 kV Bus

OPOP09-AN-03M3-A-4, Rev. 18, Annunciator Lampbox 3M3 Response Instructions

**Task Normally Completed By:** RO

**Method of Testing:** Actual Performance

**Location of Testing:** Simulator

**Time Critical Task:** No

**Alternate Path JPM:** Yes

**Validation Time:** 15 min.

**Required Materials (Tools/Equipment):** None

## JOB PERFORMANCE MEASURE INFORMATION SHEET

*READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):*

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

### *INITIAL CONDITIONS:*

The plant is in Mode 1 operating at approximately 73 % power. The feeder breaker from 13.8 kV Standby Bus 1G has tripped open causing a loss of normal power to 4160v ESF Bus 1B. The control switch for this breaker on CP-010 has been placed in PTL.

#12 ESF DG has JUST started, but has not automatically connected to 4160v ESF Bus 1B due to a Sequencer failure on Train 'B'. A Plant Operator (Yard Watch) has been dispatched to # 12 ESF DG, but has not yet arrived.

### **INITIATING CUE:**

The Unit Supervisor has directed you to energize 4160v ESF Bus 1B AND load it by performing OPOP04-AE-0001, Steps 3, 4 and 5.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### **COMPLETION CRITERIA:**

*4160v ESF Bus 1B is energized from it's respective ESF DG. ESF DG # 12 is immediately stopped when low lube oil pressure is noted.*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

Working copy of:

- OPOP04-AE-0001, First Response to Loss of Any or All 13.8 kV or 4.16 kV Bus
- OPOP09-AN-03M3-A-4, Annunciator Lampbox 3M3 Response Instructions

### **NOTES:**

1. This JPM is formatted for dynamic simulator performance only. The cues provided are related to communications and other general information needed for dynamic performance (NO indication type cues are provided).
2. Use the Simulator Setup section below to prepare the simulator
3. This JPM is an Alternate path JPM. Basically, the student will energize the 4160v ESF Bus from it's respective DG and verify proper ECW operation. Once this is done a low lube oil condition will develop on the DG causing a DG Trouble alarm. The student should refer to the annunciator response, determine the DG must be tripped and carry out this action. This is the termination point of the JPM.

### **SIMULATOR SETUP:**

- 1) JPMs S1 and S3 are to run together. The following steps will set up the simulator for **BOTH** JPMs.
- 2) Ensure Radio volume for both stations are set to a reasonable level.
- 3) Ensure the PA buttons on the communications consoles are taped to help eliminate usage.
- 4) Reset to IC # 134 and verify:
  - Step counter position annunciator light is out on CP-005
  - Red light at the end of CP-010 is out
- 5) Check and clean the following procedures (JPM specific):
  - OPOP04-AE-0001, First Response to Loss of Any or All 13.8 kV or 4.16 kV Bus
  - OPOP09-AN-03M3-A-4, Annunciator Lampbox 3M3 Response Instructions

ADDITIONAL ACTIONS ARE ON NEXT PAGE



## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

- 6) Place simulator in run. Silence/acknowledge/reset alarms as appropriate.
- 7) Execute lesson plan # 7 under Lesson Plan Group 'nrc2003' AND go to 'Start Lesson'.
- 8) Place the simulator in 'FREEZE' until the examiners are ready to proceed.

### **INSTRUCTOR ACTIONS:**

WHEN student COMPLETES Step 4 of OPOP04-AE-0001 (Checking ECW status and ensuring ECW is properly in service), THEN Trigger Step 1 (DG low lube oil pressure) of the simulator lesson plan.

As Yard Operator, if contacted by the Control Room AFTER THE DG TROUBLE ALARM COMES IN, inform them you just entered the DG Room and there is a large puddle of oil on the floor.

## JOB PERFORMANCE MEASURE CHECK SHEET

**NOTE:**

\$ Critical steps are identified by (C).

\$ Sequenced steps are identified by ( $S_1$ ,  $S_2$ , . . .).

### JPM START TIME

**SAT/UNSAT Performance Step:** 1

Obtain procedure 0POP04-AE-0001, First Response to Loss of Any or All 13.8 kV or 4.16 kV Bus

**Standard:**

**Copy of 0POP04-AE-0001, First Response to Loss of Any or All 13.8 kV or 4.16 kV Bus obtained**

**Comment:**

The applicant should use the simulator copy of the procedure. No working copy is to be provided by the evaluator

**Cue:**

None

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

### **SAT/UNSAT Performance Step:** 2

Any STBY DG required to be running AND output breaker closed on running STBY DG?

#### **Standard:**

*From OPOP04-AE-0001, Step 3, Determines there's an ESF DG is running, but it's output breaker is open. Refers to Step 3 RNO actions*

#### **Comment:**

This is the procedure entry point for the specified task. The conditions of this step were established in the JPM task statement. The student may go directly to the Step 3 RNO actions or first verify their applicability by doing Step 3.

#### **Cue:**

None

#### **Notes:**

---

### **SAT/UNSAT Performance Step:** 3

Ensure protective devices on the affected DG are logged, investigated and reset

- 4.16 kV Bus overcurrent lockout
- SDG generator differential lockout
- SDG overspeed lockout

#### **Standard:**

*The student should use the status panel at CP-003 to determine protective relay status – none have been actuated.*

#### **Comment:**

There are no protective relays actuated. The student may use the Yard Watch to locally check protective relays.

**Cue:** If asked, report there are no protective relays actuated.

#### **Notes:**

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 4

Ensure ESF Bus 'SPLY BKR' open

**Standard:**

*Student verifies the normal supply breaker to the ESF Bus is open.*

**Comment:**

**Cue:**

None

**Notes:**

---

**SAT/UNSAT Performance Step:** 5

Place the Synchronizing Sw for the STBY DG to the ON position

**Standard:**

*Places the Synchronizing Sw for the STBY DG to the ON position.*

**Comment:**

**Cue:**

None

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 6 (C)

Close the affected STBY DG output breaker

**Standard:**

*Closes the DG output breaker*

**Comment:**

Once the output breaker is closed, the student should verify the bus is energized by observing the bus voltmeter and/or annunciators clearing.

**Cue:**

None

**Notes:**

---

**SAT/UNSAT Performance Step:** 7

Place the Synchronizing Sw to the OFF position

**Standard:**

*Places the Synchronizing Sw to the OFF position*

**Comment:**

**Cue:**

None

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 8

Check ECW Status:

- ECW Pump running\*
- ECW Pump Discharge Isolation Valve open\*
- ECW Blowdown Isolation Valve closed

**Standard:**

*Verifies correct ECW system operation per the above*

**Comment:**

- 1) The ECW Pump Discharge Valve will still be de-energized at this time and cannot be opened. At this point the student can take one of two paths: re-energize the Load Centers to allow opening of the discharge valves, or place the Diesel Generator in Pull to Stop per procedure guidance. Step 8A represents the path to emergency stop the Diesel now. If the student establishes ECW to the Diesel continue the JPM at step 9.
- 2) To re-energize this valve the student can either re-energize the 480v Load Centers and MCC's now or during performance of procedure Step 5 in Addendum 1. If done now, he/she may or may not seek permission from the Unit Supervisor.

**Cue:**

If asked as the Unit Supervisor, give the student permission to immediately re-energize 480v Load Centers and MCC's,

If asked as the Unit Supervisor which loads are to be energized from procedure Addendum 1, indicate the following:

- ECW pump
- 480V Load Centers
- Essential Chiller and Chilled water pump

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 8A (C)

If the ECW Pump fails to start or its associated discharge valve fails to open, THEN:

- Place the associated standby DG in PULL-TO-STOP
- Place the affected essential chiller in PULL-TO-LOCK

**Standard:**

- *Places the associated standby DG in PULL-TO-STOP*
- *Places the affected essential chiller in PULL-TO-LOCK*

**Comment:**

- 1) This step is NA if the student established ECW flow in the previous JPM step.
- 2) If the student did NOT establish ECW flow in the previous JPM step, then terminate the JPM after completion of this step.

**Cue:**

None

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 9

DG 13 TRBL annunciator alarms

**Standard:**

*Acknowledges DG Trouble alarm and refers to Annunciator Response Instructions*

**Comment:**

The DG Trouble alarm is the initiating event for the alternate path. This won't occur until the student has verified ECW in service for DG #12.

**Cue:**

None

**Notes:**

---

**SAT/UNSAT Performance Step:** 10 (C)

If lube oil pressure is less than 30 psig then ensure the DG is tripped.

**Standard:**

*Determines lube oil pressure is less than 30 psig and trips the DG*

**Comment:**

This is an immediate action step of the Annunciator Response Instructions

**Cue:**

None

**Notes:**

---

**TERMINATE THE JPM**  
**JPM STOP TIME \_\_\_\_\_**



## VERIFICATION OF COMPLETION

**Job Performance Measure:**

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:            Sat / Unsat**

**Evaluator: \_\_\_\_\_**

**Signature**

**Date**

*READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):*

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.**

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

*INITIAL CONDITIONS:*

The plant is in Mode 1 operating at approximately 73 % power. The feeder breaker from 13.8 kV Standby Bus 1G has tripped open causing a loss of normal power to 4160v ESF Bus 1B. The control switch for this breaker on CP-010 has been placed in PTL.

#12 ESF DG has JUST started, but has not automatically connected to 4160v ESF Bus 1B due to a Sequencer failure on Train 'B'. A Plant Operator (Yard Watch) has been dispatched to # 12 ESF DG, but has not yet arrived.

**INITIATING CUE:**

The Unit Supervisor has directed you to energize 4160v ESF Bus 1B AND load it by performing 0POP04-AE-0001, Steps 3, 4 and 5.

**NUCLEAR TRAINING DEPARTMENT**  
**OPERATING JOB PERFORMANCE MEASURE**

**TITLE:** **ISOLATE SI ACCUMULATORS**

**JPM NO.:** **S4**

**REVISION:** **1**

**LOCATION:** **SIMULATOR**

## JOB PERFORMANCE MEASURE INFORMATION SHEET

**JPM Title:** ISOLATE SI ACCUMULATORS

**JPM No.:** S4

**Rev. No:** 1

**STP Task:** T81063, Respond to a LOCA Involving a Break Size in Which Reactor Coolant System Pressure Remains Above High Head Safety Injection Pump Shutoff Head.

**STP Objective:** CRO81063, Respond to a LOCA Involving a Break Size in Which Reactor Coolant System Pressure Remains Above High Head Safety Injection Pump Shutoff Head per POP05-EO-EO10.

**Related K/A Reference:** 00600K1.03, 006000K4.10, 006000K6.02, 006000A3.01, 006000A4.02, 006000K1.04, 006000K6.03, 006020A1.07, 006000SG07, 006000SG09, 000009EA1.01, 000009SG06, 000009SG12, 000011EA1.15, 000011SG06, 000011SG12, 194001A1.01, 194001A1.02, 194001A1.13

**References:** 0POP03-ZG-0007, Plant Cooldown Rev 38  
0POP02-SI-0001, Safety Injection Accumulators Rev 20

**Task Normally**

**Completed By:** RO

**Method of Testing:** Actual Performance

**Location of Testing:** Simulator

**Time Critical Task:** NO

**Alternate Path JPM:** YES

**Validation Time:** 15 minutes

**Required Materials (Tools/Equipment):** None

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

*READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):*

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.**

**CAUTION:** Do not operate or alter equipment configuration in the plant without proper authorization.

### ***INITIAL CONDITIONS:***

A plant cooldown is in progress. The Unit is in Mode 3 with RCS Temperature between 440°F and 450°F. RCS Pressure is between 900 and 1000 psig. Steps of OPOP03-ZG-0007, Plant Cooldown have been completed through Step 5.36.

### **INITIATING CUE:**

The Unit Supervisor directs you to CLOSE Safety Injection Accumulator Discharge Valves in accordance with OPOP03-ZG-0007, Plant Cooldown, Step 5.37.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### ***COMPLETION CRITERIA:***

**Safety Injection Accumulator Discharge Valves MOV-0039A and MOV-0039B are closed.**

*Safety Injection Accumulator 1C venting is in progress.*

## JOB PERFORMANCE MEASURE INFORMATION SHEET

### HANDOUTS:

Working copies of the following procedures:

- 0POP03-ZG-0007, Plant Cooldown.
- 0POP02-SI-0001, Safety Injection Accumulators

### NOTES:

- 1) This JPM is formatted for dynamic simulator performance only. The cues provided are related to communications and other general information needed for dynamic performance. (NO Indication type Cues are provided).

### *SIMULATOR SETUP:*

- 1) JPMs S4 and S6 are to run together. The following steps will set up the simulator for **BOTH** JPMs.
- 2) Ensure Radio volume for both stations are set to a reasonable level.
- 3) Ensure the PA buttons on the communications consoles are taped to help eliminate usage.
- 4) Reset to IC #136 and verify:
  - Step counter position Annunciator light is out
  - Red light at the end of CP-010 is out
- 5) Check and clean the following procedures (JPM specific):
  - 0POP03-ZG-0007, Plant Cooldown
  - 0POP02-SI-0001, Safety Injection Accumulators
- 6) Place simulator in run. Silence/acknowledge/reset alarms as appropriate.
- 7) Place the simulator in 'FREEZE' until the examiners are ready to proceed.
- 8) There is no simulator lesson for either of these JPM's.

### INSTRUCTOR ACTIONS:

If contacted as a Plant Operator to station yourself in the vicinity of Accumulator 1C with an O2 instrument, report that you are on station with the O2 instrument after a short time delay.

## JOB PERFORMANCE MEASURE CHECK SHEET

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

JPM START TIME \_\_\_\_\_

---

**SAT/UNSAT Performance Step:                      1**

Obtain a copy of 0POP03-ZG-0007, Plant Cooldown and transition to Step 5.37.

**Standard:**

*Obtains a copy of 0POP03-ZG-0007, Plant Cooldown and transitions to Step 5.37, close safety injection accumulator discharge valves.*

**Comment:**

The applicant should use the simulator copy of the procedure. No working copy is to be provided by the evaluator.

The applicant may choose to review the notes and precautions again, however it is intended that he/she transition to Step 5.37 as quickly as possible for time considerations. Provide cues as necessary to ensure this occurs.

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:**                      **2**

CLOSE accumulator discharge valve breakers using the power lockout switches:

- ACC 1A PWR LOCKOUT MOV-0039A
- ACC 1B PWR LOCKOUT MOV-0039B
- ACC 1C PWR LOCKOUT MOV-0039C

**Standard:**

*Closes the Accumulator Discharge Valve Breakers by momentarily taking the Accumulator Power Lockout Switches to the Power On position:*

\_\_\_\_\_ ACC 1A PWR LOCKOUT MOV-0039A  
\_\_\_\_\_ ACC 1B PWR LOCKOUT MOV-0039B  
\_\_\_\_\_ ACC 1C PWR LOCKOUT MOV-0039C

**Comment:**

**Cue:**

**Notes:**

---



## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 3(C)

Close accumulator discharge valves:

- ACC 1A DISCH ISOL MOV-0039A
- ACC 1B DISCH ISOL MOV-0039B
- ACC 1C DISCH ISOL MOV-0039C

**Standard:**

*Closes the Accumulator Discharge Valve by momentarily taking the Accumulator Discharge Isolation Valve Switches to the close position:*

\_\_\_\_\_ ACC 1A DISCHARGE ISOL MOV-0039A\*  
\_\_\_\_\_ ACC 1B DISCHARGE ISOL MOV-0039B\*  
\_\_\_\_\_ ACC 1C DISCHARGE ISOL MOV-0039C (Fails to close)

**Comment:**

\* Denotes critical portion of step

Accumulator 1C Discharge Isolation Valve MOV-0039C will fail to close. Applicant should inform the Unit Supervisor that MOV-0039C has failed to close.

**Cue:**

When informed by the applicant that MOV-0039C has failed to close, as Unit Supervisor inform him/her to vent Accumulator 1C in accordance with 0POP02-SI-0001, Safety Injection Accumulators, Section 8.0.

If the applicant requests to open Accumulator 1A, 1B, or 1C Discharge Isolation Valve Breakers by taking their Power Lockout Switches to OFF, as Unit Supervisor, inform him/her that you concur.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:**                      **4**

VERIFY local area around Safety Injection Accumulator 1C is clear of personnel, by making an announcement over Site PA System.

**Standard:**

*Makes PA announcement that venting of Safety Injection Accumulator 1C will take place and personnel should stand clear of Safety Injection Accumulator 1C.*

**Comment:**

The applicant may dispatch a Plant Operator to the vicinity of Accumulator 1C with an O2 instrument to monitor the atmosphere at this location.

**Cue:**

1. Do not allow applicant to make an actual PA announcement. When applicant indicates that they would make a PA announcement informing personnel to stand clear of Safety Injection Accumulator 1C, inform him/her that the announcement has been made and personnel have been informed of Safety Injection Accumulator 1C venting.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:**                      **5**

MONITOR Accumulator pressure for Safety Injection Accumulator  
1C:

- ACC 1C PRESS 1-SI-PI-0964/0965

**Standard:**

*Monitors Safety Injection Accumulator Pressure on pressure indicators PI-0964/0965.*

**Comment:**

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:**                      **6(C)**

OPEN the N2 SPLY/VENT valve for Accumulator PV-3928.

**Standard:**

**Opens the N2 SPLY/VENT valve for Accumulator PV-3928.**

**Comment:**

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 7(C)

OPEN HDR VENT HCV-0900 to establish desired venting rate.

**Standard:**

*Opens HDR Vent HCV-0900 to start venting Safety Injection Accumulator 1C.*

**Comment:**

A considerable amount of time will be needed to completely vent Safety Injection Accumulator completely.

**Cue:**

When a pressure decrease begins on Safety Injection Accumulator 1C, as “Unit Supervisor”, inform the applicant that we will continue with 0POP03-ZG-0007, Plant Cooldown Procedure while Safety Injection Accumulator 1C Vents.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

---

**SAT/UNSAT Performance Step:** 8(C)

OPEN accumulator discharge valve breakers using the power lockout switches:

- ACC 1A PWR LOCKOUT MOV-0039A
- ACC 1B PWR LOCKOUT MOV-0039B
- ACC 1C PWR LOCKOUT MOV-0039C

**Standard:**

*Opens the Accumulator Discharge Valve Breakers by momentarily taking the Accumulator Power Lockout Switches to the Power Off position:*

\_\_\_\_\_ *ACC 1A PWR LOCKOUT MOV-0039A*  
\_\_\_\_\_ *ACC 1B PWR LOCKOUT MOV-0039B*  
\_\_\_\_\_ *ACC 1C PWR LOCKOUT MOV-0039C*

**Comment:**

This step may have been performed earlier

**Cue:**

If applicant questions whether he/she should de-energize 1C Accumulator Discharge Isolation Valve, as Unit Supervisor inform him/her to do so.

**Notes:**

---

**- TERMINATE THE JPM -**

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

## VERIFICATION OF COMPLETION

**Job Performance Measure:**

**Applicant's Name:** \_\_\_\_\_

**Date Performed:** \_\_\_\_\_

**Time to Complete:** \_\_\_\_\_

**JPM Results:**                      **Sat / Unsat**

**Evaluator:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**READ TO PERFORMER:**

**The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.**

**CAUTION:** Do not operate or alter equipment configuration in the plant without proper authorization.

**INITIAL CONDITIONS:**

A plant cooldown is in progress. The Unit is in Mode 3 with RCS Temperature between 440°F and 450°F. RCS Pressure is between 900 and 1000 psig. Steps of 0POP03-ZG-0007, Plant Cooldown have been completed through Step 5.36.

**INITIATING CUE:**

The Unit Supervisor directs you to CLOSE Safety Injection Accumulator Discharge Valves in accordance with 0POP03-ZG-0007, Plant Cooldown, Step 5.37.



311

**NUCLEAR TRAINING DEPARTMENT**  
**OPERATING JOB PERFORMANCE MEASURE**

**TITLE: POWER RANGE NI FAILURE**

**JPM NO.: S5**

**REVISION: 1**

**LOCATION: SIMULATOR**

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**JPM Title:** POWER RANGE NI FAILURE

**JPM No.:** S5

**Rev. No:** 1

**STP Task:** T81650, Respond to a Loss of Power Range Instrument

**STP Objective:** CRO 81650, Respond to a Loss of Power Range Instrument per OPOP04-NI-0001.

**Related K/A Reference:** 015 A4.03, Ability to manually operate and/or monitor in the control room: Trip Bypasses, 3.8/3.9

**References:** OPOP04-NI-0001, Rev. 10, Nuclear Instrumentation Malfunction

OPOP09-AN-05M3, Rev. 21, Annunciator Lampbox 5M03  
Response Instructions

**Task Normally Completed By:** RO

**Method of Testing:** Actual Performance

**Location of Testing:** Simulator

**Time Critical Task:** No

**Alternate Path JPM:** No

**Validation Time:** 15 min.

**Required Materials (Tools/Equipment):** None

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

**INITIAL CONDITIONS:**

The Unit is at 50% power with all control systems in Automatic with the exception of Rod Control

**INITIATING CUE:**

You are the Primary Reactor Operator and you receive the following alarms:

- 5M03-A3, PR UPPER DET FLUX DEV HI/AUTO DEF
- 5M03-B3, PR LOWER DET FLUX DEV HI/AUTO DEF
- 5M03-C4, PR CHANNEL DEV

The Unit Supervisor directs you to investigate these alarms and take appropriate corrective action

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

**COMPLETION CRITERIA:**

*The corrective actions for the Power Range Instrument malfunction have been completed in accordance with Off-Normal procedure 0POP04-NI-0001, Nuclear Instrumentation Malfunction.*

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**HANDOUTS:** Working copies of:

OPOP04-NI-0001, Nuclear Instrumentation Malfunction

OPOP09-AN-05M3, Annunciator Lampbox 5M03 Response Instructions

**NOTES:**

4. This JPM is formatted for dynamic simulator performance only. The cues provided are related to communications and other general information needed for dynamic performance (NO indication type cues are provided).
5. Use the Simulator Setup section below to prepare the simulator

**SIMULATOR SETUP:**

- 3) JPMs S2 and S5 are to run together. The following steps will set up the simulator for **BOTH** JPMs.
- 4) Ensure Radio volume for both stations are set to a reasonable level.
- 5) Ensure the PA buttons on the communications consoles are taped to help eliminate usage.
- 6) Reset to IC # 135 and verify:
  - Step counter position annunciator light is out
  - Red light at the end of CP-010 is out
- 7) Check and clean the following procedures (JPM specific):
  - OPOP04-NI-0001, Nuclear Instrumentation Malfunction
  - OPOP09-AN-05M3, Annunciator Lampbox 5M03 Response Instructions

Place simulator in run. Silence/acknowledge/reset alarms as appropriate.

Place the simulator in 'FREEZE' until the examiners are ready to proceed.

There is no simulator lesson plan for this pair of JPMs

*JOB PERFORMANCE MEASURE CHECK SHEET*

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

**SAT/UNSAT Performance Step:** 1

Identify the failed Power Range Channel

**Standard:**

**Identifies that Power Range Channel N-41 has failed low**

**Comment:**

This is not a procedural step as such, but should be the student's first action based on alarms and indications present. The student may consult various alarm response instructions for existing alarms during this JPM step.

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 2

Place Rod Bank Selector Sw. in Manual

**Standard:**

**Ensures the Rod Bank Selector Sw. is in Manual**

**Comment:**

This step is an Immediate Action step of 0POP04-NI-0001, Nuclear Instrumentation Malfunction. The student may first go to this procedure because the alarm response instructions will direct him/her there.

At this power level the Rod Bank Selector Sw. is already in Manual so no action will be required except to check it's status.

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 3

Control SG Levels 68-74%

**Standard:**

*SG levels are controlled 68-74%*

**Comment:**

This step is an Immediate Action step of 0POP04-NI-0001, Nuclear Instrumentation Malfunction. The student may first go to this procedure because the alarm response instructions will direct him/her there.

SG levels should be unaffected by the Power Range Instrument failure because only the Low Power Feedwater Reg. Valves receive an input from the Nuclear Instrumentation and they are not in service at this power level.

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 4

Obtain procedure 0POP04-NI-0001, Nuclear Instrumentation Malfunction

**Standard:**

**Obtains copy of procedure 0POP04-NI-0001, Nuclear Instrumentation Malfunction**

**Comment:**

The student may have already performed this JPM step per the comments on JPM steps 2 and 3.

**Cue:**

None

**Notes:**

---

**SAT/UNSAT Performance Step:** 5

Verifies procedure Step 1.0 including RNO actions (Immediate Actions) is complete.

**Standard:**

*Verifies Immediate Actions have been completed (refer to JPM steps 2 and 3), then goes to procedure Addendum 3, Power Range Nuclear Instrumentation Malfunction*

**Comment:**

**Cue:**

None

**Notes:**

---



*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 6

Stop any Main Turbine load changes

**Standard:**

**Verifies no load changes in progress**

**Comment:**

No load changes will be in progress

**Cue:**

None

**Notes:**

---

**SAT/UNSAT Performance Step:** 7

Maintain RCS Tav<sub>g</sub> within 1.5 degrees F of Tref using Manual Control Rod motion

**Standard:**

Checks Tav<sub>g</sub>/Tref deviation to verify it's < 1.5 degrees F

**Comment:**

Tav<sub>g</sub>/Tref should be within 1.5 degrees F because there was no rod motion or turbine load changes occurring at the time of the event.

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 8 (C)

Bypass the malfunctioning Power Range Channel

**Standard:**

*Bypasses N-41 at the Nuclear Instrumentation Panel by positioning the following switches:*

- *Comparator Channel Defeat*
- *Power Mismatch Bypass*
- *Rod Stop Bypass*
- *Detector Current Comparator – Upper Section*
- *Detector Current Comparator – Lower Section*

**Comment:**

All switches are positioned to the failed NI channel: N-41

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 9 (C)

Ensure Permissives are in their correct state

**Standard:**

*Checks the following Permissive Status Lampboxes on CP-005:*

- *P-7 POWER OPER RX TRIPS BLKD (5M24-B-2) – NOT LIT*
- *P-8 THREE LOOP OPERATION PERMITTED (5M24-B-3)- NOT LIT*
- *P-9 RX/TURB TRIP BLOCKED (5M24-B-4) – LIT*
- *P-10 MAN BLOCK INT/LO PR RX TRIP PERM (5M24-A-2) - LIT*

**Comment:**

**Cue:**

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 10

Select an operable Power Range Channel on Nuclear Recorder NI-NR-0045

**Standard:**

*Ensures RED PEN SELECTOR switch is NOT selected to NI-41*

*Ensures BLUE PEN SELECTOR switch is NOT selected to NI-41*

**Comment:**

**Cue:**

**Notes:**

---

**- TERMINATE THE JPM -**

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

## VERIFICATION OF COMPLETION

**Job Performance Measure:**

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:        Sat / Unsat**

**Evaluator: \_\_\_\_\_**

**Signature**

**Date**

*JPM – STUDENT HANDOUT*

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU’VE COMPLETED THE TASK.**

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

**INITIAL CONDITIONS:**

The Unit is at 50% power with all control systems in Automatic with the exception of Rod Control

**INITIATING CUE:**

You are the Primary Reactor Operator and you receive the following alarms:

- 5M03-A3, PR UPPER DET FLUX DEV HI/AUTO DEF
- 5M03-B3, PR LOWER DET FLUX DEV HI/AUTO DEF
- 5M03-C4, PR CHANNEL DEV

The Unit Supervisor directs you to investigate these alarms and take appropriate corrective action

311

**NUCLEAR TRAINING DEPARTMENT**  
**OPERATING JOB PERFORMANCE MEASURE**

**TITLE: ESTABLISH SUPPLEMENTARY PURGE**

**JPM NO.: S6**

**REVISION: 1**

**LOCATION: SIMULATOR**

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**JPM Title:** ESTABLISH SUPPLEMENTARY PURGE

**JPM No.:** S6

**Rev. No:** 1

**STP Task:** T34350, Perform a Containment Supplemental Purge

**STP Objective:** CRO34350, Perform a Containment Supplemental Purge per OPOP02-HC-0003

**Related K/A Reference:**

029 A1.03, Ability to predict and/or monitor changes in parameters to prevent exceeding design limits associated with operating the Containment Purge System controls including: Containment pressure, temperature and humidity, 3.0/3.3

103 A4.01, Ability to manually operate and/or monitor in the control room: Flow control, pressure control, and temperature control, 3.2/3.3

**References:** OPOP02-HC-0003, Rev. 13, Supplementary Containment Purge

OPCP09-HC-0001, Rev. 1, Form 1, RCB Purge Notification Levels

**Task Normally Completed By:** RO

**Method of Testing:** Actual Performance

**Location of Testing:** Simulator

**Time Critical Task:** No

**Alternate Path JPM:** No

**Validation Time:** 20 min.

**Required Materials (Tools/Equipment):** None



*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

**INITIAL CONDITIONS:**

A plant cooldown is in progress. The Unit is in Mode 3 with RCS Temperature between 440°F and 450°F. RCS Pressure is between 900 and 1000 psig.

Reactor Containment pressure is slightly elevated resulting in a CMTNT PRESS HI/LO annunciator on Control Room Panel CP-002. Tech Spec 3.6.1.4, Containment Systems – Internal Pressure, is in effect.

An active Form 1, RCB Purge Notification Levels, is available in the Control Room. RT-8011 is NOT operable, RT-8012 and 8013 ARE operable and required by Tech Spec 3.3.2.

There is no Extended Allowed Outage Time (EAOT) in effect

**INITIATING CUE:**

The Unit Supervisor directs you to start the Supplementary Containment Purge System with one Exhaust Fan running (NO Supply Fans) AND reduce Containment pressure to within Tech Spec limits (-0.1 to +0.3).

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

**COMPLETION CRITERIA:**

*Supplementary Containment Purge has been started in accordance with 0POP02-HC-0003 and Containment pressure has been established at -0.1 to +0.3 psig to comply with Tech Spec requirements.*

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**HANDOUTS:**

Working copies of:

- 0POP02, HC-0003, Supplementary Containment Purge
- 0PCP09-HC-0001, Form 1, RCB Purge Notification Levels (filled out)

**NOTES:**

6. This JPM is formatted for dynamic simulator performance only. The cues provided are related to communications and other general information needed for dynamic performance (NO indication type cues are provided).
7. Use the Simulator Setup section below to prepare the simulator

**SIMULATOR SETUP:**

- 4) JPM's S4 and S6 are to run together. The following steps will set up the simulator for **BOTH** JPM's.
- 8) Ensure Radio volume for both stations are set to a reasonable level.
- 9) Ensure the PA buttons on the communications consoles are taped to help eliminate usage.
- 10) Reset to IC # 136 and verify:
  - Step counter position annunciator light is out
  - Red light at the end of CP-010 is out
- 11) Check and clean the following procedures (JPM specific):
  - 0POP02-HC-0003, Supplementary Containment Purge
- 6) Place simulator in run. Silence/acknowledge/reset alarms as appropriate.
- 7) Place the simulator in 'FREEZE' until the examiners are ready to proceed.
- 8) There is no simulator lesson plan for this JPM

SEE NEXT PAGE FOR SPECIFIC INSTRUCTIONS FOR THIS JPM

### **INSTRUCTIONS SPECIFIC TO THIS JPM**

1. Verify Rm-11 and Rm-23 operating properly. Verify that the 'GAS' pushbutton is illuminated on RM-23s for RT-8012 and RT-8013.
2. Ensure a CR tag is in place on monitor RI-8011 on the RM-23.
3. Ensure 0PCP09-HC-0001, Form 1, RCB Purge Notification Levels, is available prior to commencing (a filled out copy should accompany this JPM).
4. Ensure there is a pad of paper available for the student to use as the Control Room Log.

5. *JOB PERFORMANCE MEASURE CHECK SHEET*

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

**SAT/UNSAT Performance Step: 1**

Obtain a copy of 0POP02, HC-0003, Supplementary Containment Purge and 0PCP09-HC-0001, Form 1, RCB Purge Notification Levels

**Standard:**

**Obtains a copy of 0POP02, HC-0003, Supplementary Containment Purge**

**Comment:**

The applicant should use the simulator copy of 0POP02, HC-0003, Supplementary Containment Purge. No working copy is to be provided by the evaluator

**Cue:**

Provide the student with the attached copy of 0PCP09-HC-0001, Form 1, RCB Purge Notification Levels. The initial conditions indicated this form is available.

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 2

Checks Prerequisite conditions

**Standard:**

**Determines Prerequisite conditions are met**

**Comment:**

**Cue:**

Provide the following cues, as necessary, as the student checks Prerequisites:

1. Procedure step 3.3:
  - CVI is required.
  - Train R and S Master Relay Defeat Sw. are in NORMAL
  - There is no testing or maintenance being performed on RT-8012 or 013
2. Procedure step 3.5: Lineup 1, 2, and 3 have been completed.

**Notes:**

---

**SAT/UNSAT Performance Step:** 3

Ensure PUMP ON/OFF light is ON for the following at Radiation Monitoring Panel, CP-023:

- RT-8012
- RT-8013

**Standard:**

**Pump lights are verified to be ON for both Radiation Monitors**

**Comment:**

The procedure indicates that this step only applies if these Rad Monitors are required to be operable by Tech Spec 3.3.2. For these plant conditions, these Rad Monitors ARE required to be operable. The initial conditions provided stipulate the operability of these Rad Monitors.

**Cue:**

None

**Notes:**

---

**SAT/UNSAT Performance Step:** 4

Perform Channel Checks on RT-8012 and 8013

**Standard:**

*Determines channel checks satisfactory for RT-8012 and 8013 by observing:*

- *Less than a factor of 3 between readings of RT-8012 and 8013*
- *Readings are below the Alert alarm point (no Alert alarms present)*
- *OPER lights (Green lights) are illuminated*

**Comment:**

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 5

If noble gas activity is greater than  $5.00E-4$  uC/cc, Rad Monitor setpoints must be raised to prevent an unwanted purge isolation.

**Standard:**

*Determines noble gas activity is less than  $5.00E-4$  uC/cc, thus Rad Monitor setpoints don't have to be increased.*

**Comment:**

This information normally comes from RT-8011, which is inoperable. The alternate means would be to obtain the information from grab samples that are being taken in lieu of RT-8011 operability. The grab sample information is on the RCB Purge Notification Levels Form

**Cue:**

If the student contacts chemistry for RCB atmosphere noble gas activity, inform him/her it is  $5.96E-6$  uC/cc

If the student requests to ask someone for the location of this information, inform him/her it is on Form 1, RCB Purge Notification Levels.

**Notes:**

---

**SAT/UNSAT Performance Step:** 6

Verify Rad Monitor RT-8012 and 8013 setpoints are  $5.00E-4$  uC/cc

**Standard:**

*Verify Rad Monitor RT-8012 and 8013 setpoints are  $5.00E-4$  uC/cc by observing RM-11 displays*

**Comment:**

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 7

Observe ventilation stack flow prior to initiating the purge (ERFDADS point HMFA9308, RM-11 or CP-023)

**Standard:**

**Observes ventilation stack flow on ICS point HMFA9308, RM-11 or CP-023**

**Comment:**

The procedure calls the computer point “ERFDADS point HMFA9308” however the current computer is the ICS (Integrated Computer System). The point numbers are identical between the two systems.

The flow indication ‘bounces’ around somewhat making it difficult to get a ‘steady-state’ reading

**Cue:**

None

**Notes:**

---



**SAT/UNSAT Performance Step:** 8 (C)

Open the following valves AND verify they are open:

- SPLY OCIV FV-9776
- SPLY ICIV MOV-0003
- EXH ICIV MOV-0005
- EXH OCIV FV-9777

**Standard:**

*Opens the valves specified above and verifies they are open.*

**Comment:**

There are actually separate procedure steps to open the valves and then verify they are open

**Cue:**

None

**Notes:**

---

JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 9

Observe INTK DMPR FV-9594 for OPEN or intermediate position

**Standard:**

**Observes Interlock Damper FV-9594 is either open or in the intermediate position**

**Comment:**

Intermediate position is shown by both lights being lit.

**Cue:**

None

**Notes:**

---

**SAT/UNSAT Performance Step:** 10 (C)

If desired, then start one Purge Exhaust Fan

**Standard:**

*Starts one Purge Exhaust Fan*

**Comment:**

The procedure allows for purging without fan operation, however, the Initiating Cue specifies that a Purge Exhaust Fan will be operated, but no Supply Fan

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 11

Monitor ventilation stack flow for an increase of approximately 4500 cfm

**Standard:**

*Monitors ventilation stack flow for an increase of approximately 4500 cfm (ERFDADS point HMFA9308, RM-11 or CP-023)*

**Comment:**

It may be difficult to accurately determine the flow increase due to the variation in indications described earlier

**Cue:**

If necessary, inform the student he observes the appropriate increase in ventilation stack flow

**Notes:**

---

**SAT/UNSAT Performance Step:** 12

Record specified information in the Control Room Log

**Standard:**

*Records the following in the Control Room Log:*

- *Date/time purge initiated*
- *Purge type (Supplementary)*
- *Purge flow rate*
- *Reason for purge (pressure control)*

**Comment:**

There is no Control Room Logbook per se in the simulator. The student can record this information on any available paper or in the procedure he/she is using.

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 13

Compare RT-8012 and 8013 gas channel readings to the notification levels on the RCB Purge Levels Notification Form

**Standard:**

*Compares RT-8012 and 8013 gas channel readings to the notification levels on the RCB Purge Levels Notification Form.*

**Comment:**

As long as Rad Monitors are within the notification levels then no further action is required. This is the expected condition.

**Cue:**

None

**Notes:**

---

**SAT/UNSAT Performance Step:** 14

Continues purge. Periodically monitors RT-8012 and 8013 as before.

**Standard:**

**Continues purge until Containment pressure is within Tech Spec range of -0.1 to +0.3 psig**

**Comment:**

Containment pressure will be within Tech Spec range when the CMTNT PRESS HI/LO Annunciator (Window A-2) on Control Room Panel CP-002 clears.

**Cue:**

None

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 15 (C)

When Containment pressure is within Tech Spec range, secure the purge

**Standard:**

**Determines Containment pressure is within Tech Spec range**

**Comment:**

Containment pressure will be within Tech Spec range when the CMTNT PRESS HI/LO annunciator (Window A-2) on Control Room Panel CP-002 clears.

The student may want to continue the purge until QDPS displays  $< +0.3$  psig, however, this will unnecessarily extend the JPM since Tech Spec compliance is based on the Annunciator window

**Cue:**

Terminate the JPM when the student starts to secure the purge

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:**

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:            Sat / Unsat**

**Evaluator: \_\_\_\_\_**

**Signature**

**Date**

## **JPM – STUDENT HANDOUT**

### **READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.**

**CAUTION:** Do not operate or alter equipment configuration in the plant without proper authorization.

### **INITIAL CONDITIONS:**

A plant cooldown is in progress. The Unit is in Mode 3 with RCS Temperature between 440°F and 450°F. RCS Pressure is between 900 and 1000 psig.

Reactor Containment pressure is slightly elevated resulting in a CMTNT PRESS HI/LO annunciator on Control Room Panel CP-002. Tech Spec 3.6.1.4, Containment Systems – Internal Pressure, is in effect.

An active Form 1, RCB Purge Notification Levels, is available in the Control Room. RT-8011 is NOT operable, RT-8012 and 8013 ARE operable and required by Tech Spec 3.3.2.

There is no Extended Allowed Outage Time (EAOT) in effect

### **INITIATING CUE:**

The Unit Supervisor directs you to start the Supplementary Containment Purge System with one Exhaust Fan running (NO Supply Fans) AND reduce Containment pressure to within Tech Spec limits (-0.1 to +0.3).



**NUCLEAR TRAINING DEPARTMENT**  
**OPERATING JOB PERFORMANCE MEASURE**

**TITLE:** **DETERMINE AND ESTABLISH CONTAINMENT  
SPRAY PUMP REQUIREMENTS**

**JPM NO.:** **C1**

**REVISION:** **1**

**LOCATION:** **UNIT 1, UNIT 2, OR SIMULATOR**

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**JPM Title:** DETERMINE AND ESTABLISH  
CONTAINMENT SPRAY PUMP REQUIREMENTS

**JPM No.:** C1

**Rev. No:** 1

**STP Task:** 82495 Respond to a Loss of Emergency Coolant  
Recirculation

**STP Objective:** 82495 Respond to a Loss of Emergency Coolant  
Recirculation Condition in accordance with POP05-EC-EC11.

**Related K/A Reference:** 013A1.06 [3.6/3.9], Ability to predict and/or monitor changes in  
parameters (to prevent exceeding design limits) associated with  
operating the ESFAS controls including: RWST level.

026A4.01 [4.5/4.3], Ability to manually operate and/or monitor in  
the control room: CSS controls.

**References:** OPOP05-EO-EC11, Rev. 12, Loss of Emergency  
Coolant Recirculation

**Task Normally  
Completed By:** RO or SRO

**Method of Testing:** Simulated

**Location of Testing:** Control Room / Simulator

**Time Critical Task:** NO

**Alternate Path JPM:** NO

**Validation Time:** 20 minutes

**Required Materials (Tools/Equipment):**

None

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

**INITIAL CONDITIONS:**

A Large Break LOCA has occurred in the RCS. Load Center E1(2)C2 lost power 10 minutes after the LOCA occurred. Control room operators were performing 0POP05-EO-EO10 when the RWST LO-LO Level alarm came in. The crew transitioned to 0POP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, however they were unable to open any of the Containment Sump to SI Suction Header Valves (SI-MOV-0016A, B, & C).

RCFC 11(21) B is tagged out for motor replacement and RCFC 12(22) B has tripped.

The Unit Supervisor has now transitioned to 0POP05-EO-EC11, LOSS OF EMERGENCY COOLANT RECIRCULATION, and has commenced cooldown per Step 5.

**INITIATING CUE:**

The Unit Supervisor directs you to continue with Step 6 and take appropriate actions per 0POP05-EO-EC11, LOSS OF EMERGENCY COOLANT RECIRCULATION.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

**COMPLETION CRITERIA:**

*Containment Spray Pumps are operated in accordance with 0POP05-EO-EC11 requirements.*

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**HANDOUTS:**

Working copy of 0POP05-EO-EC11, Loss of Emergency Coolant Recirculation.

**NOTES:**

1. This JPM will be performed statically in either the Unit 1 or Unit 2 Control Room or on a static simulator.
2. The applicant may consult 0POP05-EO-ES13, Transfer to Cold Leg Recirculation before beginning. If he/she feels there's a discrepancy in the plant conditions based on actions in ES13, inform him/her that the current plant conditions are a result of appropriate operator actions and to proceed with the assigned task.

**SIMULATOR SETUP:**

- 1) Ensure Radio volume for both stations are set to a reasonable level.
- 2) Ensure the PA buttons on the communications consoles are taped to help eliminate usage.
- 3) Reset to the 100% power Storepoint and verify:
  - Step counter position annunciator light is out
  - Red light at the end of CP-010 is out
- 4) Check and clean the following procedures (JPM specific):
  - 0POP05-EO-EC11, Loss of Emergency Coolant Recirculation
- 5) Place simulator in run. Silence/acknowledge/reset alarms as appropriate.
- 6) Place the simulator in 'FREEZE'

*JOB PERFORMANCE MEASURE CHECK SHEET*

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

*JPM START TIME* \_\_\_\_\_

**SAT/UNSAT Performance Step:** 1

Obtain a copy of 0POP05-EO-EC11, Loss of Emergency Coolant Recirculation

**Standard:**

*Obtains a copy of 0POP05-EO-EC11, Loss of Emergency Coolant Recirculation.*

**Comment:**

1. Provide the applicant with a copy of 0POP05-EO-EC11.
2. If this is being performed in the Simulator, applicant may use the controlled copy of the procedure in the Simulator.

**Cue:**

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 2

Verify RCFCs Running.

**Standard:**

*Identifies three (3) RCFCs are running:*

\_\_\_\_\_ RCFC 11(21)A      \_\_\_\_\_ RCFC 12(22)A      \_\_\_\_\_ RCFC 11(21)C

**Comment:**

The table below is laid out in the same order as the Control Board indicating lights.

RCFC:      11(21)B Tagged Out for Motor Replacement  
              12(22)B Tripped  
              12(22)C No Power (E1(2)C2 De-energized)

**Cue:**

<b>RCFC Run Status</b>	11(21)A	12(22)A	11(21)B (tagged out)	12(22)B (tripped)	11(21)C	12(22)C (no power)
Green	Off	Off	Off	On	Off	On
Red	On	On	Off	Off	On	Off

- **IF** applicant asks for RCFC air temperature, report inlet temperature is 95°F on the three operating RCFCs.
- **AFTER** the applicant has verified the status of the above equipment, hand out Attachment 1 for the applicant's future reference.

**Notes:**

---

**SAT/UNSAT Performance Step:** 3

Verify RCFC cooling water transferred to CCW.

**Standard:**

*Verifies RCFC cooling water transferred to CCW (for operable RCFCs):*

*RCB Chilled Water valves - CLOSED:*

*CCW valves - OPEN:*

\_\_\_\_\_ *MOV-0059*  
\_\_\_\_\_ *MOV-0070*

\_\_\_\_\_ *MOV-0057*  
\_\_\_\_\_ *MOV-0069*  
\_\_\_\_\_ *MOV-0068\**

\_\_\_\_\_ *MOV-0137*  
\_\_\_\_\_ *MOV-0149*

\_\_\_\_\_ *MOV-0136*  
\_\_\_\_\_ *MOV-0148*  
\_\_\_\_\_ *MOV-0147\**

\_\_\_\_\_ *MOV-0208\**

*\* If asked*

**Comment:**

1. No light indication to Train C valves due to loss of LC E1(2)C2:

- MOV-0199
- MOV-0209
- MOV-0197
- MOV-0210

2. Applicant can either use valve positions or flow as indicators.

**Cue:**

<b>RCFC 11A/12A (21A/22A)</b>	<b>CHWS SPLY OCIV MOV-0059</b>	<b>CHWS RETURN OCIV MOV-0070</b>	<b>CCW SPLY OCIV MOV-0057</b>	<b>CCW RETURN OCIV MOV-0069</b>	<b>RCFC 11A/12A RET ICIV MOV-0068*</b>
Green	On	On	Off	Off	Off
Red	Off	Off	On	On	On

<b>RCFC 11B/12B (21B/22B)</b>	<b>CHWS SPLY OCIV MOV-0137</b>	<b>CHWS RETURN OCIV MOV-0149</b>	<b>CCW SPLY OCIV MOV-0136</b>	<b>CCW RETURN OCIV MOV-0148</b>	<b>RCFC 11A/12A RET ICIV MOV-0147*</b>
Green	On	On	Off	Off	Off
Red	Off	Off	On	On	On

*STEP CONTINUED NEXT PAGE*

STEP 3 (continued)

RCFC 11C/12C (21C/22C)	CHWS SPLY OCIV MOV-0199	CHWS RETURN OCIV MOV-0209	CCW SPLY OCIV MOV-0197	CCW RETURN OCIV MOV-0210	RCFC 11A/12A RET ICIV MOV-0208*
Green	Off	Off	Off	Off	Off
Red	Off	Off	Off	Off	On

- **AFTER** the above equipment status is verified by the applicant, hand out Attachment 2
- **IF** applicant checks CCW Flow to RCFCs, provide the following cues.

RCFC Flow Indicator	<u>11A(21A)</u> FI-4536	<u>12A(22A)</u> FI-4538	<u>11B(21B)</u> FI-4553	<u>12B(22B)</u> FI-4555	<u>11C(21C)</u> FI-4570	<u>12C(22C)</u> FI-4572
CCW Flow (gpm)	2000	2000	2000	2000	2000	2000

- **AFTER** the above equipment status is verified by the applicant, hand out Attachment 3

**Notes:**

---



*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 4(C)

Monitor RWST Level greater than 32,500 gallons (6%).

**Standard:**

*Checks RWST level using any MCB Meter /Recorder, ICS Indications, or QDPS indications.*

**Comment:**

ICS is the Integrated Computer System (Plant Computer) which uses CRT displays.  
QDPS is the computer system that uses the plasma displays.

**Cue:**

- RWST level channels (LI-0931, LI-0932) or Level Recorder (LR-0931) = **73,000 gallons.**
- ICS or QDPS indication = **73,000 gallons.**

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 5(C)

Verify Containment Spray Pump suction – ALIGNED TO RWST.

**Standard:**

*Determines Containment Spray Pump suction is aligned to the RWST.*

**Comment:**

**Cue:**

Train A	CNTMT SUMP TO SI SUCT HDR ISOL, SI-MOV-0016A	RWST TO SI SUCT HDR ISOL, SI-MOV-0001A
Green	ON	OFF
Red	OFF	ON

Train B	CNTMT SUMP TO SI SUCT HDR ISOL, SI-MOV-0016B	RWST TO SI SUCT HDR ISOL, SI-MOV-0001B
Green	ON	OFF
Red	OFF	ON

Train C	CNTMT SUMP TO SI SUCT HDR ISOL, SI-MOV-0016C	RWST TO SI SUCT HDR ISOL, SI-MOV-0001C
Green	OFF	OFF
Red	OFF	OFF

If asked, pump flows are as follows:

- EACH Low Head Safety Injection (LHSI) – 2500 gpm
- EACH High Head Safety Injection (HHSI) – 900 gpm
- EACH Containment Spray – 2200 gpm

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 6(C)

Determine the Containment Spray Pump Operating Requirements.

**Standard:**

*Determines **TWO (2)** Containment Spray Pumps should be running.*

**Comment:**

The operator should use RWST Level, CNTMT Pressure, and RCFC status to determine that two (2) Containment Spray Pumps should be running.

**Cue:**

- RWST level channels (LI-0931, LI-0932), or recorder (LR-0931) = **61,000 gallons**
- ICS/QDPS indication = **61,000 gallons**
- Containment Pressure (PR-935/934, PR-9759, or ICS/QDPS) = **9.0 psig**

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:**

7

Verify Containment Spray Pumps running – EQUAL TO NUMBER REQUIRED.

**Standard:**

*Identifies THREE (3) Containment Spray Pumps are running and only TWO (2) are required.*

**Comment:**

**Cue:**

<i>Run Status</i>	CSS PUMP 1(2)A	CSS PUMP 1(2)B	CSS PUMP 1(2)C
Green	OFF	OFF	OFF
Red	ON	ON	ON

<i>Discharge Valve</i>	CSS PUMP 1(2)A	CSS PUMP 1(2)B	CSS PUMP 1(2)C
Number	MOV-0001A	MOV-0001B	MOV-0001C
Status	Red – ON Green - OFF	Red – ON Green - OFF	Red – OFF Green - OFF

<i>Discharge Flow</i>	CSS PUMP 1(2)A	CSS PUMP 1(2)B	CSS PUMP 1(2)C
Indicator	FI-0813A	FI-0823A	FI-0833A
Flow (gpm)	2,200	2,300	2,250

- Unit Supervisor directs that Containment Spray Pump “C” be secured after the need to secure one pump is identified.

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 8(C)

Manually operate Containment Spray Pumps.

**Standard:**

**Secures Train “C” Containment Spray Pump**

**Comment:**

1. The Containment Spray Actuation Signal has NOT been reset. If the operator places Containment Spray Pump 1(2)C control switch to stop and returns to auto, the pump will remain running. The operator must take the control switch to the Pull-To-Lock position or reset the Containment Spray Actuation Signal in order to stop the pump.
2. To satisfy this step, the applicant can secure any of the Containment Spray Pumps

**Cue:**

- **IF** the Containment Spray Pump 1(2)C handswitch is turned to **OFF** and the applicant asks, the Containment Spray Pump 1(2)C lights are: Red – ON; Green - OFF

**IF** applicant informs the Unit Supervisor or requests direction, **THEN** direct applicant to place Containment Spray Pump 1(2)C handswitch in the Pull-To-Lock position

- **IF** the Containment Spray Pump 1(2)C handswitch is placed in the Pull-To-Lock position, the pump indicating lights are: Red – OFF; Green – ON.

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

**VERIFICATION OF COMPLETION**

**Job Performance Measure:** DETERMINE AND ESTABLISH CONTAINMENT SPRAY  
PUMP REQUIREMENTS

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**        **Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature**

**Date**

*JPM – STUDENT HANDOUT*

**ATTACHMENT 1**

<b>RCFC Run Status</b>	11(21)A	12(22)A	11(21)B <i>(tagged out)</i>	12(22)B <i>(tripped)</i>	11(21)C	12(22)C <i>(no power)</i>
Green	Off	Off	Off	On	Off	On
Red	On	On	Off	Off	On	Off

*JPM –STUDENT HANDOUT*

**ATTACHMENT 2**

<i>RCFC 11A/12A (21A/22A)</i>	CHWS SPLY OCIV MOV-0059	CHWS RETURN OCIV MOV-0070	CCW SPLY OCIV MOV-0057	<i>CCW RETURN OCIV MOV-0069</i>	RCFC 11A/12A RET ICIV MOV-0068
Green	On	On	Off	Off	Off
Red	Off	Off	On	On	On

<b>RCFC 11B/12B (21B/22B)</b>	CHWS SPLY OCIV MOV-0137	CHWS RETURN OCIV MOV-0149	CCW SPLY OCIV MOV-0136	<i>CCW RETURN OCIV MOV-0148</i>	RCFC 11A/12A RET ICIV MOV-0147
Green	On	On	Off	Off	Off
Red	Off	Off	On	On	On

<b>RCFC 11C/12C (21C/22C)</b>	CHWS SPLY OCIV MOV-0199	CHWS RETURN OCIV MOV-0209	CCW SPLY OCIV MOV-0197	<i>CCW RETURN OCIV MOV-0210</i>	RCFC 11A/12A RET ICIV MOV-0208
Green	Off	Off	Off	Off	Off
Red	Off	Off	Off	Off	On



JPM – STUDENT HANDOUT

ATTACHMENT 3

<b>RCFC Flow Indicator</b>	<u>11A(21A)</u> FI-4536	<u>12A(22A)</u> FI-4538	<u>11B(21B)</u> FI-4553	<u>12B(22B)</u> FI-4555	<u>11C(21C)</u> FI-4570	<u>12C(22C)</u> FI-4572
<i>CCW Flow</i> <b>(gpm)</b>	2000	2000	2000	2000	2000	2000

## **JPM – STUDENT HANDOUT**

### **READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.**

**CAUTION:** Do not operate or alter equipment configuration in the plant without proper authorization.

### **INITIAL CONDITIONS:**

A Large Break LOCA has occurred in the RCS. Load Center E1(2)C2 lost power 10 minutes after the LOCA occurred. Control room operators were performing 0POP05-EO-EO10 when the RWST LO-LO Level alarm came in. The crew transitioned to 0POP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, however they were unable to open any of the Containment Sump to SI Suction Header Valves (SI-MOV-0016A, B, & C).

RCFC 11(21) B is tagged out for motor replacement and RCFC 12(22) B has tripped.

The Unit Supervisor has now transitioned to 0POP05-EO-EC11, LOSS OF EMERGENCY COOLANT RECIRCULATION, and has commenced cooldown per Step 5.

### **INITIATING CUE:**

The Unit Supervisor directs you to continue with Step 6 and take appropriate actions per 0POP05-EO-EC11, LOSS OF EMERGENCY COOLANT RECIRCULATION.

311

**NUCLEAR TRAINING DEPARTMENT**  
**OPERATING JOB PERFORMANCE MEASURE**

**TITLE: RESPOND TO RCB HIGH RADIATION**

**JPM NO.: C2**

**REVISION: 1**

**LOCATION: UNIT 1 OR 2 CONTROL ROOM OR THE SIMULATOR**

311

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**JPM Title:** RESPOND TO RCB HIGH RADIATION

**JPM No.:** C2

**Rev. No:** 1

**STP Task:** T83791, Respond to High Containment Radiation

**STP Objective:** CRO 83791, Respond to High Containment Radiation per OPOP05-EO-FRZ3, Response to High Containment Radiation

**Related K/A Reference:**

E16 EA2.2, Ability to determine and interpret the following as they apply to the High Containment Radiation: Adherence to appropriate procedures and operation with the limitations in the facility's license and amendments, 3.0/3.3

**References:** OPOP05-EO-F005, Rev. 0, Containment Critical Safety Function Status Tree  
OPOP050-EO-FRZ3, Rev. 1, Response to High Containment Radiation

**Task Normally Completed By:** RO

**Method of Testing:** Static Performance

**Location of Testing:** Unit 1 or 2 Control Room or Simulator

**Time Critical Task:** No

**Alternate Path JPM:** No

**Validation Time:** 10 minutes

**Required Materials (Tools/Equipment):** None

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the student):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU=VE COMPLETED THE TASK.**

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

**INITIAL CONDITIONS:**

An RCS leak in excess of normal Charging capacity has occurred inside Containment. The crew has manually tripped the Reactor and initiated SI. The crew implemented OPOP05-EO-EO00, Reactor Trip or Safety Injection, then transitioned to OPOP05-EO-EO10, Loss of Reactor or Secondary Coolant. When monitoring Critical Safety Functions it was noted there was a YELLOW PATH on the Containment Critical Safety Function.

**INITIATING CUE:**

The Unit Supervisor directs you to evaluate the YELLOW PATH on the Containment Critical Safety Function AND take the appropriate action.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

**COMPLETION CRITERIA:**

**Containment is verified isolated and Containment Carbon Filter Units are placed in service**

*JOB PERFORMANCE MEASURE INFORMATION SHEET*

**HANDOUTS:**

Working copies of:

- 0POP05-EO-F005, Containment Critical Safety Function Status Tree
- 0POP05-EO-FRZ3, Response to High Containment Pressure

**NOTES:**

This JPM to be performed statically in either Unit 1 or 2 Control Room or the Simulator

**SIMULATOR SETUP (if performed in the simulator):**

- 5) Ensure Radio volume for both stations are set to a reasonable level.
- 6) Ensure the simulator PA buttons on the communications consoles are taped to help eliminate usage.
- 7) Reset to the 100% power Storepoint and verify:
  - Step counter position annunciator light is out
  - Red light at the end of CP-010 is out
- 8) Check and clean the following procedures (JPM specific):
  - 0POP05-EO-F005, Containment Critical Safety Function Status Tree
  - 0POP05-EO-FRZ3, Response to High Containment Pressure
- 9) Place simulator in run, Silence/acknowledge/reset alarms as necessary.
- 10) Place the simulator in FREEZE

*JOB PERFORMANCE MEASURE CHECK SHEET*

**NOTE:**

- \$ Critical steps are identified by (C).
- \$ Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

**SAT/UNSAT Performance Step:** 1

Obtain a copy of 0POP05-EO-F005, Containment Critical Safety Function Status Tree

**Standard:**

**Obtains a copy of 0POP05-EO-F005, Containment Critical Safety Function Status Tree**

**Comment:**

Provide the operator with a copy of 0POP05-EO-F005, Containment Critical Safety Function Status Tree. If performed in the Simulator, applicant may use the controlled copy of the procedure in the Simulator.

**Cue:**

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 2

Containment Pressure < 56.5 psig?

**Standard:**

**Determines containment pressure is < 56.5 psig**

**Comment:**

Student may check recorders on back panel CP-018 or computer indication (QDPS or ICS).

For this and other steps that involve retrieving information from a computer system the student should be able to actually operate the system to get to the page or point of interest. In the Unit 1 or 2 Control Rooms, the student should first obtain permission from the watchstander.

It will be difficult for the examiner to indicate values on the electronic recorders due their variation in scaling. All electronic recorders have digital readouts in addition to the history traces. Recommend the examiners provide these values rather than trying to point to the corresponding value on the chart portion of the recorder.

**Cue:**

If checking a computer screen display, once the student correctly shows where to obtain the indication, indicate the reading is 0.3 psig:

- If looking at QDPS, the value will be directly displayed on appropriate screens
- If looking at ICS, the individual must call up a computer point that displays Containment pressure or a graphic display that has the information on it (like on QDPS)

If checking a recorder indication, use a pointing device to indicate approximately 0.3 psig

**Notes:**

---



*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 3

Containment Pressure < 9.5 psig?

**Standard:**

**Determines containment pressure is < 9.5 psig**

**Comment:**

By performing the actions of JPM Step 2, the individual will also be able to answer this procedure step

**Cue:**

None necessary. Use the cue in JPM step 2 if the student wishes to re-check indications.

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 4

Containment Water Level < 69 “?”

**Standard:**

**Determines Containment Water Level is < 69”**

**Comment:**

Student may check recorders on back panel CP-018 or computer indication (QDPS or ICS). Ensure student is looking at Wide Range (W/R) Containment level indication and NOT Containment Normal or Secondary Sump levels.

**Cue:**

If checking a computer screen display, once the student correctly shows where to obtain the indication, indicate the reading is 0”:

- If looking at QDPS, the value will be directly displayed on appropriate screens either as a value or bar graph
- If looking at ICS, the individual must call up a computer point that displays Containment pressure or a graphic display that has the information on it (like on QDPS)

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 5 (C)

Containment Radiation <  $2E + 3$  R/Hr?

**Standard:**

*Determines Containment radiation >  $2E + 3$  R/Hr*

**Comment:**

There are 2 Rad Monitors that can be used to display high range dose rate: RT-8050 and 8051. These monitors can be read on any of the following computer systems:

- RM-23
- RM-11
- QDPS
- ICS

**Cue:**

Once the individual correctly shows where to obtain the indication, indicate that RT-8050 indicates  $3E + 3$  R/Hr. and RT-8051 indicates  $3.2E + 3$  R/Hr.

These readings are above the 'Alert' alarm setpoint for these monitors. On the RM-23 modules there will be a yellow 'Alert' alarm light ON. On the RM-11 display, the monitors' icons (blocks) will be yellow.

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 6

Based on RT-8011 and 8012 readings, implement 0POP05-EO-FRZ3, Response to High Containment Radiation Level

**Standard:**

**Obtains a copy of 0POP05-EO-FRZ3, Response to High Containment Radiation Level**

**Comment:**

Provide the operator with a copy of 0POP05-EO-FRZ3, Response to High Containment Radiation Level. If performed in the Simulator, applicant may use the controlled copy of the procedure in the Simulator

**Cue:**

**Notes:**

---

**SAT/UNSAT Performance Step:** 7

Verify Containment Atmosphere Radiation Monitor Valves closed

**Standard:**

*Verifies the following Containment Atmosphere Radiation Monitor Valves are closed:*

- *MOV-0001*
- *MOV-0004*
- *MOV-0003*
- *MOV-0006*

**Comment:**

In a post-accident condition all these valves will be closed. Indications are on CP-002

**Cue:**

For all 4 valves: GREEN light ON  
RED light OFF

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 8

Verify Normal Purge Supply and Exhaust Fans stopped

**Standard:**

**Verifies Normal Purge Supply and Exhaust Fans are stopped**

**Comment:**

To comply with Tech Specs the Normal Purge Supply and Exhaust fans are placed in PTL (indicating lights operable, Green light on, Red light off).

**Cue:**

RED lights OFF, GREEN lights ON for Normal Purge Supply and Exhaust Fans

**Notes:**

---

**SAT/UNSAT Performance Step:** 9

Verify Supplementary Purge Supply and Exhaust Fans stopped

**Standard:**

**Verifies Supplementary Purge Supply and Exhaust Fans are stopped**

**Comment:**

**Cue:**

For both the Supplementary Supply and Exhaust Fans: GREEN light ON, RED light OFF

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 10 (C)

Verify Purge Dampers closed

**Standard:**

**Verifies Normal and Supplementary Purge Dampers closed**

**Comment:**

This step includes checking both the Normal and Supplementary Purge Dampers. To comply with Tech Specs, the Normal Purge dampers have their supply breakers locked open (both indicating lights out).

**Cue:**

Supplementary Purge Dampers: GREEN light ON, RED light OFF

- FV-9776
- MOV-0003
- FV-9777
- MOV-0005

Normal Purge Dampers: GREEN light OFF, RED light OFF

- MOV-0007
- MOV-0008
- MOV-0009
- MOV-0010

**Notes:**

---

**SAT/UNSAT Performance Step:** 11

Check Containment Air Temperature < 200 Deg. F

**Standard:**

**Determines Containment Air Temperature < 200 Deg. F**

**Comment:**

This information can be retrieved from a computer point or CP-002

**Cue:**

Containment Air Temperature reads 185 Deg. F

**Notes:**

---

*JOB PERFORMANCE MEASURE CHECK SHEET*

**SAT/UNSAT Performance Step:** 12 (C)

Start Carbon Filter Units

**Standard:**

**Places one fan of each train of Carbon Filter Units in service**

**Comment:**

Per procedure, must hold the fan control switch in START until the associated intake and exhaust dampers open fully and then the fan starts. In actual operation this will take about 10 seconds.

Per procedure, only one fan per train shall be place in service. Train 'A' fan are Fans 11A and 12A, Train 'B' fans are 11B and 12B

**Cue:**

Initially for each train, the intake and exhaust dampers will be closed (GREEN lights ON, RED lights OFF) and the associated fans will not be running (GREEN light ON, RED light OFF). As student places a fan control switch to START, the following changes should take place:

- Intake and exhaust damper RED lights come ON, then, after several seconds, GREEN lights go OFF.
- Fan lights will then change: RED comes ON and GREEN goes OFF

The student should start one fan in each train, thus will see these indications twice.

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**



## VERIFICATION OF COMPLETION

**Job Performance Measure:**

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:        Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature**

**Date**

## **JPM – STUDENT HANDOUT**

### **READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU=VE COMPLETED THE TASK.

**CAUTION:** Do not operate or alter equipment configuration in the plant without proper authorization.

### **INITIAL CONDITIONS:**

An RCS leak in excess of normal Charging capacity has occurred inside Containment. The crew has manually tripped the Reactor and initiated SI. The crew implemented 0POP05-EO-EO00, Reactor Trip or Safety Injection, then transitioned to 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant. When monitoring Critical Safety Functions it was noted there was a YELLOW PATH on the Containment Critical Safety Function.

### **INITIATING CUE:**

The Unit Supervisor directs you to evaluate the YELLOW PATH on the Containment Critical Safety Function AND take the appropriate action.

311

**NUCLEAR TRAINING DEPARTMENT**  
**OPERATING JOB PERFORMANCE MEASURE**

**TITLE:** **PERFORM LOCAL CHANNEL CHECK AND  
SOURCE CHECK OF RT-8038, LIQUID WASTE  
EFFLUENT MONITOR**

**JPM NO.:** **P1**

**REVISION:** **1**

**LOCATION:** **UNIT 1 or 2**

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** PERFORM LOCAL CHANNEL CHECK AND SOURCE  
CHECK OF RT-8038, LIQUID WASTE EFFLUENT MONITOR

**JPM No.:** P1

**Rev. No:** 1

**STP Task:** 30100, Operate the Liquid Waste Processing Subsystem.

**STP Objective:** NLO 30100, Given the specified procedure(s), logs/forms, tools, and equipment, Operate the Liquid Waste Processing Subsystem (LWPS) IAW the specified procedures, with no assistance allowed in operating the system.

**Related  
K/A Reference:** 072 A4.01 [3.0/3.3] Ability to manually operate and/or monitor alarm and interlock setpoint checks and adjustments.

Generic 2.3.11, Ability to control radiation releases, 2.7, 3.2

**References:** OPOP02-WL-0100, Rev. 7, Liquid Waste Release

**Task Normally  
Completed By:** PO

**Method  
of Testing:** Simulated

**Location  
of Testing:** Plant

**Time  
Critical Task:** NO

**Alternate  
Path JPM:** NO

**Validation  
Time:** 20 minutes

**Required Materials (Tools/Equipment):** None

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

**READ TO PERFORMER (a copy of this information is included at the end of the JPM as a tear-away sheet to be given to the applicant):**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK.**

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

### **INITIAL CONDITIONS:**

You are the MAB Operator. Preliminary steps 5.1 through 5.23 of 0POP02-WL-0100 have been completed in preparation for a batch release of Waste Monitor Tank 1C(2C). Chemistry has returned the Release Package, proper dilution flowrate has been verified, and Waste Monitor Tank 1C(2C) has been on recirc for 60 minutes. RT-8038, Liquid Waste Effluent Radiation Monitor, is OPERABLE.

### **INITIATING CUE:**

The Unit Supervisor directs you to locally perform a channel check AND source check on RT-8038, Liquid Waste Effluent Radiation Monitor in accordance with 0POP02-WL-0100, steps 5.30 through 5.33.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### **COMPLETION CRITERIA:**

*A satisfactory channel check and source check of RT-8038 has been performed locally in accordance with 0POP02-WL-0100.*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

Working copy 0POP02-WL-0100, Liquid Waste Release.

### **NOTES:**

- 1) The Handout copy of the procedure has only the front section for Prerequisites and Notes/Precautions and the applicable sections for performance of the task.
- 2) This JPM should be performed in conjunction with JPM A-4, Determine Radiological Requirements to Enter a High Rad Area. This to help ensure a smooth flow of the exam schedule.
- 3) **The NRC Evaluator will use the following for RCA access:**  
**Unit 1: RWP- 2003-1-0033, Rev.3, and use 9701 for the WAN**  
**Unit 2: RWP- 2003-0-0003, Rev.1, and use 9702 for the WAN**

## JOB PERFORMANCE MEASURE CHECK SHEET

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

### JPM START TIME

**SAT/UNSAT Performance Step:** 1

Obtain a copy of procedure OPOP02-WL-0100, Liquid Waste Release and review the Prerequisites and the Notes and Precautions.

**Standard:**

*11) Obtains a copy of OPOP02-WL-0100, Liquid Waste Release*

**Comment:**

1. Provide the Handout copy of the applicable sections of the procedure.
2. It is expected the candidate will review the Prerequisites and the Notes and Precautions.

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 2

Notify the control room that a channel check and source check of RT-8038 will be performed and that an alarm may actuate and be locked in until the setpoints are reset.

**Standard:**

*Notifies the Control Room that a channel check and source check of RT-8038 will be performed.*

**Comment:**

1. Don't allow the applicant to actually contact the Control Room.
2. The applicant should proceed to the MAB 10' elevation, Room 72 - Floor Drain Tank Pump 1B (2B) Room.

**Cue:**

Acknowledge the applicant's report as a member of the Control Room.

**Notes:**

---



## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 3 (C)

Open 1(2)-SRA-3267, WMT PUMPS 1A, B & C (2A, B, C) DISCHARGE RT-8038 SAMPLE INLET VALVE.

**Standard:**

*Opens 1(2)-SRA-3267, WMT PUMPS 1A, B & C (2A, B, C) DISCHARGE RT-8038 SAMPLE INLET VALVE.*

**Comment:**

- 1) All RT-8038 local components are located on the 10' elevation of the MAB in Room 072, Floor Drain Tank Pump 1B (2B) Room
- 2) Inlet valve is located at top-center of the RT-8038 Skid.

**Cue:**

SRA-3267: Initially - CLOSED  
Finally - OPEN

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 4 (C)

Place RT-8038 Sample Pump handswitch in AUTO.

**Standard:**

*Places RT-8038 Sample PUMP handswitch in AUTO.*

**Comment:**

The panel with the handswitch is on the left side of the RT-8038 skid when facing it.

The RT-8038 skid is in the same room and area in both Units, however, the skid faces South in Unit 1 and North in Unit 2.

**Cue:**

PUMP HANDSWITCH: Initially - OFF  
Finally - AUTO

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 5(C)

Depress the PUMP ON/OFF pushbutton on the local monitor control panel.

**Standard:**

*Depresses the PUMP ON/OFF pushbutton on the control panel for 1(2)-RA-RT-8038 (RM-23L).*

**Comment:**

Pushbutton is located behind the cover door for the control panel. This door has a viewing pane that allows observation of the pushbuttons and a digital display, thus it's not necessary to open the cover door to simulate operating the pushbuttons.

**Cue:**

- PUMP ON/OFF pushbutton: Initially - OFF  
Finally - BACKLIT
- If applicant asks about the pump RED light: Initially - OFF  
Finally - ON

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 6 (C)

Open 1(2)-SRA-3268, WMT PUMPS 1A, B & C (2A, B, C) DISCHARGE RT-8038 SAMPLE OUTLET VALVE.

**Standard:**

*Opens 1(2)-SRA-3268, WMT PUMPS 1A, B & C (2A, B, C) DISCHARGE RT-8038 SAMPLE OUTLET VALVE.*

**Comment:**

1. All RT-8038 local components are located on the 10' elevation of the MAB in Room 072, Floor Drain Tank Pump 1B (2B) Room.
2. Outlet valve is located at top-center of the RT-8038 Skid.

**Cue:**

SRA-3268: Initially - CLOSED  
Finally - OPEN

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 7

Observe channel check is satisfactory as indicated by illumination of green light on front of monitor.

**Standard:**

*Verifies the Green OPERATE Light illuminated on front of control panel 1(2)-RA-RT-8038".*

**Comment:**

1. Large Green Light located outside right control panel on door or small green light inside control panel (visible through viewing window).
2. Once the candidate has determined the channel check is satisfactory, he/she should proceed to procedure step 5.31 to perform a source check.
3. Student should 'N/A' step 5.30.9 and associated substeps.

**Cue:**

Green OPERATE Light: Initially - OFF  
Finally - ON

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 8 (C)

Press the “LIQ” button on the RM-23L and verify the “LIQ” button is illuminated.

**Standard:**

*Depresses the “LIQ” button on the RM-23L for RT-8038 and verifies the “LIQ” button is illuminated.*

**Comment:**

The RM-23L for RT-8038 is located on the Rad Monitor Skid.

**Cue:**

*“LIQ” button: ON after “LIQ” button pressed*

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 9 (C)

Press the “C/S” button on the RM-23L and verify the “C/S” button is illuminated.

**Standard:**

*Depresses the “C/S” button on the RM-23L for RT-8038 and verifies the “C/S” button is illuminated.*

**Comment:**

**Cue:**

*“C/S” light is ON after the button is pressed.*

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 10 (C)

If the green operate light remains illuminated after the source check sequence completes, indicating that the source check passed, THEN GO TO Step 5.33

**Standard:**

*Determines source check completes satisfactory and goes to procedure step 5.33.*

**Comment:**

1. The source check sequence takes approximately 75 seconds to complete.
2. There is a digital display on the Control Panel, however there is no requirement to observe a particular reading during the source check.

**Cue:**

Green "OPERATE" light: Initially - ON  
Finally – ON

**Notes:**

---



## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 11

Document that the Acceptance Criteria were met.

**Standard:**

*Document that the Acceptance Criteria were met for the Channel Check and the Source Check*

**Comment:**

**Cue:**

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM STOP TIME**

**VERIFICATION OF COMPLETION**

**Job Performance Measure:** P1, PERFORM LOCAL CHANNEL AND SOURCE CHECK OF  
RT-8038, LIQUID WASTE EFFLUENT MONITOR

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**                      **Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

311

**NUCLEAR TRAINING DEPARTMENT**

**JOB PERFORMANCE MEASURE**

**TITLE:**                   **PLACE A CLASS 1E 125V DC BATTERY CHARGER IN SERVICE**

**JPM NO.:**               **P2**

**REVISION:**           **1**

**LOCATION:**             **UNIT 1 or 2**

**JOB PERFORMANCE MEASURE WORKSHEET**

**JPM Title:** P2, PLACE A CLASS 1E 125V DC BATTERY CHARGER IN SERVICE

**JPM No.:** P2

**Rev. No.:** 1

**STP Task:** T74950 Respond to DC Alarms.

**STP**

**Objective:** CRO 74950 Respond as the Reactor Operator to DC Electrical Distribution alarms per POP09-AN-03M2 to include: 125V DC System E1A11 Trouble.

**Related**

**K/A Reference:** 000063A3.01 [3.1] Ability to monitor automatic operation of the DC electrical distribution system, including: Meters, annunciators, dials, recorders, and indicating lights.

063 K1.03, Knowledge of the physical connections and/or cause-effect relationships between the DC electrical system and the following systems: Battery Charger and Battery, 2.9/3.5

**References:** -0POP02-EE-0001, Rev 12, ESF (Class 1E) DC Distribution System  
-Engineering Evaluation CREE 98-9069-5  
-SPR-920485, Battery Charger Placed In Service With Output Voltage Less Than 129 VDC.

**Task Normally Completed By:** PO

**Method of Testing:** Simulated

**Location of Testing:** Unit 1 or 2 EAB

**Time Critical Task:** NO

**Alternate Path JPM:** YES

**Validation Time:** 30 minutes

**Required Materials (Tools/Equipment):** None

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **READ TO PERFORMER:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU=VE COMPLETED THE TASK.

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

### **INITIAL CONDITIONS:**

The unit is in Mode 1 at 100%. All equipment is operable.

Annunciator 03M2-C1 "125V DC SYSTEM E1B11 (E2B11) TRBL" has alarmed.  
125 V DC Bus E1B11 (E2B11) voltage is currently 127 Volts in the Control Room with E1B11 (E2B11) Battery Charger #2 in service.

### **INITIATING CUE:**

The Unit Supervisor directs you to transfer Battery Chargers and place Train B E1B11 (E2B11) Battery Charger #1 in service in accordance with 0POP02-EE-0001, ESF (Class 1E) DC Distribution System, section 7.2.

Addendum 1, Control Loop Alignment has been completed.

You are to record the time Battery E1B11 (E2B11) becomes inoperable and ensure that all procedure related operability requirements are satisfied (i.e. ensure Battery E1B11 (E2B11) is operable) prior to leaving the area.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### **Completion Criteria:**

*Train B Channel III Battery Charger E1B11-1 (E2B11-1) is placed in service and placed on AEQUALIZE@in accordance with 0POP02-EE-0001.*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

Working Copy of 0POP02-EE-0001, ESF (Class 1E) DC Distribution System.

### **NOTES:**

1. This JPM is written to test the applicants ability to place a second battery charger in service and to test the understanding of an engineering evaluation of battery operability when both battery chargers have been disconnected from the battery for greater than 15 minutes. The battery is considered inoperable in this condition and must be placed through a series of charges prior to being returned to operable status. The intent is for the applicant to transition to the applicable procedure section after placing the battery charger in service.
2. Throughout this JPM when the cues refer to a breaker position being open, closed or tripped, the following additional descriptions also apply:

Breaker Closed: the breaker handle will be in the UP or “ON” position.

Breaker Open: the breaker handle will be in the DOWN or “OFF” position.

Breaker Tripped: the breaker handle will be in the MID or tripped position.

## JOB PERFORMANCE MEASURE CHECKSHEET

### NOTE:

- \$ Critical steps are identified by (C).
- \$ Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

### JPM START TIME

#### **SAT/UNSAT Performance Step:** 1

Obtain a copy of OPOP02-EE-0001, ESF (Class 1E) DC Distribution System.

#### **Standard:**

*Obtains a copy of OPOP02-EE-0001, ESF (Class 1E) DC Distribution System.*

#### **Comment:**

- 1) Provide a copy of OPOP02-EE-0001 to the applicant.
- 2) It is expected the performer will review the Prerequisites, Notes and Precautions.
- 3) Notes/Precautions 4.7 through 4.20 (except 4.17) apply to battery charger operation. Of interest is precaution 4.7, which indicates if a Class 1E battery is NOT aligned to an operating Charger, the battery is considered inoperable. If not aligned within 15 minutes, Section 9.0 must be performed to declare the battery operable.

#### **Cue:**

If asked Battery Charger E1B11 (E2B11) - 1 local indications are: 0 Volts; 0 Amps; All Breakers OFF; AC Light OFF

If asked Battery Charger E1B11 (E2B11) - 2 local indications are: 126 Volts; 30 Amps; Breakers ON; AC Light ON

#### **Notes:**

---

## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 2

Perform Addendum 1, Control-Loop Alignment.

**Standard:**

*Addendum 1, Control Loop Alignment has been completed.*

**Comment:**

This Addendum has been completed per the Initiating Cue.

**Cue:**

If asked, inform the candidate this Addendum has been completed

**Notes:**

---

**SAT/UNSAT Performance Step:** 3

Ensure the "FLOAT/EQUALIZE" toggle switch is in the "FLOAT" position for battery charger being placed in service.

**Standard:**

*Ensures the "FLOAT/EQUALIZE" toggle switch is in the "FLOAT" position for Battery Charger E1B11-1 (E2B11-1).*

**Comment:**

Location: 35' EAB, Room 213, south wall on Charger E1B11-1 (E2B11-1) upper panel face.

**Cue:**

INITIAL: "FLOAT/EQUALIZE" switch is in the "FLOAT" position.

FINAL: "FLOAT/EQUALIZE" switch is in the "FLOAT" position.

**Notes:**

---



## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 4

Ensure the 480V AC supply breaker closed for the Charger to be placed in service.

**Standard:**

*Verifies breaker "125V DC BATT CHGR E1B11-1 (E2B11-1) " at 480 Volt AC Motor Control Center E1B1 (E2B1) breaker #Q2R is closed.*

**Comment:**

Location: 35' EAB, Switchgear Room.

**Cue:**

INITIAL: Breaker Closed FINAL: Breaker Closed

**Notes:**

---

**SAT/UNSAT Performance Step:** 5 (C)

OPEN the "AC INPUT CB-1" breaker for the battery charger being removed from service.

**Standard:**

*Opens AC INPUT CB-1 breaker on E1B11 (E2B11) Battery Charger #2.*

*Records time for Tech Spec entry for inoperable Battery.*

**Comment:**

When this step is performed there will be no Chargers in service for Battery E1B11 (E2B11). Per the procedure Note & Precaution 4.7, this renders the battery inoperable.

Location: on Battery Charger #2 lower panel face, left breaker.

**Cue:**

INITIAL: Breaker Closed FINAL: Breaker Open

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 6

OPEN the "DC OUTPUT CB-2" breaker for the battery charger being removed from service.

**Standard:**

*Opens DC OUTPUT CB-2 breaker on E1B11 (E2B11) Battery Charger #2.*

**Comment:**

Location: on Battery Charger #2 lower panel face, right breaker.

**Cue:**

INITIAL: Breaker Closed                      FINAL:              Breaker Open

**Notes:**

---

**SAT/UNSAT Performance Step:** 7 (C)

OPEN the "BATT CHGR TO 125V DC SWBD" breaker for the battery charger being removed from service.

**Standard:**

*Opens BATT CHGR E1B11-2 (E2B11-2) TO 125V DC SWBD E1B11 (E2B11)@breaker on E1B11 (E2B11) Switchboard breaker #3A.*

**Comment:**

Location:              35' EAB, Room 213 south wall on 125V DC Distribution Switchboard E1B11 (E2B11).

**Cue:**

INITIAL: Breaker Closed                      FINAL:              Breaker Open

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 8 (C)

Close the "BATT CHGR TO 125V DC SWBD" breaker for the battery charger being placed in service.

**Standard:**

*Closes breaker "BATT CHGR E1B11-1 (E2B11-1) TO 125V DC SWBD E1B11 (E2B11)" at 125 Volt DC SWBD E1B11 (E2B11) breaker #2A.*

**Comment:**

**Cue:**

INITIAL: Breaker Open

FINAL: Breaker Closed

**Notes:**

---

**SAT/UNSAT Performance Step:** 9 (C)

Close the "DC Output CB-2" breaker for battery charger being placed in service.

**Standard:**

*Closes the "DC OUTPUT CB-2" breaker on Battery Charger E1B11-1 (E2B11-1).*

**Comment:**

Location: On Charger E1B11-1 (E2B11-1) lower panel face, right breaker.

**Cue:**

INITIAL: Breaker Open

FINAL: Breaker Closed

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 10

Close the "AC Input CB-1" breaker for the battery charger being placed in service.

**Standard:**

*Determines the AC Input CB-1 breaker tripped-open after closure.*

**Comment:**

Location: On Charger E1B11-1 (E2B11-1) lower panel face, left breaker.

When the candidate simulates closing this breaker the evaluator should indicate the breaker has tripped (mid-position).

**Cue:**

3) INITIAL: Breaker Open FINAL: Breaker Tripped (mid-position)

4) After Breaker Closure:

- Battery Charger Current initially spikes to 260 amps, then decreases to 0.
- DC Voltage initially increases to 100 -130 Volts, then goes to 0.

5) After Breaker Trips:

- Charger Current: 0
- DC Voltage: 0
- No alarm lights or abnormal indications: "GROUND" light is NOT LIT and did not come on when AC INPUT CB-1 breaker was closed.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 11

Inform the Unit/Shift Supervisor of the condition

**Standard:**

*Informs the Unit/Shift Supervisor of the condition*

**Comment:**

Per the procedure NOTE prior to Step 7.2.9, the Unit/Shift Supervisor can direct the Charger output breaker be re-closed one time if no apparent cause for the trip could be identified.

**Cue:**

As Unit Supervisor, inform the candidate to stop in the procedure until Electrical Maintenance can be consulted.

After a few seconds, as the Unit Supervisor, inform the candidate that it is now **75 minutes later**.  
Current conditions are:

- Electrical Maintenance has been consulted and has recommended one re-closure on the breaker.
- The breaker has been reset to the fully open ("OFF") position.
- Resume with the current step of the procedure to close the AC Input breaker
- Ensure all procedural requirements concerning the E1B11 (E2B11) battery are met to ensure operability prior to leaving the area.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 12 (C)

Close the "AC Input CB-1" breaker for the battery charger being placed in service.

**Standard:**

*Closes the "AC INPUT CB-1" breaker on Battery Charger E1B11-1 (E2B11-1).*

**Comment:**

Location: On Charger E1B11-1 (E2B11-1) lower panel face, left breaker.

**Cue:**

- 1) INITIAL: Breaker Open FINAL: Breaker Closed
- 2) After Breaker Closure:
  - Battery Charger Current initially spikes to 260 amps, then decreases to 115 amps.
  - DC Voltage increases to 130 Volts.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 13

Verify Proper Charger Operation

**Standard:**

*Performs the following to verify Battery Charger E1B11-1 (E2B11-1) is operating properly:*

- 1) *Verifies the charger E1B11-1 (E2B11-1) current is less than 330 amps.*
- 2) *Verifies the charger E1B11-1 (E2B11-1) voltage is between 129.2 and 131.8 Volts DC.*
- 3) *Verifies the Control Room Annunciator 3M02-C-1 "125V DC SYSTEM E1B11 (E2B11) TRBL" IS CLEAR.*

**Comment:**

- 3) Procedure Step 7.2.12 is N/A since charger voltage is between 129 and 131 VDC.

**Cue:**

- 1) Charger E1B11-1 (E2B11-1) current is 90 amps and very slowly decreasing.
  - 2) Charger E1B11-1 (E2B11-1) voltage is 130 volts.
  - 3) (When contacted) report that Control Room Annunciator 3M02-C-1 "125V DC SYSTEM E1B11 (E2B11) TRBL" is CLEAR.
- 
- 1) (If specifically asked ) Inform applicant the E1B11 (E2B11) battery is NOT operable at this time.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 14

Return switches to 'As Found' positions per Addendum 1, Control-Loop Alignment

**Standard:**

*Informs Unit/Shift Supervisors that switches are to be returned to 'As Found' positions per Addendum 1, Control-Loop Alignment*

**Comment:**

This is the final step to placing #1 Charger in service. The procedure states that if both chargers are not operating for > 15 minutes, procedure section 9.0 SHALL be performed prior to declaring the battery operable.

It is at this time the candidate should continue to Section 9.0.

**Cue:**

As the Unit Supervisor, inform the candidate that you'll have another operator complete Addendum 1 to have switches returned to their "As Found" position.

**Notes:**

---



## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 15 (C)

Ensure a battery charger for the applicable battery is in service.

**Standard:**

*Verifies battery charger E1B11-1 (E2B11-1) is in service.*

**Comment:**

This is the first step of Section 9.0, Class 1E Battery Operability Following a Discharge Transient

**Cue:**

- 1) (If asked) Charger E1B11-1 (E2B11-1) current is 88 amps and very slowly decreasing.
- 2) (If asked) Charger E1B11-1 (E2B11-1) voltage is 130 volts.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECKSHEET

**SAT/UNSAT Performance Step:** 16 (C)

If the discharge exceeded 1 hour, then Place the applicable charger's FLOAT/EQUALIZE toggle switch in the EQUALIZE position.

**Standard:**

*Places Battery charger E1B11-1 (E2B11-1) FLOAT/EQUALIZE toggle switch in the EQUALIZE position.*

**Comment:**

- 2) The battery has been discharging for > 75 minutes, therefore the battery must be given an equalizing charge.

The "FLOAT/EQUALIZE" switch is located on the E1B11-1 (E2B11-1) upper panel face.

**Cue:**

INITIAL: "FLOAT/EQUALIZE" switch is in the "FLOAT" position.

FINAL: "FLOAT/EQUALIZE" switch is in the "EQUALIZE" position.

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM FINISH TIME**

## VERIFICATION OF COMPLETION

**Job Performance Measure:** P2, PLACE A CLASS 1E 125V DC BATTERY CHARGER IN SERVICE

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**

**Sat / Unsat**

**Evaluator:** \_\_\_\_\_

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU=VE COMPLETED THE TASK.

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

**INITIAL CONDITIONS:**

The unit is in Mode 1 at 100%. All equipment is operable.

Annunciator 03M2-C1 "125V DC SYSTEM E1B11 (E2B11) TRBL" has alarmed.  
125 V DC Bus E1B11 (E2B11) voltage is currently 127 Volts in the Control Room with E1B11 (E2B11) Battery Charger #2 in service.

**INITIATING CUE:**

The Unit Supervisor directs you to transfer Battery Chargers and place Train B E1B11 (E2B11) Battery Charger #1 in service in accordance with OPOP02-EE-0001, ESF (Class 1E) DC Distribution, section 7.2.

Addendum 1, Control Loop Alignment has been completed.

You are to record the time Battery E1B11 (E2B11) becomes inoperable and ensure that all procedure related operability requirements are satisfied (i.e. ensure Battery E1B11 (E2B11) is operable) prior to leaving the area.

**NUCLEAR TRAINING DEPARTMENT**  
*OPERATING JOB PERFORMANCE MEASURE*

**TITLE:** **PLACE ROD CONTROL MG SET IN SERVICE**

**JPM NO.:** **P3**

**REVISION:** **1**

**LOCATION:** **UNIT 1 or 2**

## JOB PERFORMANCE MEASURE WORKSHEET

**JPM Title:** PLACE ROD CONTROL MG SET IN SERVICE

**JPM No.:** P3

**Rev. No:** 1

**STP Task:** 2200, Startup or Shutdown Rod Drive MG Sets

**STP Objective:** NLO2200, Startup or Shutdown the Control Rod Drive MG Sets per OPOP02-RS-0001.

**Related  
K/A Reference:** 001.K6.10, [3.1/3.3], Knowledge of the effect of a loss or malfunction on the following: Location and operation of Rod Control MG sets and control panel, including trips

**References:** OPOP02-RS-0001, Rev. 11, Rod Control

**Task Normally  
Completed By:** PO

**Method  
of Testing:** Simulated

**Location  
of Testing:** Plant

**Time  
Critical Task:** NO

**Alternate  
Path JPM:** YES

**Validation  
Time:** 20 min.

**Required Materials (Tools/Equipment):** None

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **READ TO PERFORMER:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK

**CAUTION: Do not operate or alter equipment configuration in the plant without proper authorization.**

### **INITIAL CONDITIONS:**

The unit is in MODE 5 with various maintenance projects ongoing. Maintenance has just been completed on the generator portion of Rod Drive MG Set #1, and Electrical Maintenance has requested that it be started and placed on the bus for voltage and current checks. Rod Drive MG Set #2 is secured (output breaker open, but racked-in). The off going crew has completed Section 5.0, System Preparation.

### **INITIATING CUE:**

You are directed by the Unit Supervisor to startup Rod Control Motor Generator Set #1 and close the generator output breaker in accordance with OPOP02-RS-0001, section 6.0.

**- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -**

### **COMPLETION CRITERIA:**

*Motor Generator Set #1 is started and its generator output breaker is manually closed. The Motor Generator set is then secured when a "ROD DRIVE MG SET TRBL" annunciator is received in the Control Room.*

## **JOB PERFORMANCE MEASURE INFORMATION SHEET**

### **HANDOUTS:**

Working copy of OPOP02-RS-0001, Rod Control, with Section 5.0 initialed off as applicable.

### **NOTES:**

None



## JOB PERFORMANCE MEASURE CHECK SHEET

**NOTE:**

- Critical steps are identified by (C).
- Sequenced steps are identified by (S<sub>1</sub>, S<sub>2</sub>, . . .).

**JPM START TIME**

**SAT/UNSAT Performance Step:** 1

Obtain a current copy of 0POP02-RS-0001, Rod Control.

**Standard:**

*Obtains a copy of 0POP02-RS-0001, Rod Control.*

**Comment:**

Provide the candidate a copy of 0POP02-RS-0001, Rod Control.

It is expected the candidate will review the Prerequisites, Notes and Precautions.

**Cue:**

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 2

Ensure MG Set #1 Voltage Adjust potentiometer is set at 5.

**Standard:**

*Ensures MG Set #1 "Voltage Adjust" potentiometer is set at 5 (mid position).*

**Comment:**

**Cue:**

Potentiometer is set at 5 (mid position).

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

### **SAT/UNSAT Performance Step:** 3

Ensure MG Set #1 switch positions are in the following positions: "SYNCHRONIZE" selector in OFF and the "VOLTMETER" selector NOT in the OFF position.

#### **Standard:**

- 1) *Ensures MG Set #1 "SYNCHRONIZE" selector switch in OFF.*
- 2) *Ensures MG Set #1 "VOLTMETER" selector switch NOT in OFF.*

#### **Comment:**

The Synchronizing Sw. handles are not normally inserted into the Sw. housing. In Unit 1 the Sw. handle must be obtained from the Control Room. In Unit 2 the Sw. handle is hanging off a door handle on the MG Set Control Panel.

#### **Cue:**

- 1) SYNCHRONIZE selector switch – OFF

**UNIT 1:** Whether the student has already simulated getting the Sw. handle from the Control Room or not, inform him/her that they have the handle and it has been inserted into the switch housing on the Control Panel.

**UNIT 2:** Once the student simulates placing the Sw handle (available locally) into the Sw housing, inform him/her it has been inserted into the switch housing on the Control Panel.

- 2) VOLTMETER selector switch - "C-A" position

#### **Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 4(C)

Close MG Set #1 Motor Circuit Breaker.

**Standard:**

*Closes MG Set #1 Motor Circuit Breaker by momentarily turning the "MOTOR" handswitch to the "CLOSE" position.*

**Comment:**

**Cue:**

- Red light: Initially NOT LIT, then LIT
- Green light: Initially LIT, the NOT LIT
- (Audible) you hear the MG Set starting up.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 5(C)

Apply power to "flash" the MG Set #1 generator field.

**Standard:**

*Performs the following, when motor is at full speed (after about 15 seconds):*

- 1) Depresses and Holds the MG Set #1 "GEN FIELD FLASH" pushbutton*
- 2) Verifies MG Set #1 "GENERATOR LINE VOLTS" stabilizes at > 225 VAC*
- 3) Releases MG Set #1 "GEN FIELD FLASH" pushbutton.*

**Comment:**

Voltmeter is located on upper left section of Control Panel

**Cue:**

When the operator flashes the field, state that the generator output voltage is increasing, then stabilizes at 235 VAC.

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 6(C)

Adjust MG Set #1 output voltage to between 255 and 265 VAC and checks all three phases.

**Standard:**

- 1) *Rotates the "VOLTAGE ADJUST" potentiometer to adjust MG Set #1 output to  $260 \pm 5$  VAC.*
- 2) *Verifies all three phase outputs to  $260 \pm 5$  VAC.*

**Comment:**

**Cue:**

- 1) Voltage increases from 235 to 260 VAC
- 2) Three phase outputs - 260/260/259 VAC

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 7 (C)

Close MG Set #1 Generator Circuit Breaker.

**Standard:**

*Closes MG Set #1 Generator Circuit Breaker by taking the "GENERATOR" handswitch to "CLOSE"*

**Comment:**

**Cue:**

- 1) (If examinee specifically asks) - Rod Drive MG Set #2 breaker is Racked In and open.

As the candidate closes the output breaker:

Initially: Red light NOT LIT  
Green Light LIT

Finally: Red Light LIT  
Green Light NOT LIT

**Notes:**

---

## JOB PERFORMANCE MEASURE CHECK SHEET

**SAT/UNSAT Performance Step:** 8(C)

Verify MG set trouble alarm on CP-005 Lampbox 5M03 F5 "ROD DRIVE MG SET TRBL" is NOT lit.

**Standard:**

*Removes MG Set #1 from service as follows when informed that annunciator 5M03/F5, "ROD DRIVE MG SET TRBL" is illuminated in the Control Room:*

- 1) Opens MG Set #1 Generator circuit breaker by momentarily turning the "GENERATOR" handswitch to "Trip".
- 2) Opens MG Set #1 Motor Circuit breaker by momentarily turning the "MOTOR " handswitch to "Trip".

**Comment:**

**Cue:**

*As a Control Room Operator, when contacted, inform the candidate that Annunciator 5M03/F5, "ROD DRIVE MG SET TRBL" initially cleared and has just alarmed again in the Control Room and is currently in an alarm state.*

*When Generator Circuit Breaker is opened: Initially Red Light LIT, Green light NOT LIT  
Finally: Red Light NOT LIT,  
Green light LIT*

*When Motor Circuit Breaker is opened: Initially Red Light LIT, Green light NOT LIT  
Finally: Red Light NOT LIT,  
Green light LIT*

**Notes:**

---

**- TERMINATE THE JPM -**

**JPM FINISH TIME**



## VERIFICATION OF COMPLETION

**Job Performance Measure:** P3, PLACE ROD CONTROL MG SET IN SERVICE

**Applicant's Name:**

**Date Performed:**

**Time to Complete:**

**JPM Results:**

**Performer's Results:** (Circle One) **Sat/Unsat**

**Evaluator:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**READ TO PERFORMER:**

The evaluator will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

YOU ARE TO INFORM THE EVALUATOR WHEN YOU'VE COMPLETED THE TASK

**CAUTION:** Do not operate or alter equipment configuration in the plant without proper authorization.

**INITIAL CONDITIONS:**

The unit is in MODE 5 with various maintenance projects ongoing. Maintenance has just been completed on the generator portion of Rod Drive MG Set #1, and Electrical Maintenance has requested that it be started and placed on the bus for voltage and current checks. Rod Drive MG Set #2 is secured (output breaker open, but racked-in). The off going crew has completed Section 5.0, System Preparation.

**INITIATING CUE:**

You are directed by the Unit Supervisor to startup Rod Control Motor Generator Set #1 and close the generator output breaker in accordance with OPOP02-RS-0001, section 6.0.

**INITIAL LICENSE EXAM**

**OPERATING TEST #1**

**SCENARIO #1**

**Revision 1**

**Week of August 18, 2003**

Facility: South Texas Project

NRC Scenario No.: 1

Op-Test No.: 1

Source:

New \_\_\_\_ Bank - Significantly Modified \_\_\_\_X\_\_\_\_ Bank - Initial Condition Change \_\_\_\_X\_\_\_\_

See page 3 for Examiner/student assignments

Initial Conditions: 100% power, BOL

*Turnover: Maintain current power. Shift Centrifugal Charging Pumps for upcoming maintenance.*

Event No.	Malf. No.	Event Type*	Event Description
1 (0 min)	N/A	RO (N) SRO (N)	Shift Centrifugal Charging Pumps.
2 (10 min)	03-09-02 (True)	RO (C) SRO (C)	1B Centrifugal Charging Pump trips – after CCP's are swapped (should be within 10 min.)
3 (20 min)	08-15-03 (True)	BOP (I) SRO (I)	1C Steam Generator controlling Feedwater flow channel fails low – after TS are addressed for CCP failure or 10 minutes
4 (30 min)	50-BM-01 (1.0)	RO (I) SRO (I)	VCT level transmitter LT-113 fails high – after 1C MFRV in auto or 10 min.
5 (37 min)	05-03-02 (0.1)	ALL (M)	1B Steam Generator Tube Rupture (15 min. ramp) – after LD Divert Valve is re-positioned to the VCT or 7 minutes
6 ( 67 min)	05-07-02 (True)	BOP (C) SRO (C)	Steam Generator 1B Main Steam Isolation Valve fails to close. Can be closed locally – integral to scenario. Apparent approx. 20-25 min after reactor trip
7 (67 min)	08-03-01 (True)	BOP (C) SRO (C)	Aux Feedpump #11 trips – occurs automatically 20 min after reactor trip
8 (57 min)	01-35-02 (True)	RO (C) SRO (C)	Intermediate Range Channel N36 failure of compensating voltage – integral to scenario, will be apparent approx. 10-15 minutes after reactor trip

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

## Scenario # Crew Assignments

### SESSION 1 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

### SESSION 2 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

### SESSION 3 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

### SESSION 4 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

**SCENARIO MISCELLANEOUS INFORMATION****INSTRUCTOR NOTES:**

Refer to the Instructor Notes file for directions on Simulator Setup, Expected Booth Communications, and Expected Booth Actions.

**CRITICAL PARAMETERS:**

The following parameters may be of value in evaluating crew performance and should be placed in an Autograph file for recall when the scenario is completed:

- \$ SG B Wide Range Level
- \$ SG B Pressure
- \$ SG B AFW Flow
- \$ SG C Narrow Range Level
- \$ RCS Wide Range Pressure

**OPERATOR ACTIONS TABLE NOTES:**

1. Critical Tasks are indicated by "C" in the position column and indicated in bold type.
2. Actions required throughout the event are indicated as "(continuous)" in the position column.
3. Shaded cells indicate procedural entry points.

OPERATOR ACTIONS

Op-Test No.: #1    Scenario No.: 1    Event No.: 1			
Event Description: Shift Centrifugal Charging Pumps			
Time	Position	Applicant's Actions or Behavior	Notes
	SRO	Directs the RO to Start Centrifugal Charging Pump 1B and Secure Centrifugal Charging Pump 1A per POP02-CV-0004, Chemical and Volume Control System Subsystem.	
	RO	Ensures CVCS System is prepared for Centrifugal Charging Pump 1B start. \$ Ensures discharge valve open \$ Charging flow control valve in manual \$ CCP Aux lube oil pump running	
	RO/BOP	Announces intention to start CCP 1B over the plant page and dispatches operator to check locally.	
	RO	Starts CCP 1B and monitors the following: \$ Charging flow \$ RCP Seal injection flows	
	RO	Stops CCP 1A • Opens Recirc valve • Closes Discharge Valve • Stops pump	<i>May re-open discharge valve once pump is secured</i>
	RO	Places charging flow control valve in auto and monitors the following while adjusting seal injection flow control valve as necessary: \$ Charging flow \$ RCP Seal injection flows \$ Pressurizer level	
	RO	Ensure cooling fan starts for CCP 1B and secures cooling fan for CCP 1A	
	RO	Reports to the SRO that CCPs have been shifted.	

**OPERATOR ACTIONS (Cont')**

**Op-Test No.:** #1    **Scenario No.:** 1    **Event No.:** 2

**Event Description:** 1B Centrifugal Charging Pump trips

Time	Position	Applicant's Actions or Behavior	Notes
	RO	Acknowledges and reports all (4) RCP SEAL WATER INJ FLOW LO annunciators and CHG FLOW HI/LO annunciator on Control Panel CP004.	
	SRO/RO	Recognizes and reports that CCP 1B has tripped.	
	SRO	Directs/ensures 0POP09-AN-04M8-F3 annunciator response actions to manually start CCP 1A.	
	RO	Ensures the following: \$ FCV-0205, CHG FLOW CONT VLV is closed \$ MOV-8377A, CCP 1A DISCH ISOL is open \$ FCV-0201, CCP 1A RECIRC is open \$ CCP 1A white L.O. AVAILABLE light is lit	
	RO	Start Centrifugal Charging Pump 1A.	
	RO	Adjusts charging flow and seal injection flow as necessary.	
	RO	Performs the following: \$ Closes FCV-0201, CCP 1A RECIRC \$ Returns FCV-0205, CHG FLOW CONT to AUTO.	
	SRO	Declares CCP 1B inoperable and refers to Technical Requirement Manual 3.1.2.2, <u>Charging Pumps and Flowpaths Operating</u> , and enters Action statement to restore CCP 1B to operable status within 7 days.	Event # 3 will occur here



**OPERATOR ACTIONS (Cont')**

**Op-Test No.: #1    Scenario No.: 1    Event No.: 3**

**Event Description:** 1C Steam Generator controlling feedwater flow channel fails low.

Time	Position	Applicant's Actions or Behavior	Notes
	BOP	Acknowledges and reports annunciators on Control Panel CP006: <ul style="list-style-type: none"> <li>SG 1C LVL DEV HI/LO</li> <li>SG 1C STM/FW FLOW MSMTCH</li> </ul>	
	SRO/BOP C	Performs immediate actions of OPOP04-FW-0001: <ul style="list-style-type: none"> <li><b>PLACES SG 1C FEEDWATER MAIN FEED REG. VALVE (MFRV) CONTROLLER IN MANUAL</b></li> <li><b>ADJUSTS CONTROLLER OUTPUT TO MATCH FEED/STEAM FLOW AND RESTORE SG 1C LEVEL TO PROGRAM</b></li> </ul>	
	SRO (continuous)	Directs/ensures actions of OPOP04-FW-0001, Loss of Steam Generator Level Control.	
	SRO/BOP	Check Feed Control and SG Feedpump Control systems for status <ul style="list-style-type: none"> <li>SG 1C MFRV responds in manual</li> <li>SG Feedpump controllers are responding in auto</li> </ul>	
	SRO/BOP	Ensure appropriate Feed to steam DP	
	BOP	Restores SG 1C NR level 68-74%	
	SRO/BOP	Ensure all SG levels 22-85%	
	BOP	Identifies that feedwater flow channel FT-530 for SG 1C has failed low.	
	BOP	Selects FT-531 for SG 1C level control.	

	BOP	Performs the following: \$ Places LK-7406 DA Storage Tank Level Controller in Manual \$ Maintains DA Storage Tank level between 65% and 80%	
	BOP	Performs the following: \$ Verifies SG 1C level between 68% and 74% \$ Places SG 1C Feed Regulating Valve in AUTO	Event #4 will occur here
	SRO	Checks Tech Specs 3.3.1, 3.3.2, 3.3.3.6 and determines that a Tech Spec LCO is not entered.	

**OPERATOR ACTIONS (Cont')**

<b>Op-Test No.: #1    Scenario No.: 1    Event No.: 4</b>			
<b>Event Description:</b> VCT level transmitter LT-113 fails high.			
Time	Position	Applicant's Actions or Behavior	Notes
	RO	Acknowledges and reports annunciator VCT LEVEL HI/LO on Control Panel CP004	
	RO	Performs the following actions of 0POP09-AN-04M8-E2: <ul style="list-style-type: none"> <li>• Determines LT-113 is failed using ICS computer</li> <li>• Monitors computer points and or LT-112 indication on CP-004 to control VCT level</li> </ul>	<i>The control board indication is still available; from a different transmitter.</i>
	SRO	Directs LCV-0112A, Divert Valve, be placed in the VCT position.	<i>Preferred to be done immediately; must be done if VCT level is &lt;28%</i>
	RO	Places LCV-0112A handswitch to the VCT position and ensures valve position changes	Event #5 will occur here
	SRO	Ensures RO initiates VCT makeup if VCT level goes <28%	
	SRO/RO/ BOP	Contacts I&C to investigate failure	

### OPERATOR ACTIONS (Cont')

**Op-Test No.:** #1    **Scenario No.:** 1    **Event No.:** 5

**Event Description:** 1B Steam Generator Tube Rupture (~300 gpm ramped over 5 minutes).

Time	Position RO/BOP	Applicant's Actions or Behavior	Notes
		Acknowledges and announces radiation monitoring alarms and begins an investigation into possible tube leak.	
	SRO	Begins investigation of SG tube leakage by directing RO/BOP to monitor RCS leakage and identify the affected SG.	
	RO/BOP	Identifies the affected SG.	
	SRO (continuous)	Directs/ensures operator actions of 0POP04-RC-0004, Steam Generator Tube Leakage.	<i>Some actions of 0POP04-RC-0004 may not be performed depending on how quickly the leak is diagnosed and leak rate estimated.</i>
	SRO/BOP	Verify affected SG is SG 1B	
	SRO	Notes procedure requirement to maintain contact with HP prior to performing local operator actions	
	SRO	Notifies Chemistry to sample SG's	
	SRO/BOP	Ensures blowdown is aligned to demins	
	SRO	Ensures that RO monitor and report status of pressurizer level and VCT level.	
	RO	Control and monitor CVCS charging and letdown to maintain VCT level greater than 15% and pressurizer level greater than 17%	
	SRO	Direct performance of 0POP04-TM-0005, Fast Load Reduction	
	ALL	Reactor Trip and SI initiated	<i>Crew may or may not have opportunity to manually actuate before auto occurs</i>
	SRO	Directs/ensures crew enters 0POP05-EO-EO00, Reactor Trip or Safety Injection.	<i>Event #7 will occur 20 minutes following the reactor trip. Refer to Event #7 for action description.</i>

	RO/BOP	Completes immediate actions of EO00, Reactor Trip/SI: <ul style="list-style-type: none"> <li>• Reactor tripped</li> <li>• Turbine tripped</li> <li>• AC ESF Busses energized</li> <li>• SI actuated or required</li> </ul>	<i>Event # 8 occurs at this point, however, Event #8 will not be apparent until Source Range Inst. Try to energize (approx. 15 min. from now)</i>
	SRO	Directs/ensures the immediate actions of EO00, Reactor Trip/SI have been completed.	
	SRO/BOP (continuous)	Ensures that AFW flow is isolated to SG B when level is >14% narrow range.	<i>Normal method at this point is to place AFW Pump # 12 in PTL</i>
	SRO/BOP	Directs BOP to perform Addendum 5, Verification of SI Equipment Operation	
	SRO/RO	Determines Containment Spray is not required.	
	SRO/RO	Check plant status: <ul style="list-style-type: none"> <li>• RCP Seal cooling</li> <li>• RCS cooldown</li> <li>• Pzr valve status</li> <li>• RCP trip criteria</li> <li>• Selected Containment Isol. Valves</li> </ul>	
	ALL	Determines SG 1B is ruptured.	
	SRO	Transitions to EO30, SGTR based on SG radiation abnormal.	
	ALL (continuous)	Monitors the status of Critical Safety Functions when the crew transitions to OPOP05-EO-EO30.	
	SRO/RO (continuous)	Checks RCP trip criteria. Ensures RCPs are tripped if RCS pressure drops to less than 1460 psig	
	BOP	Identifies Ruptured SG as SG 1B.	
	SRO/BOP	Isolates feedwater flow into and steam flow from SG 1B by: <ul style="list-style-type: none"> <li>• Adjusting SG 1B PORV setpoint to between 1260 and 1265 psig</li> <li>• Isolating Blowdown</li> <li>• Closing SG 1B MSIV</li> <li>• Isolating AFW to SG 1B</li> </ul>	<i>Event #6 occurs at this point. Refer to Event #6 for actions for failed MSIV</i>

	SRO/BOP	Verifies ruptured SG level is >14% then isolates AFW to ruptured SG	
	SRO/BOP	Determines SG B pressure is > 468 psig	
	SRO/RO	Checks Pzr PORV availability	
	<b>SRO/BOP C</b>	<b>INITIATES RCS COOLDOWN</b> <ul style="list-style-type: none"> <li>• <b>DETERMINES TARGET TEMPERATURE</b></li> <li>• <b>COOLS DOWN TO TARGET TEMPERATURE</b></li> </ul>	<i>Determining target temperature should be done after MSIV is closed. Doing it before will result in a lower target temperature than necessary (but is conservative)</i>
	RO	Reset actuation systems for SI, SI Auto Recirc, Sequencers and Phase 'A' and 'B' Isolations	
	RO/BOP	Restores IA to containment when directed by verifying IA pressure is >95 psig and opening the IA OCIV.	
	SRO/BOP	Ensures Intact SG levels are 22-50%	
	SRO/RO	Establish maximum charging flow	<i>£ 200 gpm indicated charging flow</i>
	SRO/RO	Depressurize RCS to minimize break flow	
	SRO/RO	Determines if HHSI and/or LHSI can be secured	
	SRO/RO	Secures HHSI if: <ul style="list-style-type: none"> <li>• Subcooling &gt;35 deg</li> <li>• Heat sink available (SG heat sink)</li> <li>• RCS pressure stable or increasing</li> </ul>	
	SRO/RO	Secures LHSI pumps if RCS pressure > 415 psig.	<i>Terminate the scenario</i>

**OPERATOR ACTIONS (Cont')**

**Op-Test No.: #1    Scenario No.: 1    Event No.: 6**

**Event Description:** Steam Generator 1B Main Steam Isolation Valve fails to close when actions are taken to isolate the steam generator during the tube rupture.

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	BOP	Determines SG B MSIV fails to close from the Control Room. Reports status to SRO	
	SRO	Directs that MSIV be closed locally.	
	BOP	Dispatches a PO to locally close SG B MSIV using Addendum 1.	
	BOP	Once closed, the BOP reports status to the SRO.	

**OPERATOR ACTIONS (Cont')**

<b>Op-Test No.: # 1    Scenario No.: 1    Event No.: 7</b>			
<b>Event Description:</b> AFW Pump #11 trips			
<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	BOP	Determines AFW Pump #11 has tripped, informs SRO	
	SRO	Directs BOP to dispatch a PO to investigate the cause of the trip and to cross-connect with an operating AFWP to feed SG 1A	<i>SRO may have AFWP #11 control placed in PTL</i>
	BOP	Dispatches a PO to investigate the cause of the trip.	
	BOP	Cross-connects with either AFWP #13 or 14 to feed SG 1A: <ul style="list-style-type: none"> <li>• Closes AFW Reg. valve to SG 1A.</li> <li>• Throttles AFW flow from #13 or 14 AFWP (prevent runout)</li> <li>• Opens x-tie valves between SG 1A and either C or D.</li> <li>• Re-opens AFW Reg. Valve to SG 1A to control level</li> </ul>	<i>May not do immediately because some actuation systems have to be reset first</i>



**OPERATOR ACTIONS (Cont')**

**Op-Test No.:** # 1    **Scenario No.:** # 1    **Event No.:** 8

**Event Description:** Intermediate Range Channel N36 failure of compensating voltage

Time	Position	Applicant's Actions or Behavior	Notes
	RO	Determines IR Channel N36 has failed in high direction, informs SRO	
	SRO	Directs RO to manually energize Source Range Instruments	
	RO	Manually energizes Source Range Instruments with the SR TRN R and S BLOCK/UNBLOCK sw. on CP-005.	
	RO	Determines both Source Range Instruments are reading properly, reports status to SRO	

CRITICAL TASK SUMMARY

<b>POSITION</b>	<b>EXPECTED RESPONSE</b>	<b>ACCEPTANCE CRITERIA</b>	<b>SAT/ UNSAT</b>
<b>BOP</b>	<b>MANUALLY CONTROLS SG LEVEL</b>	Manually controls SG level such that a manual or automatic reactor trip is not required.	
<b>SRO/BOP</b>	<b>PROPERLY SELECT AND MAINTAIN TEMPERATURE FOR COOLDOWN</b>	Cooldown is performed to correct target temperature such that an unnecessary transition to EC31 does not occur.	

## SCENARIO # 2

311

## TURNOVER INFORMATION

- Reactor power is 100%
- Cycle burnup is 150 MWD/MTU
- RCS Boron Concentration is 1436 ppm.
- Hourly dilutions to maintain current power are approximately 10 gallons. Total Batch Integrator set at 10 gallons, getting 16. Xenon is at equilibrium conditions.
- Boric Acid Tanks A and B are at 7300 ppm.
- Start Charging Pump 1B and secure Charging Pump 1A for upcoming maintenance. The MAB watch is standing by for the pump start.
- No liquid waste discharges are in progress or planned.
- No personnel are in containment
- FHB Truck Bay doors are closed
- No ESF DG FOST's are on recirc

# **INITIAL LICENSE EXAM**

## **OPERATING TEST # 1**

### **SCENARIO # 2**

**Revision 1**

**Week of 18 August, 2003**

**Facility: South Texas Project    NRC Scenario No.: 2                      Op-Test No.: 1**

**Source:**

**New   X      Bank - Significantly Modified        Bank - Initial Condition Change**

**See page 3 for Examiner/student assignments**

**Initial Conditions: 80% power at BOL, power escalation in progress following a shutdown for turbine blade inspection.**

**Turnover: 80% power, power escalation in progress. Currently at step 7.33 of 0POP03-ZG-0005. Boric Acid Tanks are at 7300 ppm**

<b>Event No.</b>	<b>Malf. No.</b>	<b>Event Type*</b>	<b>Event Description</b>
<b>1</b> (2 min)	<b>05-17-01</b> (1.0)	<b>BOP (I)</b> <b>SRO (I)</b>	<b>1A SG PORV Pressure Transmitter PT-7411 fails high – 2 minutes after crew assumes watch</b>
<b>2</b> (11 min)	<b>08-23-01</b> (True)	<b>BOP (C)</b> <b>SRO (C)</b>	<i>Loss of Condensate Pump 11 – after T.S. addressed for PORV or after 9 minutes</i>
<b>3</b> (22 min)	<b>01-07-01</b> (True)	<b>RO (C)</b> <b>SRO (C)</b>	<i>Dropped Control Rod C9 – after DA Level Control returned to Auto. or after 11 min.</i>
<b>4</b> (32 min)	<b>NA</b>	<b>RO (R)</b> <b>BOP (R)</b> <b>SRO (R)</b>	<i>Power Reduction due to dropped rod – crew should begin power reduction approx. 10 min following dropped rod.</i>
<b>5</b> (42 min)	<b>50-LI-53</b> (True)	<b>BOP (C)</b> <b>RO (C)</b> <b>SRO (C)</b>	<i>Second Dropped Control Rod G3, Manual Reactor– after power reduction of 2-3% (approx. 10 minutes after power reduction started).</i>
<b>6</b> (NA)	<b>01-12-01</b> <b>01-12-02</b> (True)	<b>RO (C)</b> <b>BOP (C)</b> <b>SRO (C)</b>	<b>ATWS-reactor fails to trip automatically or manually. Can be tripped by opening LC breakers from the control room – integral to scenario</b>
<b>7</b> (54 min)	<b>02-01-01</b> (1.0)	<b>All (M)</b>	<i>RCS break develops into a LBLOCA (upon ES01 entry) – 5 min. ramp – after ES01 entered or 12 minutes after EO00 entered.</i>

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

Note: Once SI is initiated it will take approximately 23 minutes to reach the point of swapover to SI recirculation

## Scenario # Crew Assignments

### SESSION 1 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

### SESSION 2 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

### SESSION 3 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

### SESSION 4 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

**SCENARIO MISCELLANEOUS INFORMATION****INSTRUCTOR NOTES:**

Refer to the Instructor Notes file for directions on Simulator Setup, Expected Booth Communications, and Expected Booth Actions.

**CRITICAL PARAMETERS:**

The following parameters may be of value in evaluating crew performance and should be placed in an Autograph file for recall when the scenario is completed:

- \$ RCS Wide Range Pressure
- \$ SG 'A' Pressure
- \$ Reactor Power
- \$ Containment Pressure
- \$ RCS Wide Range Temperature

**OPERATOR ACTIONS TABLE NOTES:**

1. Critical Tasks are indicated by "C" in the position column and indicated in bold type.
2. Actions required throughout the event are indicated as "(continuous)" in the position column.
3. Shaded cells indicate procedural entry points.

**OPERATOR ACTIONS (Cont')****Op-Test No.: 1    Scenario No.: 2    Event No.: 1****Event Description:** Steam Generator 1A PORV Pressure Transmitter Fails High

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	BOP	Acknowledges and reports annunciator SG PORV NOT CLOSE on Control Panel CP006.	
	BOP	Performs the following actions of OPOP09-AN-06M3-A1: <ul style="list-style-type: none"> <li>▸ Identifies that SG 1A PORV has lifted</li> <li>▸ Verifies SG 1A pressure is &lt;1225 psig</li> <li>▸ Manually closes SG 1A PORV</li> </ul>	
	SRO	Ensures SG 1A PORV has been closed manually	
	BOP	Identifies SG 1A Pressure Transmitter PT-7411 has failed high.	
	SRO	Determines Tech Specs 3.7.1.6, 3.3.3.5 and 3.3.5.1 (action 2) apply. Most restrictive are 3.7.1.6 and 3.3.5.1 to restore SG PORV 1A to operable status within 7 days.	<i>Event 2 will occur here after T.S. are consulted</i>



### OPERATOR ACTIONS (Cont')

<b>Op-Test No.:</b> 1 <b>Scenario No.:</b> 2 <b>Event No.:</b> 2			
<b>Event Description:</b> Condensate Pump #11 Trips.			
Time	Position	Applicant's Actions or Behavior	Notes
	BOP	Acknowledges and announces annunciator 9M01-A1, COND PMP TRIP.	
	BOP	Reports that condensate pump #11 has tripped.	
	BOP	Pulls out and reviews steps in OPOP09-AN-09M1, Annunciator Lampbox 9M01 Response Instructions.	
	BOP	Throttles DA condensate flow to clear SFFP Seal Water Low Flow alarms.	<i>Seal alarms will not come in immediately.</i>
	BOP	Recommends that an alternate condensate pump be started.	
	SRO	Determines that an additional condensate pump is required based on current plant conditions and directs the BOP to start an Condensate pump # 13.	
	RO/BOP	Dependent on plant conditions, may make a plant announcement based on condensate pump start.	
	BOP	Starts an alternate condensate pump and opens the respective condensate pump discharge valve per OPOP02-CD-0001, Condensate System.	
	BOP (continuous)	Monitors the condensate system to ensure parameters return to normal. <ul style="list-style-type: none"> <li>• Condensate pump recirc valve closes</li> <li>• Deaerator and hotwell levels return to normal values</li> <li>• Condensate pressure and flow returns to normal.</li> </ul>	
	BOP	Returns DA Level Control to Auto	Event #3 will occur here

**OPERATOR ACTIONS****Op-Test No.: # 1 Scenario No.: # 2 Event No.: 3****Event Description:** Dropped Control Rod C9

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO	Acknowledges and responds to the following annunciators: <ul style="list-style-type: none"> <li>• ROD BOTTOM</li> <li>• ROD SUPV MNTR ROD POSITION TRBL</li> </ul>	<i>There will be others, but these are the main ones</i>
	RO	Diagnoses Rod C9 has dropped fully into the core, informs the SRO.	
	RO	Performs immediate actions <ul style="list-style-type: none"> <li>• Ensures Rod Control in Manual</li> <li>• Ensures no rod motion</li> <li>• Checks for dropped rods</li> </ul>	
	SRO	Enters 0POP04-RS-0001, Control Rod Malfunction.	
	SRO/RO	Verify Immediate Actions complete	
	SRO/RO	Determine no more than one rod is dropped.	
	SRO	Notes entry into T.S. 3.1.3.1.b.3	
	SRO	Determines Power reduction to < 75% is required. Directs crew to reduce power per 0POP03-ZG-0006 or ZG-0008	
	RO/BOP	Co-ordinate to reduce power to < 75%	<i>Event # 5 will occur once evidence of the power reduction is seen.</i>

**OPERATOR ACTIONS (Cont')****Op-Test No.: # 1    Scenario No.: # 2    Event No.: 5****Event Description:** Second Dropped Rod, Reactor Trip

<i>Time</i>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	ALL	Diagnose a second rod has dropped into the core	There will be no Annunciators alarming directly from the second dropped rod. Crew will have to diagnose based on plant response and ICS computer displays
	SRO	Directs a manual Reactor Trip and for crew to perform immediate actions of 0POP05-EO-EO00, Reactor Trip or SI	
	RO/BOP	Determine a manual reactor trip using the reactor trip sw. cannot be done, inform SRO	This is Event # 6
	<b>BOP</b>	<b>TRIPS REACTOR BY OPENING LC BREAKERS 1L1 AND 1K1.</b>	<i>Breakers will be re-closed subsequent to Reactor Trip.</i>
	ANY	Dispatch an operator to locally open the Reactor Trip Breakers.	
	BOP	Manually trips Turbine once Reactor trip is verified	
	RO/BOP	Completes immediate actions of EO00, Reactor Trip/SI: <ul style="list-style-type: none"> <li>• Reactor tripped</li> <li>• Turbine tripped</li> <li>• AC ESF Busses energized</li> <li>• SI actuated or required</li> </ul>	
	SRO	Directs/ensures the immediate actions of EO00, Reactor Trip/SI have been completed.	
	SRO	Directs the crew to transition to 0POP05-EO-ES01, Reactor Trip Response, and to monitor Critical Safety Functions	Event # 7 will occur here

**OPERATOR ACTIONS (Cont')****Op-Test No.: # 1 Scenario No.: # 2 Event No.: 7****Event Description:** RCS Break develops into LBLOCA

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO/BOP	Determine RCS Pressure and Pressurizer level are decreasing.	
	SRO	Directs SI actuation. Directs the crew to re-enter OPOP05 EO EO00, Reactor Trip or SI.	<i>Crew may not have time for manual SI actuation before it automatically occurs.</i>
	RO/BOP	Performs the immediate actions of EO00, Reactor Trip or Safety Injection	
	ALL (continuous)	Monitor for RCP trip criteria (RCS pressure < 1460 psig and at least 1 HHSI Pump operating) or Containment Phase 'B' Isolation occurs, and trip RCPs as required.	
	ALL (continuous)	Monitor/apply adverse containment values when containment pressure is $\geq 5$ psig.	
	SRO/BOP	Directs BOP to perform Addendum 5, Verification of SI Equipment Operation	
	SRO/RO	Determines Containment Spray is operating correctly	<i>If RCB pressure <math>\geq 9.5</math> psig at this time</i>
	SRO/RO	Check plant status: 1. RCP Seal cooling 2. RCS cooldown 3. Pzr valve status 4. RCP trip criteria 5. Selected Containment Isol. Valves	
	ALL	Determine RCS isn't intact	
	SRO	Inform crew of transition to OPOP05-EO-E010, Loss of Reactor or Secondary Coolant and to monitor Critical Safety Functions	
	ALL	Determine there's a Orange or Red Path on Containment Integrity.	<i>Can be either one depending on plant conditions at the time.</i>

	SRO	Transitions to FRP1, Response to Imminent Pressurized Thermal Shock	<i>Conditions for entry into this procedure may or may not exist at this point. They should occur sometime during the scenario though.</i>
	SRO/RO	Exits FRP1 at Step 1 (RNO) based on LHSI flow being > 500 gpm.	
	SRO	Transitions to FRZ1, Response to Containment High Pressure and directs operator actions based on ORANGE Path on Containment CSF.	
	SRO/RO	Verifies Containment Isolation Phase 'A' and Containment Ventilation Isolation.	
	SRO/RO	Determines Containment Spray is required and in service. <ul style="list-style-type: none"> <li>• Stops RCPs if not already done.</li> <li>• Verifies Containment Phase 'B' Isolation</li> </ul>	
	SRO/RO	Checks Reactor Containment Fan Cooler (RCFC) status.	
	SRO/BOP	Checks SG MSIVs/MSIBs closed and that no faulted SG exist.	
	SRO	Transitions to EO10, Loss of Reactor or Secondary Coolant.	
	ALL	Determine if RCPs should be stopped	Should be stopped by this time
	SRO/BOP	Determines RCS pressure is < 415 psig and bypasses step to de-pressurize intact SG's.	
	SRO/BOP	Verifies no SG's are faulted	
	SRO/RO	Reset actuation systems for SI, Sequencers and Phase 'A' and 'B' Isolations	
	SRO/BOP	Controls intact SG levels 34-50%	
	ALL	Checks Secondary Radiation (for SGTR)	
	SRO/RO	Checks Pressurizer PORV availability	

	RO/BOP	Restores IA to containment when directed by verifying IA pressure is >95 psig and opening the IA OCIV.	
	SRO/RO	Place Containment H2 Monitors in service.	
	SRO/RO	Place SFPC in service	<i>Has 2.5 hr. to do this.</i>
	SRO/RO	Checks if Charging flow is established	
	SRO/RO	Determines Safety Injection cannot be stopped.	
	SRO/RO	Checks if Containment Spray can be stopped.	
	SRO/RO	Checks if LHSI Pumps can be stopped.	
	SRO (continuous)	Transitions to 0POP05-EO-ES13, Transfer to Cold Leg Recirculation, when RWST level decreases to less than 75,000 gallons.	
	RO	Resets SI and ESF Sequencers	
	RO	Verifies CCW flow to RHR Hx's	
	RO	Secures any running Charging Pumps	
		Verifies HHSI/LHSI lineup for recirculation: <ul style="list-style-type: none"> <li>• Cold Leg Injection Valves open</li> <li>• Recirc valves closed</li> <li>• Containment Sump to SI Pump Suction valves open</li> </ul>	
	RO	Closes RWST to SI Pump Suction valves	
	<b>SRO/RO C</b>	<b>VERIFIES AT LEAST ONE TRAIN OF HHSI, LHSI AND CONTAINMENT SPRAY ALIGNED FOR RECIRCULATION WITH PUMP/S RUNNING.</b>	Terminate Scenario

**CRITICAL TASK SUMMARY**

<b>POSITION</b>	<b>EXPECTED RESPONSE</b>	<b>ACCEPTANCE CRITERIA</b>	<b>SAT/ UNSAT</b>
<b>ALL</b>	<b>MANUALLY TRIP THE REACTOR FROM THE CONTROL ROOM</b>	Before leaving Step 1.0 of EO00	
<b>SRO/BOP</b>	<b>TRANSFER TO COLD LEG RE- CIRCULATION</b>	Before RWST Tank EMPTY alarm	

**TURNOVER INFORMATION**

\$ 80% power with power increase in progress. Currently at Step 7.33 of 0POP03-ZG-0005, Plant Startup to 100%. Continue the power increase once the watch is assumed.

\$ Cycle burnup is 150 MWD/MTU, fuel is conditioned to 100% power.

\$ RCS Boron Concentration is 1520 ppm

- Xe is building in. Dilutions required will be based on maintaining Tavg within band to account for Xe and power changes. Have been diluting 20 gallons every half hr. Total Batch Integrator is set at 10 gallons, getting 16.

\$ Boric Acid Tanks A and B are at 7300 ppm.

- No personnel are in containment
- FHB Truck Bay doors are closed
- No ESF DG FOST's are on recirc



**INITIAL LICENSE EXAM**

**OPERATING TEST #1**

**SCENARIO #3**

**Week of August 18, 2003**

**Revision 1**

## SCENARIO OUTLINE

Facility: South Texas Project NRC Scenario 3

Op-Test No.: 1

Source:

New      Bank - Significantly Modified      X Bank - Initial Condition Change      X

See page 3 for Examiner/student assignments

Initial Conditions: 60% power. Power decrease is on hold to allow a SG Feedpump to be secured.

Turnover: 60% power. Power decrease is on hold to allow SG Feedpump # 12 to be secured. Maintain current power level.

Event No.	Malf. No.	Event Type*	Event Description
1 (0 min)	NA	BOP (N) SRO (N)	Secure SGFPT # 12
2 (12 min)	02-26-02 (1.0)	RO (I) SRO (I)	Loop 'B' T-Cold TT-420B fails high – after SUFP returned to Auto or after 12 minutes.
3 (22 min)	05-12-03 (0.0)	BOP (I) SRO (I)	1C Steam Generator level transmitter LT-539 fails low - after T.S. addressed for TT-420B or after 10 minutes
4 (32 min)	08-16-03 (0.0)	BOP (C) SRO (C)	<i>SG 1C Feedwater Regulating Valve (FCV-553) fails closed resulting in a reactor trip - after Feedwater regulating valve is returned to auto or after 10 minutes</i>
5 (47 min)	02-12-01 (0.8)  02-04-01 (0.1)	All (M)	Pzr Steam Space Break (after entry into ES01) – at step 6 of ES01 or after 15 minutes. Note: 02-04-01 will be removed after 6 min.
6 (72 min)	10-02-01 LA10M1-D-3	RO (C) SRO (C)	Loss of power to ESF Bus '1A', ESF DG #11 fails to load – at EO10 Step 3 or 5 minutes after entering EO10.

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

**Scenario #1 Crew Assignments**SESSION 1 - CREW DExaminers:

Sanchez  
Werner

Operators:

SRO - Rohan  
RO - Cross  
BOP - McConaha

SESSION 2 - CREW AExaminers:

Werner  
McCrory  
Bundy

Operators:

SRO - Bryant  
RO - Gorman  
BOP - Flores

SESSION 3 - CREW BExaminers:

Bundy  
Werner  
Sanchez

Operators:

SRO - Herzog  
RO - Gattis  
BOP - Clark

SESSION 4 - CREW CExaminers:

Bundy  
Sanchez  
McCrory

Operators:

SRO - Sterling  
RO - Hutson  
BOP - Shalley

**SCENARIO MISCELLANEOUS INFORMATION****INSTRUCTOR NOTES:**

Refer to the Instructor Notes file for directions on Simulator Setup, Expected Booth Communications, and Expected Booth Actions.

**CRITICAL PARAMETERS:**

The following parameters may be of value in evaluating crew performance and should be placed in an Autograph file for recall when the scenario is completed:

- Reactor Power
- SG C Narrow Range Level
- Total AFW Flow
- RCS Wide Range Pressure
- Pressurizer Level
- ESF DG #11 Lube oil temperature

**OPERATOR ACTIONS TABLE NOTES:**

1. Critical Tasks are indicated by "C" in the position column and indicated in bold type.
2. Actions required throughout the event are indicated as "(continuous)" in the position column.
3. Shaded cells indicate procedural entry points.

**OPERATOR ACTIONS****Op-Test No.: #1    Scenario No.: #3    Event No.: 1****Event Description:** Secure SGFPT #12

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	SRO (continuous)	Direct the BOP to secure SGFPT # 12 per OPOP02-FW-0002, S.G.F.P. Turbine.	
	BOP	Ensures steamline drain sw. in AUTO	
	BOP	Ensures SGFPT # 12 speed controller is in manual	
	BOP	Places the S/U SGFP in PTL	
	BOP	Slowly lowers SGFPT # 12 speed while monitoring operating Feedpumps and SG levels until 3300 rpm reached.	
	BOP	Closes discharge valve MOV-0072	
	BOP	Trips SGFPT # 12 and verifies <ul style="list-style-type: none"> <li>• Trip light</li> <li>• No 'Latch/Alm Reset' light</li> <li>• HP &amp; LP Governor Valves closed</li> </ul>	
	BOP	Re-latches SGFPT # 12 and verifies: <ul style="list-style-type: none"> <li>• Trip light out, Latch light on</li> <li>• Recirc valve open</li> </ul>	
	BOP	Contact the TGB operator to perform Main Oil Pump Swap test	
	BOP	Trips SGFPT # 12 and verifies trip indications as before.	
	BOP	Ensures the S/U SGFP control is in AUTO	Event # 2 will occur here
	BOP	Ensures the steamline drain valves are open for SGFPT # 12	
	BOP	Informs the TGB to ensure SGFPT # 12 goes on the Turning Gear after coastdown.	

**Op-Test No.: #1    Scenario No.: #3    Event No.: 2**

**Event Description:** Loop 1B T-Cold TT-420B fails high

Time	Position	Applicant's Actions or Behavior	Notes
	RO	Acknowledges and reports annunciators on Control Panel CP005 which are indicative of a RTD failure.	
	SRO (continuous)	Directs/ensures actions of 0POP04-RP-0004, Failure of RCS Loop RTD Protection Channel.	
	RO	Verifies rod control is in manual.	
	RO	Identifies/reports the failed channel as TI-420B.	
	RO	Selects Loop 2 Defeat on the following switches: <ul style="list-style-type: none"> <li>• BYP SEL ? T</li> <li>• BYP SEL T AVG</li> </ul>	
	RO	Ensures Tavg is maintained within 1.5 °F of Tref.	
	RO	Takes manual control of FCV-0205, CHG FLOW CONT, to maintain pressurizer level at program.	
	SRO/RO	Determine whether to restore Rod Control to Auto	
	RO	Ensures ? T and ? T Setpoints Recorder selected to an operable channel.	
	SRO	Initiates actions per Tech Spec 3.3.1 (action 6) and 3.3.2 (Action 20 to trip bistables within 72 hour and Action 21 to verify P-12 state within 1hr.)	Event # 3 to occur here
	SRO	Notifies I & C to trip Bistables per 0PSP02-RC-410.	

**OPERATOR ACTIONS (Cont')****Op-Test No.: #1    Scenario No.: #3    Event No.: 3****Event Description:** Steam Generator level transmitter LT-539 fails low

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	BOP	Acknowledges and reports annunciators on Control Panel CP006: <ul style="list-style-type: none"> <li>• SG 1C LVL DEV HI/LO</li> <li>• SG 1C LVL LO</li> <li>• SG 1C LVL LO-LO ALERT</li> </ul>	
	<b>SRO/BOP C</b>	Performs immediate actions of OPOP04-FW-001: <ul style="list-style-type: none"> <li>• <b>PLACES SG 1C FEEDWATER REGULATING VALVE CONTROLLER IN MANUAL</b></li> <li>• <b>ADJUSTS CONTROLLER OUTPUT TO MATCH FEED/STEAM FLOW AND RESTORE SG 1C LEVEL TO PROGRAM</b></li> </ul>	
	SRO (continuous)	Directs/ensures actions of OPOP04-FW-001, Loss of Steam Generator Level Control.	
	SRO/BOP	Check Feed Control and SG Feedpump Control systems for status <ul style="list-style-type: none"> <li>• SG 1C MFRV responds in manual</li> <li>• SG Feedpump controllers are responding in auto</li> </ul>	
	SRO/BOP	Ensure appropriate Feed to steam DP	
	BOP (continuous)	Restores affected level to 68-74%. Ensures all levels 22-85%.	
	BOP	Identifies that SG 1C level channel LT-539 has failed low. Selects alternate channel for SG 1C level control.	
	SRO/BOP	Checks SGWLCS instrument inputs: <ul style="list-style-type: none"> <li>• Feedflows</li> <li>• Steamflows</li> <li>• SG Pressures</li> </ul>	

	BOP	Performs the following: <ul style="list-style-type: none"><li>• Checks Main Reg Valve Auto controls are operable.</li><li>• Places SG 1C Feed Regulating Valve in AUTO</li></ul>	<i>Event # 4 will occur here</i>
	SRO/BOP	Checks SGFP Master Controller in Auto	
	SRO	Refers to Tech Specs 3.3.1 and 3.3.2 (72 hour action to trip bistables for both sections).	



**OPERATOR ACTIONS (Cont')****Op-Test No.: #1    Scenario No.: #3    Event No.: 4****Event Description:** Steam Generator 1C Main Feed Reg. Valve fails closed necessitating a reactor trip

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	BOP	Acknowledges and reports annunciators on Control Panel CP006: <ul style="list-style-type: none"> <li>• SG 1C LVL DEV HI/LO</li> <li>• SG 1C STM/FW FLOW MSMTCH</li> </ul>	
	BOP	Takes manual control of SG 1C Main Feed Reg. Valve and attempts to increase feedflow to restore SG level.	
	BOP	Determines SG 1C Main Feed Reg. Valve does not respond, reports status to SRO.	
	SRO	Directs a manual reactor trip based on decreasing level in SG 1C.	
	RO/BOP	Manually trip the reactor and carry out their immediate actions of 0POP05 EO EO00, Reactor Trip or SI	
	SRO	Ensures that the crew enters 0POP05-EO-EO00, Reactor Trip or Safety Injection.	
	RO/BOP	Completes immediate actions of EO00, Reactor Trip/SI: <ul style="list-style-type: none"> <li>• Reactor tripped</li> <li>• Turbine tripped</li> <li>• AC ESF Busses energized</li> <li>• SI actuated or required</li> </ul>	
	SRO	Directs/ensures the immediate actions of EO00, Reactor Trip/SI have been completed.	
	SRO	Transitions to 0POP05 EO ES01, Reactor Trip Response	
	ALL	Monitor Critical Safety Functions	

	ALL	Monitor RCS for cooldown, take appropriate action to stabilize RCS temperature.	
	SRO/BOP	Ensure FW Isolation and SGFPT's tripped	
	SRO/BOP	Ensure Feed to SG's	
	SRO/RO	Verifies Control Rods fully inserted	
	SRO/RO	Checks ESF DG status	
	SRO/RO	Checks Pressurizer level control <ul style="list-style-type: none"><li>• Pressurizer level</li><li>• Charging flow</li><li>• Seal Injection</li><li>• Letdown flow</li></ul>	Event # 5 will occur here

**OPERATOR ACTIONS (Cont')**

<b>Op-Test No.: #1    Scenario No.: #3    Event No.: 5</b>			
<b>Event Description:</b> Pressurizer steam space break.			
<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	ALL	Identify/report an excessive RCS leak as indicated by the following: <ul style="list-style-type: none"> <li>• Lowering RCS pressure</li> <li>• Increasing containment pressure</li> <li>• Increasing containment sump level</li> </ul>	
	SRO	Directs the crew to re-enter 0POP05 EO EO00, Reactor Trip or SI.	
	RO/BOP	Performs the immediate actions of EO00, Reactor Trip or Safety Injection	
	ALL (continuous)	Monitor for RCP trip criteria (RCS pressure < 1460 psig and at least 1 HHSI Pump operating) and trip RCPs as required.	
	SRO/BOP	Directs BOP to perform Addendum 5, Verification of SI Equipment Operation	
	SRO/RO	Determines Containment Spray is not required.	<i>RCB pressure will continue to increase. At some point Containment Spray will be needed.</i>
	SRO/RO	Check plant status: <ul style="list-style-type: none"> <li>• RCP Seal cooling</li> <li>• RCS cooldown</li> <li>• Pzr valve status</li> <li>• RCP trip criteria</li> <li>• Selected Containment Isol. Valves</li> </ul>	
	ALL	Determine RCS isn't intact	
	SRO	Informs crew of transition to 0POP05-EO-E010, Loss of Reactor or Secondary Coolant and to monitor Critical Safety Functions	
	SRO	Due to Orange Path on Containment CSF, informs crew of transition to 0POP05-EO-FRZ1, Response to High Containment Pressure.	<i>Due to actual timing of crew actions, entry into FRZ1 may not occur immediately after exiting EO00</i>
	SRO/RO	Verifies Containment Isolation Phase 'A' and Containment Ventilation Isolation.	

#3

OP-TEST #1 SCENARIO

PAGE 292 OF 311

	SRO/RO	Determines Containment Spray is required and in service. <ul style="list-style-type: none"> <li>Stops RCPs if not already done.</li> <li>Verifies Containment Phase 'B' Isolation</li> </ul>	
	SRO/RO	Checks Reactor Containment Fan Cooler (RCFC) status.	
	SRO/BOP	Checks SG MSIVs/MSIBs closed and that no faulted SG exist.	
	SRO	Transitions to EO10, Loss of Reactor or Secondary Coolant.	
	ALL	Determine if RCPs should be stopped	
	SRO/BOP	De-pressurize intact SG's to 1000 psig <ul style="list-style-type: none"> <li>Determines condenser unavailable</li> <li>De-pressurizes using SG PORVs</li> </ul> Places PORV controllers in Auto with setpoint of 990-1000 psig.	
	SRO/BOP	Verifies no SGs are faulted	Event # 6 to occur here. Scenario termination point is in Event #6 description.
	SRO/RO	Reset actuation systems for SI, Sequencers and Phase 'A' and 'B' Isolations	
	SRO/BOP	Controls intact SG levels 34-50%	
	ALL	Checks Secondary Radiation (for SGTR)	
	SRO/RO	Checks Pressurizer PORV availability	
	RO/BOP	Restores IA to containment when directed by verifying IA pressure is >95 psig and opening the IA OCIV.	
	SRO/RO	Place Containment H2 Monitors in service.	
	SRO/RO	Restore SFPC	<i>SRO may elect not to do this. Has 2.5 hrs.</i>
	SRO/RO	Ensures Charging Flow is in service	
	SRO	Determines if SI can be terminated	

**NOTE: THE CREW MAY RECEIVE A RED PATH ON INTEGRITY TOWARDS THE END OF THE SCENARIO. THEY SHOULD ENTER 0POP05-EO-FRP1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION, HOWEVER THE SCENARIO TERMINATION PATH IS THROUGH THE ACTIONS ASSOCIATED WITH EVENT # 6, LOSS OF POWER TO ESF BUS 1A. BECAUSE OF THIS THERE ARE NO OPERATOR ACTIONS LISTED FOR 0POP05-EO-FRP1.**

**OPERATOR ACTIONS (Cont')**

<b>Op-Test No.: #1    Scenario No.: #3    Event No.: 6</b>			
<b>Event Description:</b> Loss of power to ESF Bus 1A, ESF DG fails to load			
<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	ALL	Determine power has been lost to 4160v Bus 1A	
	RO	Determines ESF Bus 1A has been energized by it's respective ESF DG.	
	RO	Determines Sequencer loading is not occurring on ESF Bus 1A, reports status to SRO	
	SRO	Directs RO to manually start ESF equipment per EO10, Addendum 4 OR orders the ESF DG placed in Emergency Stop*	<i>SRO may direct RO to immediately close 480v LC bkrs. and start 1A ECW Pump to provide ESF DG cooling.</i>
	RO	Closes 480v LC breakers (if DG not ordered tripped).	
	RO C	<b>STARTS ECW PUMP 1A, VERIFIES DISCHARGE VALVE OPENS (if DG not ordered tripped)*</b>	<i>Terminate Scenario</i>
	RO C	<b>Places the ESF DG in Emergency Stop (if ordered to trip the DG)*</b>	<i>Terminate Scenario</i>

\*The Unit Supervisor can take either action. The critical task is dependent on what action is taken.

NOTE: THE CREW MAY RECEIVE A RED PATH ON INTEGRITY TOWARDS THE END OF THE SCENARIO. THEY SHOULD ENTER 0POP05-EO-FRP1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION, HOWEVER THE SCENARIO TERMINATION PATH IS THROUGH THE ACTIONS ASSOCIATED WITH EVENT # 6, LOSS OF POWER TO ESF BUS 1A. BECAUSE OF THIS THERE ARE NO OPERATOR ACTIONS LISTED FOR 0POP05-EO-FRP1.

## CRITICAL TASK SUMMARY

POSITION	EXPECTED RESPONSE	ACCEPTANCE CRITERIA	SAT/ UNSAT
BOP	<b>MANUALLY CONTROLS SG LEVEL</b>	Manually controls SG level such that a manual or automatic reactor trip is not required.	
<b>RO</b>	<b>MANUALLY STARTS 'A' ECW PUMP and VERIFIES DISCHARGE VALVE IS OPEN*</b>	Prior to receiving a lube oil high temperature alarm.**	
<b>RO</b>	<b>PLACES THE ESF DG IN EMERGENCY STOP*</b>	Prior to receiving a lube oil high temperature alarm.**	

\* Only one of these critical steps will apply depending on the direction given by the Unit Supervisor.

\*\* This criteria will be evaluated using the AutoGraph file which automatically records lube oil temperature.

**TURNOVER INFORMATION**

- Reactor power is 60% with a shutdown in progress for control rod drop testing. Current procedure step is 5.13 of OPOP03-ZG-0006.
- Shutdown is on hold for SGFPT #12 shutdown. The Mechanical Overspeed test, SGFPT Stop Valves test and the Main Oil Pump test have been waived by the Shift Supervisor. TGB watch is standing by for SGFPT # 12 shutdown
- Cycle burnup is 150 MWD/MTU
- RCS Boron Concentration is 1607 ppm.
- Maintain current power level until SGFPT #12 is shutdown
- Xenon is building up due to the power increase. Borating 5 gallons every half hour.
- Total Batch Integrator is set at 10 gallons, getting 16.
- Boric Acid Tanks A and B are at 7300 ppm.
- No personnel are in containment
- FHB Truck Bay doors are closed
- No ESF DG FOST's are on recirc



**INITIAL LICENSE EXAM**

**OPERATING TEST # 1**

**BACKUP SCENARIO**

**Revision # 1**

**Week of 18 August, 2003**

Facility: South Texas Project NRC Backup Scenario

Op-Test No.: 1

Source:

New \_\_\_\_ Bank - Significantly Modified \_\_\_\_X\_\_\_\_ Bank - Initial Condition Change \_\_\_\_X\_\_\_\_

See page 3 for Examiner/student assignments

Initial Conditions: 40% power, shutdown in progress for turbine blade inspection. The National Weather Service has issued a Severe Weather Warning in effect until 2000 hrs.

Turnover: 40% power. Plant shutdown in progress to allow turbine blade inspection. Plant shutdown is on hold to allow FW Booster Pump #11 to be secured. The National Weather Service has issued a Severe Weather Warning in effect until 2000 hrs.

Event No.	Malf. No.	Event Type*	Event Description
1 (0 min)	NA	BOP (N) SRO (N)	Secure Feedwater Booster Pump #11
2 (15 min)	03-17-02 (True)	RO (C) SRO (C)	Boric Acid Pump 'B' trips during first boration of the power reduction – (within approximately 5 minutes of starting power reduction).
3 (25 min)	03-06-01 (0.0)	BOP (C) SRO (C)	Letdown Pressure Control Valve PCV-0135 fails closed – after T.S. consulted for BA Pump or after 10 minutes
4 (35 min)	05-14-01 (0 .6)	BOP (I) SRO (I)	Steam Header Pressure Instrument PT-557 fails low – after Letdown flush started or after 10 minutes.
5 (47 min)	05-02-04 (0.5)	All (M)	Steam Break on SG 1D inside Containment (ramped over 5 min.) – after FW-0002 exited or after 12 minutes.
6 (NA)	01-12-04A 01-12-04B 01-12-04C (True)	RO (C) SRO (C)	Phase 'A' Containment Isolation fails to actuate – integral to scenario

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

## Scenario # Crew Assignments

### SESSION 1 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

### SESSION 2 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

### SESSION 3 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

### SESSION 4 - CREW

Examiners:

Operators: SRO -  
RO -  
BOP -

*SCENARIO MISCELLANEOUS INFORMATION***INSTRUCTOR NOTES:**

Refer to the Instructor Notes file for directions on Simulator Setup, Expected Booth Communications, and Expected Booth Actions.

**CRITICAL PARAMETERS:**

The following parameters may be of value in evaluating crew performance and should be placed in an Autograph file for recall when the scenario is completed:

- SG C Narrow Range Level
- Pressurizer Level
- RCS Wide Range Pressure
- SG D Pressure
- Total AFW Flow

**OPERATOR ACTIONS TABLE NOTES:**

1. Critical Tasks are indicated by "C" in the position column and indicated in bold type.
2. Actions required throughout the event are indicated as "(continuous)" in the position column.
3. Shaded cells indicate procedural entry points.

**OPERATOR ACTIONS****Op-Test No.:** # 1 Backup Scenario**Event No.:** 1**Event Description:** Secure FWBP # 11

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	SRO	Directs BOP to secure FWBP # 11 per 0POP02-FW-0001, Main Feedwater	
	BOP	Closes Discharge Valve for FWBP # 11	
	BOP	Stops FWBP # 11	
	BOP	Verifies FWBP # 11 Discharge Valve is closed	
	BOP	Informs SRO FWBP # 11 is secured	

**OPERATOR ACTIONS (Cont')****Op-Test No.:** 1 Backup Scenario**Event No.:** 2**Event Description:** Boric Acid Pump 1B Trips

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO	Acknowledges and reports the following status light / annunciator: <ul style="list-style-type: none"> <li>• BA XFER PUMP 1B Bypass/Inop</li> <li>• BA FLOW TO BLENDER DEV</li> </ul>	
	RO	Recognizes and reports that BA Pump 1B has tripped.	
	SRO/RO	Directs/Places BA Pump 1B in PTL	
	SRO/RO (continuous)	Ensures/performs 0POP09-AN-04M7-E7 annunciator response actions: <ul style="list-style-type: none"> <li>• Determines a Reactor MU System malfunction has not occurred</li> <li>• Ensures a BA Pump in AUTO</li> <li>• Places RC M/U CONT SYS ON switch to STOP</li> <li>• Recommences boration by placing RC M/U CONT SYS ON switch to START</li> </ul>	
	SRO/RO	Dispatches a Plant Operator to investigate BA Pump 1B trip.	
	SRO	Refers to TRM 3.1.2.2 and determines that the LCO is satisfied.	<b>Event #3 will occur here</b>

**OPERATOR ACTIONS (Cont')**

**Op-Test No.:** # 1 Backup Scenario      **Event No.:** # 3

**Event Description:** Letdown Pressure Control Valve PCV-0135 fails closed

<i>Time</i>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO	Receives various alarms including: <ul style="list-style-type: none"> <li>• LETDN HX OUTL PRESS HI</li> <li>• LETDN HX OUTL FLOW HI/LO</li> </ul>	
	RO	Determines Letdown flow has been lost, informs SRO	
	SRO	Directs/ensures OPOP04-CV-0004, Loss of Normal Letdown.	
	SRO/RO	<ul style="list-style-type: none"> <li>• Isolates Letdown by closing FV-0011</li> <li>• Isolates Charging by closing FV-205</li> </ul>	<i>These actions are from the CIP and should be done when procedure entered</i>
	SRO/RO	Verifies Letdown Isolation valves LCV-0465 and 0468 are open.	
	SRO/RO	Verifies Letdown Isolation valves MOV-0023 and 0024 are open.	
	SRO/RO	Verifies Letdown Orifice Isolation Valve FV-0011 is closed.	<i>Was closed from CIP action of OPOP04-CV-0004</i>
	SRO/RO	Determines Letdown Pressure Control Valve PCV-0135 cannot control pressure.	
	SRO	Directs RO to secure Normal Letdown per Addendum 6, Securing Normal Letdown, and place Excess Letdown in service per Addendum 5.	
	RO	Secures Normal Letdown <ul style="list-style-type: none"> <li>• Closes FV-0011</li> <li>• Isolates Charging flow</li> <li>• Adjust RCP seals</li> <li>• Isolates Letdown line</li> </ul>	
	RO	Places Excess Letdown in Service <ul style="list-style-type: none"> <li>• Checks CCW available for Hx</li> <li>• Linesup to divert Excess Letdown for flushing</li> <li>• Opens Excess LD Isolation valves</li> <li>• Initiates and controls Excess Letdown flow</li> </ul>	<b>Event # 4 will occur here.</b> <b>There's a 6-minute flush required when placing Excess Letdown in service so proceed with Event 4 at this point.</b>

**Op-Test No.: 1** Backup Scenario **Event No.: 4****Event Description:** Main Steam Header Pressure PT-557 Fails Low

Time	Position	Applicant's Actions or Behavior	Notes
	BOP	Acknowledges and reports annunciators on Control Panel CP006: <ul style="list-style-type: none"> <li>• STM/FW FLOW MSMTCH</li> <li>• SG LVL DEV HI/LO</li> </ul>	
	SRO/BOP	Performs immediate actions of 0POP04-FW-0002: <ul style="list-style-type: none"> <li>• PLACES THE SGFP MASTER CONTROLLER IN MANUAL</li> <li>• ADJUSTS CONTROLLER OUTPUT TO MATCH FEED/STEAM FLOW AND RESTORE SG LEVELS TO PROGRAM</li> </ul>	<i>This malfunction is very challenging to the operator and has some probability of resulting in the need for a reactor trip.</i>
	BOP	Reports that main steam header pressure indicator PT-0557 has failed low.	
	SRO (continuous)	Directs/ensures actions of 0POP04-FW-0002, Steam Generator Feed Pump Trip.	
	BOP (continuous)	Manually adjusts the SGFP Master Controller to match feedflow with steam flow. Ensures feedflow is adequate.	
	BOP	Checks that SGFP recirc valve status is appropriate.	
	SRO/BOP (continuous)	Monitors SG levels at or trending to program.	
	SRO/BOP	Checks adequate Feed to steam DP	
	RO	Maintains Delta-I within required band.	
	SRO/BOP	Checks Steam Dumps closed and reset	
	BOP	Checks SFGP speed is < 5400 rpm.	<b>Event # 5 will occur here. Control of SG levels may possibly take several minutes in order to reach a stable enough condition to proceed.</b>



**OPERATOR ACTIONS (Cont') OPERATOR ACTIONS (Cont')****Op-Test No.:** 1 Backup Scenario**Event No.:** 5**Event Description:** Steam break in containment on SG 1D

Time	Position	Applicant's Actions or Behavior	Notes
	ALL	Responds to annunciator CNTMT PRESS HI/LO.	
	ALL	Diagnose Reactor Trip and SI conditions exist	
	SRO	Directs/ensures crew enters 0POP05-EO-EO00, Reactor Trip or Safety Injection.	
	RO/BOP	Completes immediate actions of EO00, Reactor Trip/SI: <ul style="list-style-type: none"> <li>• Reactor tripped</li> <li>• Turbine tripped</li> <li>• AC ESF Busses energized</li> <li>• SI actuated or required</li> </ul>	
	SRO	Directs/ensures the immediate actions of EO00, Reactor Trip/SI have been completed.	
	ALL (continuous)	Diagnoses SG D is faulted.	
	SRO/BOP	Secures feed to SG D when faulted condition diagnosed.	
	ALL (continuous)	Trips RCPs when RCS pressure is <1460 psig or following Phase B isolation.	
	SRO/BOP	Directs BOP to perform Addendum 5, Verification of SI Equipment Operation	<i>Event # 6 should be discovered at this time if not before.</i>

	SRO/RO	Check plant status: <ul style="list-style-type: none"> <li>• RCP Seal cooling</li> <li>• RCS cooldown</li> <li>• Pzr valve status</li> <li>• RCP trip criteria</li> <li>• Selected Containment Isol. Valves</li> </ul>	<i>RCP seal flows cannot be adjusted to 6-13 gpm until Phase 'A' Isolation is accomplished (Event # 6)</i>
	RO	Verifies Containment Spray initiated and Containment Isolation Phase B actuated.	
	SRO	Informs crew of transition to EO20, Faulted SG Isolation and to monitor Critical Safety Functions	
	ALL	Evaluate plant conditions and alert the crew of an orange path on containment CSF and that entry into FRZ1 is required.	
	SRO (continuous)	Transitions to FRZ1 on an orange path on containment CSF.	<i>The crew will transition to EO20 instead of FRZ1 if Addendum 5 of EO00 is not yet complete.</i>
	<b>RO/SRO C</b>	<b>VERIFIES CONTAINMENT ISOLATION PHASE 'A' AND CONTAINMENT VENTILATION ISOLATION.</b>	<b>May have been done in EO00</b>
	SRO/RO	Determines Containment Spray is required and in service. <ul style="list-style-type: none"> <li>• Stops RCPs if not already done.</li> <li>• Verifies Containment Phase 'B' Isolation</li> </ul>	
	SRO/RO	Checks Reactor Containment Fan Cooler (RCFC) status.	
	SRO/BOP	Verify MSIV's and MSIB's are closed	
	SRO/BOP	Diagnose SG D is faulted	
	<b>ALL C</b>	<b>ISOLATES FAULTED SG A:</b> <ul style="list-style-type: none"> <li>• <b>Feedwater Isolation has occurred</b></li> <li>• <b>Reset SI</b></li> <li>• <b>Reset S/G Lo-Lo level actuation</b></li> <li>• <b>Close D S/G AFW OCIV</b></li> </ul>	<i>Once the faulted S/G is identified, the AFW pump may secured (this could occur earlier)</i>
	SRO	Transitions to EO20, after completing the actions of FRZ1.	
	SRO/BOP	Verifies faulted SG is isolated and: <ul style="list-style-type: none"> <li>• Resets ESF Load Sequencers</li> <li>• Secures Steam-driven Aux Feedpump</li> </ul>	

	ALL	Check for secondary radiation • Lineup for secondary samples • Check Rad Monitors	
	ALL	Check if SI flow can be terminated	
	SRO (continuous)	Transitions to EO10, Loss of Reactor or Secondary Coolant	
	BOP	De-pressurizes SG's to 1000 psig • Uses SG PORV's to de-pressurize SG's • Sets SG PORV's to automatically maintain 990-1000 psig	<i>SG's may already be at or below 1000 psig</i>
	RO	Resets SI, Sequencers, Containment Isolation Phase A and B	
	BOP	Monitors for Secondary Heat Sink	
	SRO/BOP	Monitors for Secondary radiation, directs Chemistry to sample SG's	
	RO	Ensures Pzr. PORV's are available	
	RO	Establishes Inst. Air to Containment	
	RO	Places H2 Monitoring in service, determines H2 concentration is '0'	
	RO	Restores cooling to the Spent Fuel Pool Heat Exchanger	<i>Has 2.5 hr. to do this so may not be done immediately</i>
	RO	Establishes Charging Flow to restore Pzr level.	
	SRO/RO	Determines if SI flow can be terminated	<i>Conditions will not likely be met at this time</i>
	SRO/RO	Determines Containment Spray cannot be stopped.	
	SRO/RO	Secures LHSI Pumps	
	SRO/RO	Determines ESF DG's can be stopped and secures them.	
	SRO/RO	Determines plant status can support Cold Leg Re-circulation	
	SRO	Transitions to ES12, Post-LOCA Cooldown and Depressurization	
	ALL	Determines all 13.8 and 4.16 kV busses are energized from Off-site power.	
	RO	Ensures maximum Charging flow established	<i>Conditions to allow transition to ES11 should occur shortly if not by this time.</i>
	BOP	Monitors for Secondary Heat Sink	

	SRO/BOP	Initiates an RCS Cooldown at < 100 Deg F	
	SRO	Transitions to 0POP05-EO-ES11, SI Termination, when conditions permit	<i>Will transition to ES11 if termination criteria met before this time.</i>
	SRO	Verifies the following are reset: <ul style="list-style-type: none"> <li>• SI</li> <li>• ESF Sequencers</li> <li>• Phase 'A' and 'B' Isolation</li> </ul>	
	SRO/RO	Ensures Instrument Air restored to Containment.	
	SRO/RO	Ensures SFPC in service	
	SRO/RO	Stops HHSI Pumps and places them in Auto.	<i>Terminate the scenario</i>

**OPERATOR ACTIONS (Cont')**

**Op-Test No.:** # 1 Backup Scenario      **Event No.:** 6

**Event Description:** Phase 'A' Containment Isolation fails to actuate

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO/BOP	Determines Phase 'A' Containment Isolation has not actuated	
	RO/BOP	Manually actuates Phase 'A'	
	<b>RO/BOP C</b>	<b>ENSURES ALL PHASE 'A' CONTAINMENT ISOLATION VALVES ARE CLOSED</b>	

**CRITICAL TASK SUMMARY**

<b>POSITION</b>	<b>EXPECTED RESPONSE</b>	<b>ACCEPTANCE CRITERIA</b>	<b>SAT/ UNSAT</b>
<b>ALL C</b>	<b>ISOLATES FAULTED SG ‘D’:</b> <ul style="list-style-type: none"><li>• <b>Feedwater Isolation has occurred</b></li><li>• <b>Reset SI</b></li><li>• <b>Reset S/G Lo-Lo level actuation</b></li><li>• <b>Close ‘D’ S/G AFW OCIV</b></li></ul>	Isolates Faulted SG prior to leaving 0POP05-EO-EO20, Faulted SG Isolation	
<b>RO/BOP C</b>	<b>ENSURES ALL PHASE ‘A’ CONTAINMENT ISOLATION VALVES ARE CLOSED</b>	Closes Containment Isolation valves such that at least one valve is closed on each Phase ‘A’ penetration before the end of the scenario.	

## **TURNOVER INFORMATION**

- Power is 40% with a Plant shutdown is in progress to allow for turbine blade inspection. Current procedure step is 5.15.2.2 of OPOP03-ZG-0006.
- Shutdown is on hold to allow FWBP # 11 to be secured. Re-commence shutdown once FWBP #11 is secured.
- The Aux. Steam header is warmed up from Unit 2.
- The National Weather Service has issued a Severe Weather Warning in effect until 2000 hrs.
- Cycle burnup is 150 MWD/MTU
- RCS Boron Concentration is 1646 ppm.
- Maintain current power level until FWBP # 11 is secured.
- Xenon is building in due to the power decrease.
- Borating 5 gallons every half hour for temperature control. Total Batch Integrator is set for 10 gallons, getting 16.
- Boric Acid Tanks A and B are at 7300 ppm.
- No personnel are in containment
- FHB Truck Bay doors are closed
- No ESF DG FOST's are on recirc