

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: PERFORM ESF POWER AVAILABILITY SURVEILLANCE

JPM NO.: NRC A1

REVISION: 1

LOCATION: CLASSROOM

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: PERFORM ESF POWER AVAILABILITY SURVEILLANCE

JPM No.: A1

Rev. No: 1

STP Task: T-62450, Perform AC breaker lineup verification.

STP Objective: CRO-62450, Perform the Control Room portion of the ESF Power Availability per PSP03-EA-0002.

**Related
K/A Reference:** 2.1.20 [4.6/4.6], Ability to interpret and execute procedure steps.

References: 0PSP03-EA-0002, Rev. 19, ESF Power Availability

**Task Normally
Completed By:** RO

**Method
of Testing:** Actual Performance

**Location
of Testing:** Classroom

**Time
Critical Task:** NO

**Validation
Time:** 25 minutes

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

- Student Handout pictures of ZCP-010 and ZCP-003.
- Student Handout copy of 0PSP03-EA-0002, ESF Power Availability.

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. Emergency Diesel Generator #11 has been declared inoperable due to an oil leak in the governor circuit. It is tagged out for repairs. Technical Specification 3.8.1.1.b has been entered. The E1C 4.16 KV Bus is being carried by #13 Emergency Diesel Generator for repairs on the 13.8/4.16 KV E1C Xfmr.

INITIATING CUE:

The Unit Supervisor directs you to complete Data Sheets **1, 2, 3** and **8** of 0PSP03-EA-0002, ESF Power Availability, for an inoperable Emergency Diesel Generator to satisfy surveillance requirement 4.8.1.1.1.b as required by the T.S condition.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

- *Correctly completes data sheets 1, 2, 3, and 8 (pg 2 of 6 only) of 0PSP03-EA-0002.*
- *Determines the surveillance to be UNACCEPTABLE.*

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

- Student Handout pictures of ZCP-010 and ZCP-003.
- Student Handout copy of 0PSP03-EA-0002, ESF Power Availability.

NOTES:

- 1) Pictures of the electrical panels (ZCP-010 and ZCP-003) in the required lineup will be utilized to provide a source of data in the classroom.
- 2) The applicant will be provided a handout copy of 0PSP03-EA-0002, ESF Availability.
- 3) A completed answer KEY is provided for the evaluator. Do not hand this to the applicant.
- 4) No data is required outside of the control room if being performed for inoperable diesel generator.

INSTRUCTOR ACTIONS:

None

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME _____

SAT/UNSAT Performance Step: 1

Obtain and review a copy of 0PSP03-EA-0002, ESF Power Availability, procedure.

Standard:

The applicant reviews 0PSP03-EA-0002, ESF Power Availability.

Comment:

The applicant should use the provided copy.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2 (C)

(Procedure Section 5.0 Procedure)

(5.1) Complete required ESF Power Train Data sheet 1 through 3.

Standard:

The applicant correctly completes data sheets 1, 2, and 3.

Comment:

The evaluator has the answer key in the package for comparison.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3 (C)

(5.1.4) ENSURE the 13.8 KV XFMR lineup designated as the class 1E 4160 VAC bus power source meets the acceptance criteria in steps 6.1 for Modes 1, 2, 3 and 4.

Standard:

The applicant determines that the acceptance criteria is not met. Three 13.8 KV Standby Busses are not energizing the 4.16 KV ESF Bus lines. Acceptance criteria 6.1 is not met.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4

(5.3) Record indicated voltages on Data Sheet 8, Bus and Charger Voltage Data.

Standard:

The applicant completes pages 1 and 2 of data sheet 8.

Comment:

Note 1 of data sheet 8 (located on page 2 of 6) states that only those readings indicated with an asterisk are required to be completed if surveillance is being performed to satisfy the requirements of T.S. 3.8.1.1.b. Therefore only sheets 1 of 6 and 2 of 6 are required due to this note.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5 (C)

Complete Data Package Cover Sheet.

Standard:

The applicant completes steps 1 through 3 of the Data Package Cover Sheet. Step 3 is marked UNACCEPTABLE.

Comment:

The applicant is only responsible for steps 1 through 3 of the Data Package Cover Sheet. Step 3 is a critical step. Steps 1 and 2 are not critical.

Cue:

Notes:

- TERMINATE THE JPM -

JPM STOP TIME _____

VERIFICATION OF COMPLETION

Job Performance Measure: PERFORM ESF POWER AVAILABILITY SURVEILLANCE

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.

INITIAL CONDITIONS:

Unit 1 is at 100% power. Emergency Diesel Generator #11 has been declared inoperable due to an oil leak in the governor circuit. It is tagged out for repairs. Technical Specification 3.8.1.1.b has been entered. The E1C 4.16 KV Bus is being carried by #13 Emergency Diesel Generator for repairs on the 13.8/4.16 KV E1C Xfmr.

INITIATING CUE:

The Unit Supervisor directs you to complete Data Sheets **1, 2, 3** and **8** of 0PSP03-EA-0002, ESF Power Availability, for an inoperable Emergency Diesel Generator to satisfy surveillance requirement 4.8.1.1.1.b as required by the T.S condition.

NUCLEAR TRAINING DEPARTMENT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

**TITLE: DETERMINE DILUTION/BORATION FOR POWER INCREASE
AND DECREASE**

JPM NO.: NRC A2

REVISION: 1

JOB PERFORMANCE MEASURE WORKSHEET

JPM Title: Determine Dilution/Boration for Power Increase and Decrease

JPM No.: A2

Rev. No.: 1

STP Task: CRO 91470 Knowledge of how to determine appropriate boric acid volume for boration of the Reactor Coolant System.
CRO 91471: Knowledge of how to determine appropriate water volume to lower the boron concentration.

STP Objective: CRO T11003: The student will be able to explain the nature and purpose of the boron chemical shim. He will be able to use the appropriate graphs and thumb rules to determine the requirements for borating, diluting, or blending flows to compensate for inherent reactivity effects.
Given initial core conditions, analyze and describe the effects on core parameters, as appropriate, e.g., fission processes, reactivity variations, subcritical processes, rod worths, boron worths, and any core coefficient.

Related K/A Reference: G2.1.7 Conduct of Operations: Ability to evaluate plant performance and make operational judgments on operating characteristics, reactor behavior, and instrument interpretation. (4.4/4.7)

References: Unit 1 Plant Curve Book
Nuclear Design Report, Unit 1, Cycle 15

Task Normally Completed By: RO

Location of Testing: Classroom

Time Critical Task: NO

Validation Time: 20 minutes

Required Materials (Tools/Equipment): Calculator
Plant Curve Book Figure 3.1, Boration/Dilution (attached)

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:

PART 1

Unit 1 is currently at MOL, 100% power, equilibrium Xenon conditions. It has been determined that Reactor Power will need to be reduced 25%. Reactor Engineering has calculated that it will require a boron addition of 71 ppm for this 25% power change. Current RCS boron concentration is 911 ppm. BAT 1A and 1B boron concentrations are 7367 ppm each.

PART 2

The power reduction to 75% has been completed. Power has been held steady at 75% for the past 6 hours. It has been determined that Reactor Power can now be raised to 100%. Reactor Engineering has calculated that it will require a boron dilution of 71 ppm for this 25% power change. Current RCS boron concentration is 936 ppm.

INITIATING CUE:

Using the attached Plant Curve Book, Figure 3.1, Boration/Dilution...

PART 1

You are directed to calculate the amount of boric acid needed to raise boron concentration 71 ppm for this 25% power reduction. Ignore the effects of Xenon.

AND

PART 2

You are directed to calculate the amount of dilution would be needed to lower boron concentration 71 ppm for this 25% power increase. Ignore the effects of Xenon.

JOB PERFORMANCE MEASURE INFORMATION SHEET

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

PART 1

The applicant calculates that it will take between 812 and 820 gallons of boric acid to raise RCS boron concentration 71 ppm.

PART 2

The applicant calculates that it will take between 5894 and 5910 gallons of dilution to lower RCS boron concentration 71 ppm.

HANDOUTS:

Plant Curve Book Figure 3.1 is attached to this JPM. Provide the student with this figure.

NOTES:

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME

SAT/UNSAT Performance Step: 1 (C)

Calculate the amount of Boric Acid required to borate the RCS 71 ppm.

Standard:

Calculates that between 812 and 820 gallons of boric acid addition to the RCS is required to raise RCS boron concentration 71 ppm using the Boration Calculation of Figure 3.1 of the Plant Curve Book.

Calculate as follows:

$$V_B = \left(\frac{622,307}{8.4298} \right) \times \ln \left(\frac{7367 - 911}{7367 - 982} \right)$$

$$V_B = 816 \text{ gallons}$$

Comment:

The range of 812 – 820 gallons takes into account rounding of numbers and interpolation of RCS mass.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2 (C)

Calculate the amount of dilution required to lower RCS boron concentration 71 ppm.

Standard:

Calculates that between 5894 gallons and 5910 gallons of dilution is required to lower RCS boron concentration by 71 ppm using the Dilution Calculation of Figure 3.1 of the Plant Curve Book.

Calculate as follows:

$$V_W = \left(\frac{622307}{8.318} \right) \times \ln \left(\frac{936}{865} \right)$$
$$V_W = 5901.8 \text{ gallons}$$

Comment:

The range of 5894 - 5910 gallons takes into account rounding of numbers and interpolation of RCS mass.

Cue:

Notes:

-TERMINATE THE JPM -

JPM STOP TIME _____

VERIFICATION OF COMPLETION

Job Performance Measure: DETERMINE DILUTION/BORATION FOR POWER
INCREASE AND DECREASE

Applicant's Name:

Date Performed:

Time to Complete:

JPM Results: **Sat / Unsat**

Evaluator: _____

Signature _____

Date _____

JPM - 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 EXAMINER WHEN YOU'VE COMPLETED THE TASK

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

INITIAL CONDITIONS:

PART 1

Unit 1 is currently at MOL, 100% power, equilibrium Xenon conditions. It has been determined that Reactor Power will need to be reduced 25%. Reactor Engineering has calculated that it will require a boron addition of 71 ppm for this 25% power change. Current RCS boron concentration is 911 ppm. BAT 1A and 1B boron concentrations are 7367 ppm each.

PART 2

The power reduction to 75% has been completed. Power has been held steady at 75% for the past 6 hours. It has been determined that Reactor Power can now be raised to 100%. Reactor Engineering has calculated that it will require a boron dilution of 71 ppm for this 25% power change. Current RCS boron concentration is 936 ppm.

INITIATING CUE:

Using the attached Plant Curve Book, Figure 3.1, Boration/Dilution...

PART 1

You are directed to calculate the amount of boric acid needed to raise boron concentration 71 ppm for this 25% power reduction. Ignore the effects of Xenon.

AND

PART 2

You are directed to calculate the amount of dilution would be needed to lower boron concentration 71 ppm for this 25% power increase. Ignore the effects of Xenon.

NUCLEAR TRAINING DEPARTMENT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

TITLE: PREPARE REVISION TO EQUIPMENT CLEARANCE ORDER

JPM NO.: NRC A3

REVISION: 1

JOB PERFORMANCE MEASURE WORKSHEET
SOUTH TEXAS PROJECT

JPM Title: PREPARE REVISION TO EQUIPMENT CLEARANCE ORDER

JPM No.: A3

Rev. No.: 1

STP Tasks: T-68950, Prepare Equipment Clearances.

STP Objectives: CRO-68950, Prepare Equipment Clearances per 0PGP03-ZO-ECO1A.

**Related
K/A Reference:** G2.2.13 Equipment Control: Knowledge of tagging and clearance procedures. (4.1/4.3)

References: 0PGP03-ZO-ECO1A, Equipment Clearance Order Instructions, Rev 11
P&ID 5S1411F00024 Auxiliary Feedwater
Elementary Drawing 9E0AF03#1 SHT 1 Aux Feedwater Isolation MOV-0048, MOV-0065, & MOV-0085
Single Line Drawing 9E0PMAD#1 SHT 02 480V Class 1E Motor Control Center E1B1

**Task Normally
Completed By:** RO

**Location
of Testing:** NTF

**Time
Critical Task:** NO

**Validation
Time:** 30 minutes

**Required Materials
(Tools/Equipment):** Student Handout copy of 0PGP03-ZO-ECO1, Equipment Clearance Order Instructions
Student Handout copy of manual ECO 1-09-0001 (Form 3)
Student Handout copy of Form 4
P&ID 5S1411F00024 Auxiliary Feedwater
Elementary Drawing 9E0AF03#1 SHT 1 Aux Feedwater Isolation MOV-0048, MOV-0065, & MOV-0085
Single Line Drawing 9E0PMAD#1 SHT 01 480V Class 1E Motor Control Center E1B1
Single Line Drawing 9E0PMAD#1 SHT 02 480V Class 1E Motor Control Center E1B1

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 HAVE COMPLETED THE TASK

INITIAL CONDITIONS:

An Equipment Clearance Order (ECO) has been hung to replace the disc for Train 'B' AFW Reg Valve, AF-FV-7524. The ECO was not prepared and authorized utilizing the computerized system due to computer LAN problems. The ECO was prepared manually and authorized using the forms contained within the Equipment Clearance Order Instructions procedure, 0PGP03-ZO-ECO1. The ECO Number is 1-09-0001.

Mechanical Maintenance has signed onto the ECO and started work. They have encountered a problem during disassembly of AF-FV-7524. Water is slowly leaking past boundary valve AF-0061.

INITIATING CUE:

You are directed by the Work Start Authority (WSA) to revise ECO 1-09-0001 to isolate the leakage that is going past AF-0061 using the next available isolation points. You are also directed to prepare this revision to the ECO using the manual forms provided with the ECO. The WSA further directs that no component position changes will be made to the original ECO.

The existing ECO does not contain any intentional errors. It is not intended for you to conduct a review of this part of the ECO.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Revises the ECO to extend the boundaries to the following valves:

- *AF-MOV-0065 - Will require that it be de-energized in the closed position and danger tags hung on the Control Room Handswitch, MOV Breaker, and on the local MOV actuator handwheel.*

And

- *AF-0070 (This is the Test Line Recirc Valve. It is a normally locked closed valve.)*

(Additional details on the completion criteria can be found in the KEY provided.)

JOB PERFORMANCE MEASURE INFORMATION SHEET (CONT.)

HANDOUTS:

- Student Handout copies of 0PGP03-ZO-ECO1A, Equipment Clearance Order Instructions.
- Student Handout copy of JPM ECO 1-09-0001 (ECO Form 3 and Form 4)
- P&ID 5S1411F00024 Auxiliary Feedwater
- Elementary Drawing 9E0AF03#1 SHT 1 Aux Feedwater Isolation MOV-0048, MOV-0065, & MOV-0085
- Single Line Drawing 9E0PMAD#1 SHT 01 480V Class 1E Motor Control Center E1B1
- Single Line Drawing 9E0PMAD#1 SHT 02 480V Class 1E Motor Control Center E1B1

NOTES:

1. The evaluator is provided an Answer Key.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

Start time: _____

SAT/UNSAT Performance Step: 1 (C)

Determine necessary revisions to ECO 1-09-0001 to stop leakage through AF-0061.

Standard:

Determines that MOV-0065 and AF-0070 will stop the leakage through AF-0061.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2 (C)

Revise ECO 1-09-0001 to add MOV-0065 and AF-0061 to the ECO.

Standard:

Revises ECO 1-09-0001 to add MOV-0065 and AF-0070 to the ECO.

Comment:

Details on the ECO revision are contained in the provided KEY.

Cue:

Notes:

- TERMINATE THE JPM -

Stop time:_____

VERIFICATION OF COMPLETION

Job Performance Measure: PREPARE REVISION TO EQUIPMENT CLEARANCE ORDER

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 EXAMINER WHEN YOU'VE COMPLETED THE TASK

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

INITIAL CONDITIONS:

An Equipment Clearance Order (ECO) has been hung to replace the disc for Train 'B' AFW Reg Valve, AF-FV-7524. The ECO was not prepared and authorized utilizing the computerized system due to computer LAN problems. The ECO was prepared manually and authorized using the forms contained within the Equipment Clearance Order Instructions procedure, 0PGP03-ZO-ECO1. The ECO Number is 1-09-0001.

Mechanical Maintenance has signed onto the ECO and started work. They have encountered a problem during disassembly of AF-FV-7524. Water is slowly leaking past boundary valve AF-0061.

INITIATING CUE:

You are directed by the Work Start Authority (WSA) to revise ECO 1-09-0001 to isolate the leakage that is going past AF-0061 using the next available isolation points. You are also directed to prepare this revision to the ECO using the manual forms provided with the ECO. The WSA further directs that no component position changes will be made to the original ECO.

The existing ECO does not contain any intentional errors. It is not intended for you to conduct a review of this part of the ECO.

NUCLEAR TRAINING DEPARTMENT
JOB PERFORMANCE MEASURE

TITLE: STAY TIME DETERMINATION WITH ENTRY REQUIREMENTS

JPM NO.: NRC A4

REVISION: 1

LOCATION: CLASSROOM

JOB PERFORMANCE MEASURE WORKSHEET

JPM Title: Stay Time Determination with Entry Requirements

JPM No.: A4

Rev. No.: 1

Task No.: 99774, Apply Radiation and Contamination safety procedures.

STP Objective: N91817, STATE the 10CFR20 and STP exposure limitations including extensions for the whole body, skin, and extremities for adults and minors.
N91825, CALCULATE total dose based on dose rate and stay time.

**Related
K/A Reference:** G2.3.4 Radiation Control: Knowledge of radiation exposure limits under normal or emergency conditions. (3.2/3.7)

References: 0PGP03-ZR-0051, Radiological Access Controls/Standards, Rev 25.

**Task Normally
Completed By:** RO

**Method
of Testing:** Actual Performance

**Location
of Testing:** Classroom

**Time
Critical Task:** NO

**Alternate
Path JPM:** NO

**Validation
Time:** 10 minutes

**Required Materials
(Tools/Equipment):** Student Handout Copy of 0PGP03-ZR-0051, Radiological Access Controls/Standards

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 is at 100% power. Corrective maintenance is to be performed on the remote operating linkage for CV-0093, Letdown Hx 1A Inlet Isolation Valve, due to binding within the linkage. The valve and linkage are located in the Reactor Coolant Purification Pump Valve Room (Room 049). The dose rate within the vicinity of the valve is 105 mrem/hr. Based on the estimated job scope, location of the valve, and its associated linkage, and the pre-job survey, the ALARA group has determined the EPD settings for the worker performing the job will be as follows:

- Total Dose 140 mrem
- Dose Rate Setting 150 mrem/hr.

INITIATING CUE:

The Unit Supervisor directs you to perform the following:

1. Determine the maximum stay time for the worker at the valve location up to the point the worker receives an EPD Dose alarm.
2. Determine the entry requirements for Room 049 based on this dose rate.

(Assume that the worker's GET002, Radiation Worker Initial Training, is current.)

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Determines that the maximum stay time for the worker is 80 minutes (1 hour and 20 minutes or 1.333 hr.).

Determines the entry requirements for a High Radiation Area are met as per JPM Step 2.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

Student Handout Copy of OPGP03-ZR-0051, Radiological Access Controls/Standards.

NOTES:

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME_____

SAT/UNSAT Performance Step: 1 (C)

Determine the worker's maximum stay time up to the point of receiving an EPD dose alarm.

Standard:

Determines that the maximum stay time is 80 minutes (1 hour and 20 minutes)

Comment:

If the worker is allowed to stay to receive the entire 140 mrem dose the worker's EPD will alarm. Given that the dose rate in the vicinity of CV-0093 is 105 mrem/hr, the worker would receive a total of 140 mrem in 80 minutes (1 hour 20 hours).

Cue:

Notes:

Comment [COMMENT1]: NOTE TO DEVELOPER:
BE CAREFUL NOT TO LOSE THE HORIZONTAL LINE CODE BETWEEN STEPS
. . .

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2 (C)

Determines the entry requirements for a High Radiation Area (HRA).

Standard:

(Words to the effect of:)

Access Control for High Radiation Areas (HRA)

Personnel entering high radiation areas SHALL be:

- *Assigned to an RWP that permits entry to a HRA*
- *Assigned an individual monitoring device (TLD)*
- *Issued an Electronic Personal Dosimeter (EPD)*
- *Worker is knowledgeable of the radiological conditions in the area to be accessed*
- *Worker is aware of any additional Radiation Protection controls established by the RWP or RP instructions*

Comment:

The access control requirements for entry into a High Radiation Area are provided in OPGP03-ZR-0051, Radiological Access Controls/Standards, procedure step 6.6.

The RWP associated with this job would specify that at a minimum one full set of PC would be required for entry into the Contaminated Area. This is not required for the purposes of this JPM.

OPGP03-ZR-0051, Radiological Access Controls/Standards, procedure step 6.3.1 lists the general Unescorted RCA Access Requirements. They are:

- Complete Radiation Worker Training (RWT) or equivalent annually.
- Wear an individual monitoring device and any other dosimetry as specified on the RWP.
- Have a current whole body count, unless authorized by the RPM.
- Be assigned and logged on an active RWP, using the appropriate Work Authorization Number and attend any required pre job meeting and mockup training, as applicable.
- Have sufficient dose margin to perform specified work.
- Complete a Yellow RCA ACCESS card for High Radiation Area entry.

This list of items does not have to be listed as part of the entry requirements for a High Radiation Area. The intent is to only list the requirements specified in procedure step 6.6.

JPM STEP CONTINUED ON THE NEXT PAGE

Cue:

JOB PERFORMANCE MEASURE CHECK SHEET

Notes:

- TERMINATE THE JPM -

JPM STOP TIME_____

VERIFICATION OF COMPLETION

Job Performance Measure: Stay Time Determination with Entry Requirements

Applicant's Name:

Date Performed:

Time to Complete:

JPM Results: **Sat / Unsat**

Evaluator: _____

Signature: _____

Date: _____

JPM - 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 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 is at 100% power. Corrective maintenance is to be performed on the remote operating linkage for CV-0093, Letdown Hx 1A Inlet Isolation Valve, due to binding within the linkage. The valve and linkage are located in the Reactor Coolant Purification Pump Valve Room (Room 049). The dose rate within the vicinity of the valve is 105 mrem/hr. Based on the estimated job scope, location of the valve, and its associated linkage, and the pre-job survey, the ALARA group has determined the EPD settings for the worker performing the job will be as follows:

- Total Dose 140 mrem
- Dose Rate Setting 150 mrem/hr.

INITIATING CUE:

The Unit Supervisor directs you to perform the following:

1. Determine the maximum stay time for the worker at the valve location up to the point the worker receives an EPD Dose alarm.
2. Determine the entry requirements for Room 049 based on the highest dose rates in the room.

(Assume that the worker's GET002, Radiation Worker Initial Training, is current.)

RECORD YOUR DATA HERE:

1. Maximum stay time: _____
2. Entry Requirements:

NUCLEAR TRAINING DEPARTMENT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

TITLE: PERFORM A SHUTDOWN RISK ASSESSMENT

JPM NO.: NRC A5

REVISION: 1

JOB PERFORMANCE MEASURE WORKSHEET

JPM Title: PERFORM A SHUTDOWN RISK ASSESSMENT

JPM No.: NRC A5

Rev. No.: 1

STP Task: SRO-21400, Perform a Shutdown Risk Assessment

STP Objective: SRO-21400, With the Plant Defueled, Mode 6, or Mode 5, perform a Daily Shutdown Risk Assessment in accordance with OPGP03-ZA-0101.

**Related
K/A Reference:** 2.1.23 [4.3/4.4], Ability to perform specific system and integrated plant procedures during all modes of plant operation.

References: OPGP03-ZA-0101, Shutdown Risk Assessment, Rev 19

**Task Normally
Completed By:** SRO

**Method
of Testing:** Simulated

**Location
of Testing:** Classroom

**Time
Critical Task:** NO

**Validation
Time:** 30 Minutes

**Required Materials
(Tools/Equipment):** Student Handout copy of OPGP03-ZA-0101, Shutdown Risk Assessment
Student Handout copy of ORAM status and completed Forms 1 and 2
Student Handout copy of OPOP03-ZG-0007, Plant Cooldown, Addendum
14 MOV-0016A, B & C Emergency Operations Guideline

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 shut down for a refueling outage and is currently in Mode 5. Preparations are in progress to enter Mode 6 later in the shift.

OPGP03-ZA-0101, Shutdown Risk Assessment, Forms 1 and 2 have been completed and are attached.

The following additional documents are attached:

- Outage Risk Assessment and Management (ORAM) Safety Function Status.
- MOV-0016A, B & C Emergency Operations Guideline (OPOP03-ZG-0007, Plant Cooldown, Addendum 14)

Any equipment not listed on Form 1 and 2 is assumed to be operable/functional.

INITIATING CUE:

You are assigned to perform the following:

1. Complete pages 1, 2 and 3 of OPGP-03-ZA-0101, Shutdown Risk Assessment, Form 3, Daily Shutdown Risk Assessment Form (Modes 5 and 6)
2. Describe any notifications that may be required based on your results.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Completes pages 1, 2 and 3 of OPGP03-ZA-0101, Shutdown Risk Assessment, Form 3, Daily Shutdown Risk Assessment Form (Modes 5 and 6) based on the information provided on OPGP03-ZA-0101, Shutdown Risk Assessment, Forms 1 and 2 and determines the HVAC Assessment (page 3 of 8) is UNSAT. Circles "NO" for item 3.A. due to Train C not having an operable Standby DG (Train C Stby DG is inoperable).

JOB PERFORMANCE MEASURE INFORMATION SHEET

Informs the Shift Supervisor as required by the caution on page 1 of Form 3.

HANDOUTS:

Student Handout copy of 0PGP03-ZA-0101, Shutdown Risk Assessment

Student Handout copy of ORAM status and completed Forms 1 and 2

Student Handout copy of 0POP03-ZG-0007, Plant Cooldown, Addendum 14 MOV-0016A, B & C Emergency Operations Guideline

NOTES:

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME

SAT/UNSAT Performance Step: 1 (C)

Completes pages 1,2 and 3 of 0PGP03-ZA-0101, Shutdown Risk Assessment, Form 3, based on data obtained from Forms 1, 2 and ORAM Status that was provided.

Standard:

Determines HVAC Assessment (page 3 of 8) is UNSAT. Circles "NO" for item 3.A. due to Train C not having an operable Standby DG (Train C Stby DG is inoperable).

Comment:

Cue:

Notes:

An answer key is provided to assist the examiner.

JOB PERFORMANCE MEASURE CHECK SHEET

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

Informs the Shift Supervisor as required by the caution on page 1 of Form 3

Standard:

Immediately informs the Shift Supervisor that a “NO” was circled in the HVAC Assessment as required by the caution on page 1 of OPGP-03-ZA-0101, Shutdown Risk Assessment, Form 3

Comment:

Cue:

Notes:

–TERMINATE THE JPM –

JPM STOP TIME _____

VERIFICATION OF COMPLETION

Job Performance Measure: PERFORM A SHUTDOWN RISK ASSESSMENT

Applicant's Name:

Date Performed:

Time to Complete:

JPM Results: Sat / Unsat

Evaluator: _____

Signature _____

Date _____

JPM - 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 EXAMINER WHEN YOU'VE COMPLETED THE TASK

INITIAL CONDITIONS:

Unit 1 has shut down for a refueling outage and is currently in Mode 5. Preparations are in progress to enter Mode 6 later in the shift.

OPGP03-ZA-0101, Shutdown Risk Assessment, Forms 1 and 2 have been completed and are attached.

Outage Risk Assessment and Management (ORAM) Safety Function Status is attached,

Any equipment not listed on Form 1 and 2 is assumed to be operable/functional.

INITIATING CUE:

You are assigned to perform the following:

1. Complete pages **1, 2** and **3** of OPGP-03-ZA-0101, Shutdown Risk Assessment, Form 3, Daily Shutdown Risk Assessment Form (Modes 5 and 6)
2. Describe any notifications that may be required based on your results.

NUCLEAR TRAINING DEPARTMENT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

TITLE: DETERMINE SHIFT STAFFING

JPM NO.: NRC A6

REVISION: 1

JOB PERFORMANCE MEASURE WORKSHEET

JPM Title: Determine Shift Staffing

JPM No.: NRC A6

Rev. No.: 1

STP Task: SRO 31100, Ensure the shift is manned properly

STP Objective: SRO 50158, Knowledge of the Conduct of Operations

**Related
K/A Reference:** 2.1.5 [3.9], Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.

References: Conduct of Operations Chapter 2, Shift Operating Practices, Rev 35 Technical Specifications

**Task Normally
Completed By:** SRO

**Method
of Testing:** Simulated

**Location
of Testing:** Classroom

**Time
Critical Task:** NO

**Validation
Time:** 15 Minutes

**Required Materials
(Tools/Equipment):** Applicable portion of Conduct of Operations, Chapter 2

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 and Unit 2 are operating at full power. You are the Shift Supervisor for Unit 1 during a night shift. Initial shift manning is as follows:

Unit 1:

- Yourself
- one Unit Supervisor
- three Reactor Operators (includes 2 board operators and 1 STA qualified Reactor Operator)
- six Plant Operators (includes 2 Safe Shutdown Operators, 3 Qualified Fire Brigade Members, and 1 State/County Communicator)

Unit 2:

- one Shift Supervisor
- one Unit Supervisor
- one STA qualified SRO
- three Reactor Operators (includes 2 board operators and 1 ENS communicator)
- five Plant Operators (includes 2 Safe Shutdown Operators and 3 Qualified Fire Brigade Members)

INITIATING CUE:

At 0100, the Unit 2 Shift Supervisor informs you that several of his crew members have become sick due to a bad meal. These individuals include the following Unit 2 watchstanders:

- Unit Supervisor
- STA
- Two Plant Operators (one serving as a Fire Brigade and one serving as a Safe Shutdown Operator)

CONTINUED ON NEXT PAGE

JOB PERFORMANCE MEASURE INFORMATION SHEET

The Unit 2 Shift Supervisor makes the following suggestions:

1. He will take the Unit 2 Unit Supervisor watch. A Unit 1 Reactor Operator (STA Qualified) will assume the STA watch. You will assume the Unit 1 and Unit 2 Shift Supervisor watches.
2. Transfer one Unit 1 Plant Operator to Unit 2 to serve as a Fire Brigade member.

Determine if these suggestions will satisfy the Conduct of Operations Manual. If not, identify what must be done. Justify your answer.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

*Determines minimum shift staffing in accordance with Conduct of Operations procedure is **NOT** met as follows:*

- *Determines a SRO qualified individual should be called in as a Unit Supervisor or Shift Supervisor.*
- *Determines a Safe Shutdown qualified Plant Operator should be called in.*

HANDOUTS:

Conduct of Operations Manual, Chapter 2, pages applicable to 'Shift Manning'.

NOTES:

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME_____

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

Determine if the loss of personnel along with the suggested personnel changes will satisfy the Conduct of Operations.

Standard:

Refers to Conduct of Operations, Shift Operating Practices for minimum shift complement. Determines minimum shift complement is not met and the following need to be called in:

- *SRO qualified individual to serve as Unit Supervisor or Shift Supervisor (minimum compliment requires 2 Shift Supervisors and 2 Unit Supervisors)*
- *Safe Shutdown qualified Plant Operator (minimum compliment requires 4 Safe Shutdown Qualified Plant Operators)*

Comment:

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

Cue:

Notes:

- TERMINATE THE JPM -

JPM STOP TIME_____

VERIFICATION OF COMPLETION

Job Performance Measure: DETERMINE SHIFT STAFFING

Applicant's Name:

Date Performed:

Time to Complete:

JPM Results: **Sat / Unsat**

Evaluator: _____

Signature: _____

Date: _____

JPM - 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 EXAMINER WHEN YOU'VE COMPLETED THE TASK

INITIAL CONDITIONS:

Unit 1 and Unit 2 are operating at full power. You are the Shift Supervisor for Unit 1 during a night shift. Initial shift manning is as follows:

Unit 1:

- Yourself
- one Unit Supervisor
- three Reactor Operators (includes 2 board operators and 1 STA qualified Reactor Operator)
- six Plant Operators (includes 2 Safe Shutdown Operators, 3 Qualified Fire Brigade Members, and 1 State/County Communicator)

Unit 2:

- one Shift Supervisor
- one Unit Supervisor
- one STA qualified SRO
- three Reactor Operators (includes 2 board operators and 1 ENS communicator)
- five Plant Operators (includes 2 Safe Shutdown Operators and 3 Qualified Fire Brigade Members)

INITIATING CUE:

At 0100, the Unit 2 Shift Supervisor informs you that several of his crew members have become sick due to a bad meal. These individuals include the following Unit 2 watchstanders:

- Unit Supervisor
- STA
- Two Plant Operators (one serving as a Fire Brigade and one serving as a Safe Shutdown)

The Unit 2 Shift Supervisor makes the following suggestions:

1. He will take the Unit 2 Unit Supervisor watch. A Unit 1 Reactor Operator (STA Qualified) will assume the STA watch. You will assume the Unit 1 and Unit 2 Shift Supervisor watches.
2. Transfer one Unit 1 Plant Operator to Unit 2 to serve as a Fire Brigade member.

Determine if these suggestions will satisfy the Conduct of Operations Manual for Shift Staffing. If not, identify what must be done. Justify your answer.

NUCLEAR TRAINING DEPARTMENT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

TITLE: **Review Completed Surveillance**

JPM NO.: **A7**

REVISION: **1**

JOB PERFORMANCE MEASURE WORKSHEET
SOUTH TEXAS PROJECT

JPM Title: Review Completed Surveillance

JPM No.: A7

Rev. No.: 1

STP Tasks: SRO-12000, Authorize the start of and review surveillance tests
SRO-10300, Interpret Technical Specifications

STP Objectives: SRO-12000, Authorize the start of surveillance tests and review completion in accordance with OPGP03-ZE-0004.
SRO-10300, Given that a condition exists requiring entry into a Technical Specification, interpret Technical Specifications accurately, such that plant activities occur safely and smoothly, and that contacting superiors for advice is unnecessary.

Related K/A Reference: 2.2.40 Ability to apply Technical Specifications for a system (4.7)

References: OPGP03-ZE-0004, Plant Surveillance Program, Rev 25
OPSP03-CH-0001, Essential Chilled Water Pump 11A(21A) Inservice Test, Rev 15

Task Normally Completed By: SRO

Location of Testing: NTF

Time Critical Task: NO

Validation Time: 33 minutes

Required Materials (Tools/Equipment): Student Handout for JPM
Copy of Tech Specs

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 HAVE COMPLETED THE TASK

INITIAL CONDITIONS:

Unit 2 is at 100% power steady state conditions. There are no out of service systems or components.

You are the Field Supervisor (SRO). The Shift Supervisor has requested that you perform a peer check review of completed surveillance 0PSP03-CH-0001, for Essential Chilled Water Pump 21A.

INITIATING CUE:

You are to perform a technical review of the completed surveillance and evaluate it for completeness, accuracy, and that it meets procedural requirements. If applicable, you are to determine operability of the Essential Chilled Water Pump 21A AND apply Technical Specification action(s) based on any errors that you find during your review.

Three errors have been inserted into the surveillance, one critical, and two non-critical. As a minimum, you are to identify the Critical error, and one of the two Non-critical errors. Editorial Errors such as spelling, grammar, or punctuation are unintentional and DO NOT COUNT. If any potential Reportability considerations arise out of this review, they will be addressed by another SRO.

Indicate on the Student Handout copy of 0PSP03-CH-0001, Essential Chilled Water Pump 11A(21A) Inservice Test, the Critical and Non-Critical errors. If applicable, indicate in the Remarks Section of the procedure any Technical Specification actions.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Correctly locates the critical error and one of the two non-critical error located in the surveillance package.

Determines that Essential Chilled Water Pump 21A is inoperable and apply as a minimum the Action for one inoperable Essential Chilled Water Loop per Technical Specification 3.7.14. See JPM for details of Tech Spec requirements.

JOB PERFORMANCE MEASURE INFORMATION SHEET (CONT.)

HANDOUTS:

- Completed copy of 0PSP03-CH-0001, Essential Chilled Water Pump 11A(21A) Inservice Test.
- Copy of Tech Specs available

NOTES:

1. The evaluator is provided an Answer Key which highlights the applicable procedure steps associated with the inserted errors. The evaluator shall not handout any page(s) marked as "KEY" to the applicant.
2. The content of the errors is also described in the body of the JPM, step 2.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

Start time: _____

SAT/UNSAT Performance Step: 1

Obtain completed surveillance 0PSP03-CH-0001, Essential Chilled Water Pump 11A(21A) Inservice Test.

Standard:

The candidate obtains the completed 0PSP03-CH-0001, Essential Chilled Water Pump 11A(21A) Inservice Test.

Comment:

Cue:

Provide the completed surveillance procedure handout to the candidate.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2 (C)*

Review the faulted surveillance procedure and discuss errors located within the surveillance.

Standard:

**As a minimum, the candidate correctly locates the critical error and one of two non-critical errors inserted in the completed surveillance:*

- 1) Page 12 of 20 *The Test Performer evaluated the calculated pump flowrate against Unit 1 Reference Values instead of using Unit 2 Reference Values. The calculated pump flowrate was below the “Required Action Low” limit of 793.0 gpm. This is a **Critical Error**.*
- 2) Page 13 of 20 *The Test Performer evaluated the pump vibration data as being within the “Acceptable Range” instead of evaluating the vibration data as being within the “Alert Range”. This is a **NON-Critical Error**.*
- 3) Page 13 of 20 *The Test Performer entered the Vibration Data in the table for Unit 1 instead of entering it in the table for Unit 2. This is a **NON-Critical Error**.*

Comment:

The above errors will carry forward through to other parts of the procedure. These “Errors Carried Forward” are indicated in the copy of the procedure provided to the evaluator designated as “KEY”.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3 (C)*

Apply Technical Specifications for inoperable Essential Chilled Water Pump 21A.

Standard:

**As a minimum, the candidate determines that Essential Chilled Water Pump 21A is inoperable due to pump flowrate being below the Required Action Low value of 793.0 gpm.*

**Correctly applies Technical Specification 3.7.14 (for Essential Chilled Water Systems) Action A which states:*

With only two Essential Chilled Water System loops OPERABLE, within 7 days restore at least three loops to OPERABLE status or apply the requirements of the CRMP, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Other applicable Technical Specification Actions as a result of the Essential Chilled Water Pump 21A inoperability:

- *Applies Technical Specification 3.7.7 (for Control Room Makeup and Cleanup Filtration System) Action A which states:*
 - *With one Control Room Makeup and Cleanup Filtration System inoperable for reasons other than condition d, within 7 days restore the inoperable system to OPERABLE status or apply the requirements of the CRMP, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.*
- *Applies Technical Specification 3.5.2 (ECCS Subsystems-Tavg Greater Than or Equal to 350°F) Action A which states:*
 - *With less than the above subsystems OPERABLE, but with at least two High Head Safety Injection pumps in an OPERABLE status, two Low Head Safety Injection pumps and associated RHR heat exchangers in an OPERABLE status, and sufficient flow paths to accommodate these OPERABLE Safety Injection pumps and RHR heat exchangers,** within 7 days restore the inoperable subsystem(s) to OPERABLE status or apply the requirements of the CRMP, or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.*

‘COMMENT’ information is on next page.

JOB PERFORMANCE MEASURE CHECK SHEET

Comment:

The Initial Action times for Technical Specifications 3.5.2 and 3.7.7 are the same as Technical Specification 3.7.14, restore within 7 days or be in HOT STANDBY within the next 6 hours.

The inoperability of Essential Chilled Water Train A will also make Train A of the Control Room HVAC inoperable and Train A ECCS inoperable because the ECCS Fan Coolers for Train A ECCS.

Cue:

Notes:

- TERMINATE THE JPM -

Stop time:_____

VERIFICATION OF COMPLETION

Job Performance Measure: Review Completed Surveillance

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 EXAMINER WHEN YOU'VE COMPLETED THE TASK

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

INITIAL CONDITIONS:

Unit 2 is at 100% power steady state conditions. There are no out of service systems or components.

You are the Field Supervisor (SRO). The Shift Supervisor has requested that you perform a peer check review of completed surveillance 0PSP03-CH-0001, for Essential Chilled Water Pump 21A.

INITIATING CUE:

You are to perform a technical review of the completed surveillance and evaluate it for completeness, accuracy, and that it meets procedural requirements. If applicable, you are to determine operability of the Essential Chilled Water Pump 21A AND apply Technical Specification action(s) based on any errors that you find during your review.

Three errors have been inserted into the surveillance, one critical, and two non-critical. As a minimum, you are to identify the Critical error, and one of the two Non-critical errors. Editorial Errors such as spelling, grammar, or punctuation are unintentional and DO NOT COUNT. If any potential Reportability considerations arise out of this review, they will be addressed by another SRO.

Indicate on the Student Handout copy of 0PSP03-CH-0001, Essential Chilled Water Pump 11A(21A) Inservice Test, the Critical and Non-Critical errors. If applicable, indicate in the Remarks Section of the procedure any Technical Specification actions.

NUCLEAR TRAINING DEPARTMENT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

TITLE: DETERMINE PERSONNEL EXPOSURE LIMIT

JPM NO.: NRC A8

REVISION: 1

JOB PERFORMANCE MEASURE WORKSHEET

JPM Title: DETERMINE PERSONNEL EXPOSURE LIMIT

JPM No.: NRC A8

Rev. No.: 1

STP Task: SRO-12800, Activate the Emergency Plan

STP Objective: EPT-003, Objective #4, Discuss radiation exposure controls associated with emergency conditions. Include emergency dose guidelines and access requirements.

**Related
K/A Reference:** 2.3.4 [3.2/3.7], Knowledge or radiation exposure limits under normal and emergency conditions

References: 0ERP01-ZV-IN06, Radiological Exposure Guidelines, Rev 5
0PGP03-ZR-0050, Radiation Protection Program, Rev 9

**Task Normally
Completed By:** SRO

**Method
of Testing:** Simulated

**Location
of Testing:** Classroom

**Time
Critical Task:** NO

**Validation
Time:** 15 Minutes

Required Materials (Tools/Equipment):

- 0ERP01-ZV-IN06, Radiological Exposure Guidelines
- 0PGP03-ZR-0050, Radiation Protection Program
- Applicable portion of 10CFR20, Standards for Protection against Radiation

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:

The site is in a Site Area Emergency (SAE) due to a LOCA and Loss of Containment.

A Plant Operator from the on-shift crew is assisting with emergency duties and is required to go into an extremely high radiation area in an attempt to restore containment integrity.

He has worked at STP for only 4 months. He previously worked as a radiation worker at another facility the prior 6 months. His exposure records are attached.

INITIATING CUE:

Given the personnel exposure history of the operator, determine the maximum amount of additional exposure this operator is allowed **WITHOUT** requiring Emergency Exposure Approval in accordance with 0ERP01-ZV-IN06, Radiological Exposure Guidelines.

Maximum allowed additional exposure for the following:

- 1) TEDE – Total Effective Dose Equivalent
- 2) SDE - Shallow Dose Equivalent
- 3) LDE – Lens Dose Equivalent

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Determines the following allowed exposures for the operator:

- **TEDE = 4440 mrem**
- **SDE = 44,160 mrem**
- **LDE = 10,760 mrem**

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

- 0ERP01-ZV-IN06, Radiological Exposure Guidelines
- 0PGP03-ZR-0050, Radiation Protection Program
- Applicable portion of 10CFR20, Standards for Protection against Radiation
- Operator dose record handout (attached to the back of the JPM).

NOTES:

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME

SAT/UNSAT Performance Step: 1 (C)

Determine allowed exposure limits for TEDE, SDE and LDE.

Standard:

Refers to 0ERP01-ZV-IN06, Radiological Exposure Guidelines, paragraph 3.1 to 3.4 and Step 5.3 to determine that doses up to 10CFR20 limits are authorized by the procedure without Emergency Exposure Approval.

Correctly calculates maximum allowed additional exposure for the operator as follows:

TEDE limit is 5000 mrem for current year.

Calculation: $5000 - (320 + 240) = 4440$ mrem

Maximum allowed additional TEDE = 4440 mrem

SDE limit is 50,000 mrem for current year

Calculation: $50,000 - (5600 + 240) = 44,160$ mrem

Maximum allowed additional SDE = 44,160 mrem

LDE limit is 15,000 mrem for current year

Calculation: $15,000 - (4000 + 240) = 10,760$ mrem

Maximum allowed additional LDE = 10,760 mrem

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

TERMINATE THE JPM –

JPM STOP TIME _____

VERIFICATION OF COMPLETION

Job Performance Measure: DETERMINE PERSONNEL EXPOSURE LIMIT

Applicant's Name:

Date Performed:

Time to Complete:

JPM Results: **Sat / Unsat**

Evaluator: _____

Signature _____

Date _____

JPM - 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 EXAMINER WHEN YOU'VE COMPLETED THE TASK

INITIAL CONDITIONS:

The site is in a Site Area Emergency (SAE) due to a LOCA and Loss of Containment.

A Plant Operator from the on-shift crew is assisting with emergency duties and is required to go into an extremely high radiation area in an attempt to restore containment integrity.

He has worked at STP for only 4 months. He previously worked as a radiation worker at another facility the prior 6 months. His exposure records are attached.

INITIATING CUE:

Given the personnel exposure history of the operator, determine the maximum amount of additional exposure this operator is allowed **WITHOUT** requiring Emergency Exposure Approval in accordance with 0ERP01-ZV-IN06, Radiological Exposure Guidelines.

Maximum allowed additional exposure for the following:

- | | |
|---|-------|
| 1) TEDE – Total Effective Dose Equivalent | _____ |
| 2) SDE - Shallow Dose Equivalent | _____ |
| 3) LDE – Lens Dose Equivalent | _____ |

JPM - HANDOUT

OPERATOR DOSE RECORD

Dose report from previous employer:

TEDE = 320 mrem
SDE = 5,600 mrem
LDE = 4,000 mrem

The current dose from STP

TEDE = 240 mrem
SDE = 240 mrem
LDE = 240 mrem

NUCLEAR TRAINING DEPARTMENT
JOB PERFORMANCE MEASURE

TITLE: **CLASSIFY AN EMERGENCY EVENT**

JPM NO.: **A9**

REVISION: **1**

LOCATION: **Simulator**

NOTE: **THIS JPM TO BE PERFORMED AT THE CONCLUSION OF
SCENARIO 1**

JOB PERFORMANCE MEASURE WORKSHEET

JPM Title: CLASSIFY AN EMERGENCY EVENT

JPM No.: A9

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. 08, Emergency Classification
0ERP01-ZV-IN02, Rev. 22, Notifications To Offsite Agencies

**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 for the classification, and an additional 15 minutes to initiate notification and contact the State/county)

**Alternate
Path JPM:** NO

ITEMS CONTINUED ON NEXT PAGE

JOB PERFORMANCE MEASURE WORKSHEET

Validation

Time: 20 minutes

Required Materials

(Tools/Equipment):

- Student Handout of 0ERP01-ZV-IN02, Notification of Offsite Agencies
- Emergency Plan Procedures Manual

NOTE: There must be a sufficient number of copies of the Emergency Plan available to provide for candidates scheduled to do the JPM at the same time.

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 is at 100% power.

The Security Force has notified the Unit 1 Shift Supervisor that there is a confirmed presence of an explosive device in the Auxiliary Feedwater Pump #14 cubicle.

INITIATING CUE:

As the Unit 1 Shift Supervisor, you are to perform the following:

1. Based on the conditions given above, classify the event at its **MINIMUM** Emergency Action Level (i.e. over-classification will be incorrect).
2. Once the Emergency Action Level has been determined, initiate the INITIAL off-site notification by completing items 1-8 and 12 on the Offsite Agency Notification Message Form in accordance with 0ERP01-ZV-IN02, Notifications To Offsite Agencies.

This JPM is time-critical. The time limit starts when you (the applicant) state that you understand the Initial Conditions and Initiating Cue.

JOB PERFORMANCE MEASURE INFORMATION SHEET

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

A Site Area Emergency (SAE) is declared based on Emergency Action Level HSI, Security Event in the Vital Area.

Items 1-8 and 12 on Data Sheet 1 from 0ERP01-ZV-IN02 is correctly completed.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

0ERP01-ZV-IN02, Notifications to Offsite Agencies

NOTES:

- This JPM is to be performed in the Simulator immediately following exam Scenario #1. The JPM is based on the conditions given in the JPM and NOT on the simulator.
- A handout copy of 0ERP01-ZV-IN02, Notifications to Offsite Agencies, will be provided. The candidate is to use the Simulator copy of any other needed procedures.
- A Key is provided for the evaluator with the applicable pages of 0ERP01-ZV-IN01, Emergency Classification and 0ERP01-ZV-IN02, Notifications to Offsite Agencies.
Do NOT hand this out to the candidate.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

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 [COMMENT1]: NOTE TO DEVELOPER:
BE CAREFUL TO TYPE THE STANDARD BETWEEN THE TWO FONT CODES.

Comment:

A procedural handout will not be provided. The candidate is to use the procedure available in the Simulator or other designated location.

Cue:

Notes:

Comment [COMMENT2]: NOTE TO DEVELOPER:
BE CAREFUL NOT TO LOSE THE HORIZONTAL LINE CODE BETWEEN STEPS . . .

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 SAE based on Initiating Condition HSI, Security Event in the Vital Area.

Comment:

- The SAE classification is based on Recognition Category H, Security. 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:

Notes:

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

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3

Obtain a copy of 0ERP01-ZV-IN02, Notification to Offsite Agencies

Standard:

Obtains a copy of 0ERP01-ZV-IN02, Notification of Offsite Agencies

Comment [COMMENT3]: NOTE TO DEVELOPER:
BE CAREFUL TO TYPE THE STANDARD BETWEEN THE TWO FONT CODES.

Comment:

A procedural handout is available to be provided to the student. The candidate can also use the procedure available in the Simulator or other designated location.

Cue:

Notes:

Comment [COMMENT4]: NOTE TO DEVELOPER:
BE CAREFUL NOT TO LOSE THE HORIZONTAL LINE CODE BETWEEN STEPS
. . .

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4 (C)

Completes items 1-8 and 12 on Datasheet 1 of 0ERP01-ZV-IN01, Notification to Offsite Agencies.

Standard:

Correctly completes items 1-8 and 12 of Datasheet 1.

Comment:

- The candidate may refer to 0ERP01-ZV-SH01, Shift Supervisor, to aid in filling out Datasheet 1
- Refer to the KEY for details of the requirements of Datasheet 1.

Cue:

Notes:

This step must be completed within 15 minutes of the time when the applicant classifies the event.

- TERMINATE THE JPM -

JPM STOP TIME_____

VERIFICATION OF COMPLETION

Job Performance Measure: A9, CLASSIFY AN EMERGENCY EVENT

Applicant's Name:

Date Performed:

Time to Complete:

JPM Results: Sat / Unsat

Evaluator: _____

Signature: _____

Date: _____

JPM - 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 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 is at 100% power.

The Security Force has notified the Unit 1 Shift Supervisor that there is a confirmed presence of an explosive device in the Auxiliary Feedwater Pump #14 cubicle.

INITIATING CUE:

As the Unit 1 Shift Supervisor, you are to perform the following:

3. Based on the conditions given above, classify the event at its **MINIMUM** Emergency Action Level (i.e. over-classification will be incorrect).
4. Once the Emergency Action Level has been determined, initiate the INITIAL off-site notification by completing items 1-8 and 12 on the Offsite Agency Notification Message Form in accordance with 0ERP01-ZV-IN02, Notifications To Offsite Agencies.

This JPM is time-critical. The time limit starts when you (the applicant) state that you understand the Initial Conditions and Initiating Cue.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **PERFORM EMERGENCY BORATION OF RCS**

JPM NO.: **NRC S1**

REVISION: **1**

LOCATION: **SIMULATOR**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: PERFORM EMERGENCY BORATION OF RCS

JPM No.: S1

Rev. No: 1

STP Task: T-83536, Respond to Nuclear Power Generation/ATWS.

STP Objective: CRO-83536, Respond to a Nuclear Power Generation/ATWS in accordance with POP05-EO-FRS1.

**Related
K/A Reference:** 004 A4.07 [3.9/3.7], Ability to manually operate and/or monitor in the control room: Boration/Dilution

004 A4.18 [4.3/4.1], Ability to manually operate and/or monitor in the control room: Emergency borate valve

References: OPOP05-EO-FRS1, Response to Nuclear Power Generation – ATWS

**Task Normally
Completed By:** RO

**Method
of Testing:** Actual Performance

**Location
of Testing:** Simulator

**Time
Critical Task:** NO

**Alternate
Path JPM:** YES

**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:

Unit 1 was at full power when, due to an error while performing maintenance, two (2) channels of Pressurizer Pressure Low bistables were tripped. The Reactor failed to automatically trip. The crew is performing the actions of 0POP05-EO-FRS1, Response to Nuclear Power Generation – ATWS, and have completed steps 1 through 3.

Charging Pump 1A tripped 2 minutes ago

INITIATING CUE:

The Unit Supervisor directs you to initiate emergency boration of the RCS in accordance with step 4 of 0POP05-EO-FRS1, Response to Nuclear Power Generation – ATWS.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Emergency boration flowpath in service with emergency boration flowrate (FI-0120A) greater than 50 gpm and charging flowrate (FI-0205A) greater than 50 gpm.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

None. The student is expected to use the simulator copy of the procedure.

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 S1 and S7 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 # 137 and verify:
 - Step Counter position annunciator light on CP-005 is out.
 - Red Light at the end of CP-010 is out.
 - ICS Annunciators have stopped counting up.
 - Steam Dump Controller PK-0557 Potentiometer Setting is set at 8.2.
 - Charging Pump 1A is NOT running.
- 5) Check and clean the following procedures (JPM specific):
 - 0POP05-EO-FRS1, Response to Nuclear Power Generation - ATWS
- 6) 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 for either of these JPM's.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME _____

SAT/UNSAT Performance Step: 1

Obtain a copy of 0POP05-EO-FRS1, Response to Nuclear Power Generation - ATWS.

Standard:

Obtains a copy of 0POP05-EO-FRS1, Response to Nuclear Power Generation - ATWS.

Comment:

The applicant should use the simulator copy of 0POP05-EO-FRS1, Response to Nuclear Power Generation - ATWS.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2

The applicant reviews the note and caution prior to step 4 of 0POP05-EO-FRS1, Response to Nuclear Power Generation - ATWS.

Standard:

Reviews the note and caution prior to step 4 of 0POP05-EO-FRS1, Response to Nuclear Power Generation – ATWS.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3 (C)

(Step 4a) OPEN alternate boration isolation valve.

Standard:

Opens Alternate Boration Isolation Valve MOV-0218.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4

(Step 4b) CCP's – At least one running.

Standard:

Determines there are NO Charging Pumps running and goes to the RNO actions.

Comment:

RNO actions start on the next JPM step

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5

(RNO step 4.b.1) Close seal injection isolation valves:

_____ “SEAL INJ ISOL MOV-0033A”

_____ “SEAL INJ ISOL MOV-0033B”

_____ “SEAL INJ ISOL MOV-0033C”

_____ “SEAL INJ ISOL MOV-0033D”

Standard:

Closes seal injection isolation valves:

_____ “SEAL INJ ISOL MOV-0033A”

_____ “SEAL INJ ISOL MOV-0033B”

_____ “SEAL INJ ISOL MOV-0033C”

_____ “SEAL INJ ISOL MOV-0033D”

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 6

(RNO step 4.b.2) Close the CCP discharge valve for the CCP to be started.

Standard:

Closes the discharge valve for CCP 'B' (MOV-8377B)

Comment:

Cue:

If asked, as the Unit Supervisor direct the applicant to use the "B" Centrifugal Charging Pump.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 7

(RNO step 4.b.3) Close the Charging Flow Control Valve

Standard:

Closes the Charging Flow Control Valve, FCV-0205

Comment:

RNO Step 4.b.4 is only applicable is the charging flow control valve will not close. Therefore, RNO step 4.b.4 is not applicable for this JPM.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 8

(RNO step 4.b.5) Open the Recirc valve for the CCP to be started.

Standard:

Opens the Recirc valve for the Charging Pump 1B (FCV-0202).

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 9 (C)

(RNO step 4.b.6) Start one CCP

Standard:

Starts 1B Charging Pump

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 10 (C)

(RNO step 4.b.7) Open the CCP discharge valve for the pump that was started.

Standard:

Open the CCP discharge valve for Charging Pump 1B (MOV-8377B)

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 11

(Step 4.c) Charging flow – ESTABLISHED

Standard:

Determines Charging flow is NOT established and goes to the RNO Actions.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 12 (C)

(RNO Step 4.c.1) Ensure Containment Isolation signal Phase 'A' RESET.

Standard:

Ensures that Containment Isolation Phase A is verified reset by verifying that the Status Monitoring red Phase A Isolation lights are extinguished.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 13

(Step 4.c.2) Ensure charging flow control valve closed.

Standard:

Charging flow control valve FCV-0205 is closed.

Comment:

RNO Step 4.c.3 is only applicable is the charging flow control valve will not close. Therefore, RNO step 4.c.3 is not applicable for this JPM.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 14

(RNO Step 4.c.4) Ensure running CCP discharge valves are open.

Standard:

Verifies Charging Pump 1B Discharge Valve is open (MOV-8377A is open)

Comment [a1]: Identify running pump for correct valve(s)

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 15

(RNO Step 4.c.5) Ensure normal or alternate charging isolation valve open.

Standard:

Verifies either MOV-0003 or MOV-0006 is open.

Comment:

MOV-0003 will be open (normal charging lineup).

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 16 (C)

(Step 4.c.6) Ensure charging OCIV open.

Standard:

Opens Charging OCIV, MOV-0025.

Comment:

1. MOV-0025 will be found closed due to Phase A isolation. The applicant should open MOV-0025.
2. RNO Step 4.c.7 is performed only if the charging OCIV did not open and is therefore not applicable for this JPM.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 17

(Step 4.d) Check boration source aligned to the boric acid tanks.

Standard:

Verifies Emergency boration flowpath aligned.

Comment:

The Emergency Boration flowpath was aligned in JPM step 1 by opening MOV-0218

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 18 (C)

(Step 4.e) Control charging to maintain greater than 50 gpm charging flow on CHG FLOW FI-0205A.

Standard:

Opens Charging Flow Control Valve FCV-0205 to obtain greater than 50 gpm as indicated on FI-0205A.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 19 (C)

(Step 4.f) Ensure at least one boric acid pump running.

Standard:

Starts Boric Acid Transfer Pump 1A or 1B.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 20 (C)

(Step 4.g) Check emergency boration flowpath in service.

- Maintain emergency boration flowrate – greater than 50 gpm “ALT BORATE FLOW”
“FI0120A”

Standard:

Verifies Emergency boration flowrate greater than 50 gpm on FI-0120A.

Comment:

Cue:

Notes:

- TERMINATE THE JPM -

JPM STOP TIME _____

VERIFICATION OF COMPLETION

Job Performance Measure: PERFORM EMERGENCY BORATION OF RCS

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:

Unit 1 was at full power when, due to an error while performing maintenance, two (2) channels of Pressurizer Pressure Low bistables were tripped. The Reactor failed to automatically trip. The crew is performing the actions of 0POP05-EO-FRS1, Response to Nuclear Power Generations – ATWS, and have completed steps 1 through 3.

Charging Pump 1A tripped 2 minutes ago

INITIATING CUE:

The Unit Supervisor directs you to initiate emergency boration of the RCS in accordance with step 4 of 0POP05-EO-FRS1, Response to Nuclear Power Generation – ATWS.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: LOWER SAFTEY INJECTION ACCUMULATOR LEVEL

JPM NO.: NRC S2

REVISION: 1

LOCATION: Simulator

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: LOWER SAFETY INJECTION ACCUMULATOR LEVEL

JPM No.: S2

Rev. No: 1

STP Task: T-29400, Lower the level in an in-service accumulator.

STP Objective: CRO-T20110, Upon completion of this lesson, the trainee should be able to demonstrate a thorough understanding of the theory and fundamental concepts of design, operation, monitoring, and evaluation of control room equipment, controls and instrumentation contained within the Emergency Core Cooling System.

Related K/A Reference: 006 A1.13 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating ECCS controls including: Accumulator pressure (level, boron concentration). (3.5/3.7)

References: OPOP02-SI-0001, Safety Injection Accumulators Rev 26

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 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 plant is at 100% power. Safety Injection Accumulator 1B has a high level condition. Annunciator Window 1M02 Window B-5 (ACC TK 1B LEVEL HI/LO) is in alarm. Actions have been taken to ensure that the accumulator fill has been properly secured in accordance with the Annunciator Response.

INITIATING CUE:

You are directed to lower Safety Injection Accumulator 1B level to clear the ACC TK 1B LEVEL HI/LO alarm in accordance with 0POP02-SI-0001, Safety Injection Accumulators, Section 6. Do not use the accumulator sample lineup to adjust accumulator level.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Safety Injection Accumulator 1B level is adjusted to between 8822.8 and 9076.0 gallons and that pressure is adjusted to between 616.3 and 643.7 psig.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

None

NOTES:

None

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 # 138 and verify:
 - Step Counter position annunciator light on CP-005 is out.
 - Red Light at the end of CP-010 is out.
 - ICS Annunciators have stopped counting up.
 - Steam Dump Controller PK-0557 Potentiometer Setting is set at 8.46.
- 5) Check and clean the following procedures:
 - OPOP02-SI-0001, Safety Injection Accumulators
 - OPOP09-AN-05M3, Annunciator Lampbox 5M03 Response Instructions
- 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. Execute lesson plan # nrc2009_jpmS2andS5 (Description JPM S2 & S5) AND go to 'Start Lesson'. (This lesson plan is for JPM S5 which is being performed at the same time as this JPM.)

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME _____

SAT/UNSAT Performance Step: 1

Obtain a copy of OPOP02-SI-0001, Safety Injection Accumulators.

Standard:

Obtains a copy of OPOP02-SI-0001, Safety Injection Accumulators.

Comment:

The candidate should use the simulator copy of the procedure. No working copy will be provided by the Examiner.

The candidate should review Notes and Precautions.

Procedure Section 6 will be used to lower level in Safety Injection Accumulator 1B.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2

Record Accumulator 1B level.

Standard:

Records Accumulator 1B level using Plant Computer Points SILA0952 and SILA0953.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3

VERIFY accumulator 1B is in service with its “ACC DISCH ISOL” valve open.

Standard:

Verifies that “MOV-0039B” is open.

Comment:

Procedure step 6.2 allowing the use of the accumulator sample lineup to perform minor level adjustments will be N/A. The initial conditions directed the candidate to NOT use the sample lineup to adjust accumulator level.

Procedure step 6.3 will be N/A. The Train B valves listed in Addendum 1 are open.

Cue:

Concerning Procedure Step 6.3 regarding Manual SI Test Valves, if the candidate request to know the status of the Train B valves listed in Addendum 1, as the Unit Supervisor inform the candidate that the valves listed in Addendum 1 are know to be open and Step 6.3 can be N/Ad (ALARA considerations per the NOTE prior to step 6.3).

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4 (C)

OPEN “TEST LN ICIV FV-3970” and “TEST LN OCIV FV-3971”.

Standard:

Opens the following valves:

_____ *TEST LN ICIV FV-3970*

_____ *TEST LN OCIV FV-3971*

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5 (C)

OPEN the “ACC UP STREAM” valve for Accumulator 1B.

Standard:

Opens FV-3968.

Comment:

Accumulator 1B level will begin to lower when this valve is opened.

Accumulator 1B pressure will also lower as the level is lowered.

Cue:

If asked how far to drain the 1B Accumulator, as the Unit Supervisor to drain until the alarm clears and then to stop draining. (This is in accordance with the Initiating Cue.)

Notes:

Drain time is approximately 45 to 60 seconds to clear alarm.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 6 (C)

WHEN “ACC TK 1B LEVEL HI/LO” Annunciator is extinguished, close ‘ACC UP STREAN’ valve for accumulator 1B.

Standard:

Closes FV-3968 when “ACC TK 1B LEVEL HI/LO” annunciator is extinguished.

Comment:

Cue:

Notes:

Drain time is approximately 45 to 60 seconds to clear alarm.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 7 (C)

CLOSE “TEST LN ICIV FV-3970” and “TEST LN OCIV FV-3971”.

Standard:

Closes the following valves:

_____ *TEST LN ICIV FV-3970*

_____ *TEST LN OCIV FV-3971*

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 8

VERIFY Accumulator 1B level is between 8822.8 and 9076.0 gallons.

Standard:

Verifies that Accumulator 1B level is between 8822.8 and 9076.0 gallons using Plant Computer Points SILA0952 and SILA0953.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 9 (C)

VERIFY Accumulator 1B pressure between 616.3 and 643.7 psig.

Standard:

Verifies that Accumulator 1B pressure is NOT between 616.3 and 643.7 psig using Plant Computer Points SIPA0962 and SIPA0963.

Comment:

The candidate will find that Accumulator 1B pressure is low outside the band. The candidate should inform the Unit Supervisor of this condition and may request to raise pressure in Accumulator 1B to within the required band.

Cue:

If the candidate requests to raise pressure in Accumulator 1B, as the Unit Supervisor, direct the candidate to raise pressure in Accumulator 1B to 620 psig using computer points SIPA0962 and SIPA0963 in accordance with Section 7.0 of OPOP02-SI-0001, Safety Injection Accumulators.

If the candidate DOES NOT request to raise pressure in Accumulator 1B, as the Unit Supervisor, direct the candidate to raise pressure in Accumulator 1B to 620 psig using computer points SIPA0962 and SIPA0963 in accordance with Section 7.0 of OPOP02-SI-0001, Safety Injection Accumulators.

If asked about completing Section 6.0 of OPOP02-SI-0001, as the Unit Supervisor direct the candidate to raise pressure in Accumulator 1B to 620 psig using computer points SIPA0962 and SIPA0963 in accordance with Section 7.0 of OPOP02-SI-0001, Safety Injection Accumulators.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 10

ENSURE High Pressure Nitrogen System in service per OPOP02-NH-0001, High Pressure Nitrogen System.

Standard:

Ensures that the High Pressure Nitrogen System is in service per OPOP02-NH-0001, High Pressure Nitrogen System.

Comment:

Cue:

When asked the status of the High Pressure Nitrogen System, inform the candidate that the High Pressure Nitrogen System is lined up and in service.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 11

VERIFY Accumulator 1B is available for pressurization.

Standard:

Verifies that Accumulator 1B is available for pressurization.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 12

VERIFY the following valves closed:

_____ HDR VENT HCV-0900

_____ HDR VENT HV-0899

Standard:

Verifies that the following valves are closed:

_____ *HDR VENT HCV-0900*

_____ *HDR VENT HV-0899*

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 13

OPEN 1-SI-0055B N2 TO SI ACCUM MANUAL ISOL valve.

Standard:

Directs the plant operator to open 1-SI-0055B N2 TO SI ACCUM MANUAL ISOL valve.

Comment:

This valve is located in the Mechanical Auxiliary Building (MAB) on the 10' elevation.

Cue:

When the candidate goes to use the radio to contact the Plant Operator (MAB Watch), inform the candidate that you are his MAB Watch. When he directs the MAB Watch to open SI-0055B, N2 to SI Accumulator Manual Isolation Valve, acknowledge the direction. After a short time report that SI-0055B, N2 to SI Accumulator Manual Isolation Valve is in the OPEN position.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 14 (C)

OPEN “ACC N2 SPLY OCIV FV-3983”.

Standard:

Opens “ACC N2 SPLY OCIV FV-3983”.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 15 (C)

OPEN "ACC N2 SPLY/VENT" valve PV-3929 for Accumulator 1B.

Standard:

Opens "ACC N2 SPLY/VENT" valve PV-3929 for Accumulator 1B.

Comment:

Procedure step 7.7 and its sub steps are for bypassing the Nitrogen Excess Flow Valve and restoring the lineup once bypassing is no longer required. Bypassing the Nitrogen Excess Flow Valve is done when performing initial pressurization of the accumulators. Since we are only raising pressure in one accumulator, the sub steps of 7.7 can be N/Ad.

Cue:

Notes:

It will take approximately 1 minute and 30 seconds to get to 620 psig (using SIPA0692 and SIPA0693 computer points as indication). The time for pressurization is dependent on how much was drained.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 16 (C)

CLOSE “ACC 1B N2 SPLY/VENT” PV-3929 when Accumulator 1B pressure reaches 620 psig.

Standard:

Closes “ACC 1B N2 SPLY/VENT” PV-3929 when Accumulator 1B pressure reaches 620 psig.

Comment:

Only Accumulator 1B is to be pressurized. Therefore procedure step 7.9 regarding pressurizing additional accumulators can be N/Ad.

Cue:

Notes:

It will take approximately 1 minute and 30 seconds to get to 620 psig (using SIPA0692 and SIPA0693 computer points as indication). The time for pressurization is dependent on how much was drained.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 17 (C)

CLOSE “ACC N2 SPLY OCIV FV-3983”.

Standard:

Closes “ACC N2 SPLY OCIV FV-3983”.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 18

CLOSE 1-SI-0055B N2 TO SI ACCUM MANUAL ISOL valve.

Standard:

Directs the closing of 1-SI-0055B N2 TO SI ACCUM MANUAL ISOL valve.

Comment:

This valve is located in the Mechanical Auxiliary Building (MAB) on the 10' elevation.

Cue:

When the candidate goes to use the radio to contact the Plant Operator (MAB Watch), inform the candidate that you are his MAB Watch. When he directs the MAB Watch to close SI-0055B, N2 to SI Accumulator Manual Isolation Valve, acknowledge the direction. After a short time report that SI-0055B, N2 to SI Accumulator Manual Isolation Valve is in the CLOSED position.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 19

VERIFY Accumulator 1B pressure is between 616.3 and 643.7 psig.

Standard:

Verifies that Accumulator 1B pressure is between 616.3 and 643.7 using Plant Computer Points SIPA0962 and SIPA0963.

Comment:

Cue:

Notes:

–TERMINATE THE JPM –

JPM STOP TIME_____

VERIFICATION OF COMPLETION

Job Performance Measure: LOWER SAFETY INJECTION ACCUMULATOR LEVEL

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:

The plant is at 100% power. Safety Injection Accumulator 1B has a high level condition. Annunciator Window 1M02 Window B-5 (ACC TK 1B LEVEL HI/LO) is in alarm. Actions have been taken to ensure that the accumulator fill has been properly secured in accordance with the Annunciator Response.

INITIATING CUE:

You are directed to lower Safety Injection Accumulator 1B level to clear the ACC TK 1B LEVEL HI/LO alarm in accordance with 0POP02-SI-0001, Safety Injection Accumulators, Section 6. Do not use the accumulator sample lineup to adjust accumulator level.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **DEPRESSURIZE RCS DURING STEAM GENERATOR TUBE RUPTURE**

JPM NO.: **NRC S3**

REVISION: **1**

LOCATION: **Simulator**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: DEPRESSURIZE RCS DURING STEAM GENERATOR TUBE RUPTURE

JPM No.: S3

Rev. No: 1

STP Task: T-80642, Respond to a Steam Generator Tube Rupture

STP Objective: CRO80642, Respond to a Steam Generator Tube Rupture in accordance with POP05-EO-EO30

Related K/A Reference: 010 A2.02 Pressurizer Pressure Control System: Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Spray valve failures. (3.9/3.9)

References: OPOP05-EO-EO30, Steam Generator Tube Rupture, Rev 21

Task Normally Completed By: RO

Method of Testing: Actual Performance

Location of Testing: Simulator

Time Critical Task: No

Alternate Path JPM: Yes

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:

The plant has experienced a Steam Generator Tube Rupture in the 1A Steam Generator. Emergency Operating Procedure, 0POP05-EO-EO30, Steam Generator Tube Rupture is in progress. The Reactor Coolant System cooldown has been performed.

INITIATING CUE:

You are directed to depressurize the RCS in accordance with Step 18.0 of 0POP05-EO-EO30, Steam Generator Tube Rupture.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Reactor Coolant System is depressurized, terminating the depressurization when termination criteria is met by securing Reactor Coolant Pumps due to the failure of a Normal Pressurizer Spray Valve.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

None

NOTES:

None

SIMULATOR SETUP:

- 1) JPMs S3 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 # 139 and verify:
 - Step Counter position annunciator light on CP-005 is out.
 - Red Light at the end of CP-010 is out.
 - ICS Annunciators have stopped counting up.
 - Steam Dump Controller PK-0557 is set at 4.24.
- 5) Ensure the breaker control sw. target flags agree with breaker position for the following:
 - STBY Bus 1F to E1A Transformer (CP-010)
 - E1A Normal Supply Breaker (CP-003)
 - DG #11 Output Breaker (CP-003)
- 6) Check and clean the following procedures:
 - OPOP02-DG-0001, Emergency Diesel Generator 11(21)
 - OPOP09-AN-04M8, Annunciator Lampbox 4M08 Response Instructions
 - OPOP05-EO-EO30, Steam Generator Tube Rupture
- 7) Place simulator in run. Silence/acknowledge/reset alarms as appropriate.
- 8) Place the simulator in "FREEZE" until the examiners are ready to proceed.
- 7) There is no simulator lesson for either of these JPM's.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME_____

SAT/UNSAT Performance Step: 1

Determine that Normal Pressurizer Spray is available.

Standard:

Determines that Normal Pressurizer Spray is available by observing that the Reactor Coolant Pumps are in service.

Comment:

Applicant may also check that the Instrument Air OCIV is open.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2

PLACE group “C” pressurizer heater control switch to PULL TO LOCK.

Standard:

Places group “C” pressurizer heater control switch in the PULL TO LOCK position.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3

PLACE all other pressurizer heater group control switches to OFF.

Standard:

Places the heater control switches for Backup Heater Groups 1A, 1B, 1D, and 1E in the OFF position.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4 (C)

INITIATE maximum pressurizer spray.

Standard:

Initiates maximum pressurizer spray by placing full demand in manual on the controllers for PCV-0655C and PCV-0655B.

Comment:

The Amber MAN LED will be lit on the controllers for PCV-0655C and PCV-0555B when they are in manual. With full demand on the controllers, the output meter will indicate 100% and the RED LED on the controllers will be lit. The RED Indicating light above each of the controllers is actual valve position. It only indicates that the Spray Valves are not fully closed when illuminated.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5 (C)

CHECK Any of the following conditions SATISFIED:

- RCS Pressure LESS THAN RUPTURED SG PRESSURE AND Pressurizer level GREATER THAN 8%

OR

- Pressurizer level GREATER THAN 70%

OR

- RCS subcooling based on core exit T/Cs LESS THAN 35°F

Standard:

Checks that any of the following conditions are SATISFIED:

- *RCS Pressure LESS THAN RUPTURED SG PRESSURE AND Pressurizer level GREATER THAN 8%*

OR

- *Pressurizer level GREATER THAN 70%*

OR

- *RCS subcooling based on core exit T/Cs LESS THAN 35°F*

Comment:

Will likely have to terminate depressurization due to high Pzr. level (reaching 70%)

When any condition of termination occurs, the candidate will close the Spray Valves – refer to next step.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 6 (C)

CLOSE Normal Spray Valves

Standard:

Stops RCP 1A and 1D when one spray valve will not close to stop the depressurization. Monitors RCS pressure and if it is still lowering, stops RCP 1B or 1C.

Comment:

The spray valves can be closed one of two ways;

- Taking the demand to zero with the controllers in manual.
- Placing the controllers in Auto which will take the demand to immediately to zero.

With a failure of one of the spray valves to close, the candidate will need to determine that one of the spray valves is still open by observing that one of the RED indication lights (the one above the controller) for the spray valves is still lit even though the demand indication is zero. The candidate will also need to observe that RCS pressure is still lowering with this condition and will need to secure RCPs in order to stop spray flow in order to stop the RCS depressurization.

After RCP's 1A and 1D have been stopped, RCS pressure will begin rising slowly so there will be no need to stop additional RCP's.

Cue:

Notes:

–TERMINATE THE JPM –

JPM STOP TIME _____

VERIFICATION OF COMPLETION

**Job Performance Measure: DEPRESSURIZE RCS DURING STEAM GENERATOR
TUBE RUPTURE**

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:

The plant has experienced a Steam Generator Tube Rupture in the 1A Steam Generator. Emergency Operating Procedure, 0POP05-EO-EO30, Steam Generator Tube Rupture is in progress. The Reactor Coolant System cooldown has been performed.

INITIATING CUE:

You are directed to depressurize the RCS in accordance with Step 18.0 of 0POP05-EO-EO30, Steam Generator Tube Rupture.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **START A REACTOR COOLANT PUMP**

JPM NO.: **NRC S4**

REVISION: **1**

LOCATION: **Simulator**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: START A REACTOR COOLANT PUMP

JPM No.: S4

Rev. No: 1

STP Task: T-50800, Start a Reactor Coolant Pump

STP Objective: CRO50800, Start a Reactor Coolant Pump per 0POP02-RC-0004

Related K/A Reference: 003 A2.01 Problems with RCP seals, especially rates of seal leak-off. (3.5/3.9)

References: 0POP02-RC-0004, Operation of Reactor Coolant Pump Rev 26

Task Normally Completed By: RO

Method of Testing: Actual Performance

Location of Testing: Simulator

Time Critical Task: No

Alternate Path JPM: Yes

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:

The plant is currently in Mode 3. RCS Temperature is being maintained at approximately 567°F. Pressurizer Pressure is 2235 psig. RCP's 1A, 1C and 1D are in service. There are no ESF DG's running in either unit.

INITIATING CUE:

You are directed to start RCP 1B in accordance with 0POP02-RC-0004, Operation of Reactor Coolant Pump, Section 8.

Note: RCP 1B has been checked out by a Plant Operator and is ready for start.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

RCP 1B is tripped/stopped due to low D/P on Number 1 seal.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

None

NOTES:

None

SIMULATOR SETUP:

- 1) JPMs S4 and S8 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 # 140 and verify:
 - Step Counter position annunciator light on CP-005 is out.
 - Red Light at the end of CP-010 is out.
 - ICS Annunciators have stopped counting up.
 - Steam Dump Controller is set at 8.44
 - RCP 1B Seal Injection is 8-13 gpm
- 5) Check and clean the following procedures (JPM specific):
 - OPOP02-RC-0004, Operation of Reactor Coolant Pump
 - OPOP09-AN-04M7, Annunciator Lampbox 4M07 Response Instructions
- 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.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME_____

SAT/UNSAT Performance Step: 1

Obtain a copy of OPOP02-RC-0004, Operation of Reactor Coolant Pump.

Standard:

Obtains a copy of OPOP02-RC-0004, Operation of Reactor Coolant Pump.

Comment:

The applicant should use the simulator copy of the procedure. No working copy will be provided by the Examiner.

The applicant should review Notes and Precautions.

Procedure Section 8 will be used to start RCP 1B.

Cue:

If asked if an ESF DG is running in the other unit, inform him/her that no ESF DG's are running in either unit.

If asked about Loose Parts Monitoring, inform the applicant that the STA will do this.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2

ENSURE Section 6.0 of procedure has been completed.

Standard:

Ensures that Section 6.0 of the procedure has been completed.

Comment:

Section 6.0 of the procedure was completed during the starting of the previous three pumps.

Cue:

If asked if section 6.0 has been completed, as the Unit Supervisor inform the applicant that Section 6.0 of the procedure has been completed.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3

Ensure the Unit/Shift Supervisor has reviewed 7300/SSPS normalization status.

Standard:

Ensures that the Unit Supervisor or Shift Supervisor has reviewed 7300/SSPS normalization status.

Comment:

With the plant in Mode 3, normalization would not be installed in the 7300 process racks and SSPS would be in OPERATE on all three trains.

Cue:

If asked about the status of 7300/SSPS normalization, as the Unit Supervisor inform the applicant that 7300/SSPS has been reviewed and there is no normalization installed and that SSPS is in OPERATE on all three trains.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4

CHECK the following annunciators extinguished:

_____	MTR AIR CLR CCW FLOW LO.....	Lampbox 2M03, Window A-4
_____	RCP 1B SEAL WTR INJ FLOW LO	Lampbox 4M07, Window A-3
_____	RCP 1B NO 1 SEAL DP LO	Lampbox 4M07, Window A-4
_____	RCP 1B NO 1 SEAL LKF FLOW HI/LO	Lampbox 4M07, Window B-3
_____	RCP 1B STDPIPE LVL HI.....	Lampbox 4M07, Window B-4
_____	RCP 1B NO 2 SEAL LKF FLOW HI.....	Lampbox 4M07, Window C-3
_____	RCP 1B STDPIPE LVL LO	Lampbox 4M07, Window C-4
_____	RCP 1B THERM BAR CCW FLOW/TEMP TRBL	Lampbox 4M07, Window D-4
_____	SEAL WTR INJ TEMP HI	Lampbox 4M08, Window C-1
_____	RCP 1B UPPR OIL RSVR LVL HI/LO	Lampbox 5M02, Window C-2
_____	RCP 1B LOWR OIL RSVR LVL HI/LO	Lampbox 5M02, Window D-2
_____	RCP CCW FLOW LO	Lampbox 5M02, Window E-1

Standard:

Checks that the following annunciators are extinguished:

_____	MTR AIR CLR CCW FLOW LO	Lampbox 2M03, Window A-4
_____	RCP 1B SEAL WTR INJ FLOW LO.....	Lampbox 4M07, Window A-3
_____	RCP 1B NO 1 SEAL DP LO	Lampbox 4M07, Window A-4
_____	RCP 1B NO 1 SEAL LKF FLOW HI/LO	Lampbox 4M07, Window B-3
_____	RCP 1B STDPIPE LVL HI.....	Lampbox 4M07, Window B-4
_____	RCP 1B NO 2 SEAL LKF FLOW HI	Lampbox 4M07, Window C-3
_____	RCP 1B STDPIPE LVL LO.....	Lampbox 4M07, Window C-4
_____	RCP 1B THERM BAR CCW FLOW/TEMP TRBL	Lampbox 4M07, Window D-4
_____	SEAL WTR INJ TEMP HI.....	Lampbox 4M08, Window C-1
_____	RCP 1B UPPR OIL RSVR LVL HI/LO	Lampbox 5M02, Window C-2
_____	RCP 1B LOWR OIL RSVR LVL HI/LO.....	Lampbox 5M02, Window D-2
_____	RCP CCW FLOW LO	Lampbox 5M02, Window E-1

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5

VERIFY RCP 1B seal water injection flow is between 8 and 13 gpm on “RCP 1B SEAL FLOW FR-0157”.

Standard:

Verifies that RCP 1B seal water injection flow is between 8 and 13 gpm on “RCP 1B SEAL FLOW FR-0157”.

Comment:

This is the green trace on the recorder. There is also a digital readout in the upper right hand corner of the display that is backlit in green. This is seal injection flowrate for RCP 1B.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 6

VERIFY RCP 1B No. 1 seal water leakoff flow, as indicated on “RCP 1B SEAL FLOW FR-0157”, is in the normal operating range per Addendum 1.

Standard:

Verifies that RCP 1B No. 1 seal water leakoff flow, as indicated on “RCP 1B SEAL FLOW FR-0157”, is in the normal operating range per Addendum 1.

Comment:

With the Reactor Coolant System at normal operating pressure of 2235 psig, the seal leakoff flow should be approximately 3 gpm. This would be the midpoint of the normal operating range per Addendum 1.

The seal leakoff flow is the red trace on the recorder. There is also a digital readout in the upper left hand corner of the display that is backlit in red. This is the HI Range seal leakoff flow indication.

For information purposes, the blue trace and digital readout that is backlit in blue is the LO Range seal leakoff flow indication. It has a range of 0 to 1 gpm. With current plant conditions, this indication would be “pegged” at the 1gpm indication.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 7

VERIFY RCP 1B No. 1 seal differential pressure is greater than 250 psid on “SEAL 1 DP PI-0153”.

Standard:

Verifies that RCP 1B No. 1 seal differential pressure is greater than 250 psid on “SEAL 1 DP PI-0153”.

Comment:

This pressure indicator has a range of 0 to 400 psid. With current plant conditions, the No. 1 seal differential pressure indication would be “pegged out” at greater than 400 psid.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 8

ENSURE RCP 1B "SEAL NO 1 LKF ISOL FV-3155" is OPEN.

Standard:

ENSURES that RCP 1B "SEAL NO 1 LKF ISOL FV-3155" is OPEN.

Comment:

With current plant conditions, FV-3155 would be open.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 9

VERIFY seal water injection temperature less than 135°F on “TEMP TI-0216”.

Standard:

VERIFIES that seal water injection temperature is less than 135°F on “TEMP TI-0216”.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 10

Verifies that RCS Temperature is greater than 140°F and that there is no restriction on 4 RCP operation.

Standard:

Verifies that RCS Temperature is greater than 140°F.

Comment:

Various indications can be used to verify RCS temperature is greater than 140°F. e.g. control board indications, computer indications, and initial plant conditions.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 11 (C)

START RCP 1B "OIL LIFT PUMP".

Standard:

STARTS RCP 1B "OIL LIFT PUMP" by momentarily turning its control switch to the START position.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 12

VERIFY the RCP 1B blue “START PERM” indicator light illuminates.

Standard:

VERIFIES that the RCP 1B blue “START PERM” indicator light illuminates.

Comment:

The blue START PERM indicator light will illuminate shortly after the OIL LIFT PUMP is started.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 13

WHEN the RCP 1B blue “START PERM” has been ON for at least two minutes, THEN START “RCP 1B”

Standard:

After the RCP 1B blue “START PERM” has been ON for at least two minutes, THEN START “RCP 1B” by momentarily turning it handswitch to the START position.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 14

VERIFY loop B flow increases to greater than 90% on “LOOP B FLOW FI-0427A”.

Standard:

Verifies that loop B flow increases to greater than 90% on “LOOP B FLOW FI-0427A”.

Comment:

When flow gets to 90%, the RCP seal will fail resulting in Annunciator 4M07 Window A4, RCP 1B NO 1 SEAL DP LO, alarming.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 15

VERIFY RCP 1B No. 1 seal differential pressure is greater than 220 psid on “SEAL 1 DP PI-0153”.

Standard:

Determines RCP 1B No. 1 seal differential pressure is less than 220 psid on “SEAL DP PI-0153 and the LO SEAL DP alarm is in.

Comment:

Actual seal DP will be about 150 psid.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 16

Responds to/investigates the “RCP 1B NO 1 SEAL DP LO” annunciator.

Standard:

Refers to Annunciator Lampbox 4M07 Response Instructions for Window A-4, RCP 1B NO 1 SEAL DP LO.

Comment:

The applicant should announce the alarm title to the Unit Supervisor in the Control Room and may say that it is an unexpected alarm.

Cue:

When the applicant announces the alarm title to the Unit Supervisor, as the Unit Supervisor, acknowledge the information.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 17

CHECK RCP 1B Number 1 Seal DP greater than or equal to 220 psid.

Standard:

Checks that RCP 1B Number 1 Seal DP is greater than or equal to 220 psid on PI-0153.

Comment:

Seal DP at this point will be less than 220 psid due to the failure of No 1 seal. The applicant may tell the Unit Supervisor of this condition.

Cue:

If the applicant informs the Unit Supervisor of the low seal DP condition, as the Unit Supervisor acknowledge the information given by the applicant.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 18

Checks the position of RCP 1B "SEAL NO. 1 LKF ISOL FV-3155".

Standard:

Checks that RCP 1B "SEAL NO. 1 LKF ISOL FV-3155" is OPEN.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 19

Checks that the Reactor is NOT critical.

Standard:

Checks that the Reactor is NOT critical.

Comment:

This information was given in the initial conditions stating that the Unit was in Mode 3. Therefore a Reactor Trip and entry into 0POP05-EO-EO00, Reactor Trip or Safety Injection is not needed.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 20 *(C)

STOP RCP 1B and GO TO 0POP04-RC-0002, Reactor Coolant Pump Off Normal.

Standard:

Stops RCP 1B and informs the Unit Supervisor that entry into 0POP04-RC-0002, Reactor Coolant Pump Off Normal is warranted.*

Comment:

*The stopping of RCP 1B is the critical portion of the step.

Per the Annunciator Response, the applicant may go to 0POP04-RC-0002, RCP Off Normal.

Cue:

When the applicant indicates that an entry into 0POP04-RC-0002, Reactor Coolant Pump Off Normal should be made, as the Unit Supervisor acknowledge the information.

Notes:

–TERMINATE THE JPM –

JPM STOP TIME_____

VERIFICATION OF COMPLETION

Job Performance Measure: START A REACTOR COOLANT PUMP

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:

The plant is currently in Mode 3. RCS Temperature is being maintained at approximately 567°F. Pressurizer Pressure is 2235 psig. RCP's 1A, 1C and 1D are in service. There are no ESF DG's running in either unit.

INITIATING CUE:

You are directed to start RCP 1B in accordance with 0POP02-RC-0004, Operation of Reactor Coolant Pump, Section 8.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **PERFORM CONTAINMENT SPRAY PUMP TEST**

JPM NO.: **NRC S5**

REVISION: **1**

LOCATION: **Simulator**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: PERFORM CONTAINMENT SPRAY PUMP PERFORMANCE TEST

JPM No.: S5

Rev. No: 1

STP Task: T-10200, Perform the Containment Spray Pump Inservice Test

STP Objective: CRO10200, Perform the Containment Spray Pump Inservice Test in accordance with POP07-CS-0001, POP07-CS-0002, or POP07-CS-0003.

Related K/A Reference: 026 A3.01 Ability to monitor automatic operation of the CSS, including: Pump starts and correct MOV positioning. (4.3/4.5)

References: 0POP07-CS-0001, Containment Spray Pump 1A (2A) Functional Test, Rev 1
0POP09-AN-05M3, Annunciator Lampbox 5M03 Response Instructions, Rev 28

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): Student Copy of 0POP07-CS-0001, Containment Spray Pump 1A(2A) Functional Test with applicable approvals signed and prerequisites initialed.

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 100% power. Containment Spray Pump 1A Functional Test is scheduled to be performed. Administrative approval to perform test has been given by the Shift Supervisor. The prerequisites have been met and initialed in the procedure. There are no changes in the Work Risk Assessment.

INITIATING CUE:

You are directed to perform Containment Spray Pump 1A Functional Test in accordance with OPOP07-CS-0001, Containment Spray Pump 1A(2A) Functional Test, starting at Step 5.0.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Containment Spray Signal is reset, Containment Isolation Phase B is reset, the valves that were closed by the Phase B isolation are reopened, and that the Containment Spray Pump Discharge Isolation Valves are re-closed.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

Working copy of OPOP07-CS-0001, Containment Spray Pump 1A(2A) Functional Test with administrative approval to perform test signed and the prerequisites complete and initialed.

NOTES:

During procedure step 5.3.3 (JPM Step 5) an Inadvertent Containment Spray Actuation occurs. This will be actuated by Simulator Booth Instructor. A cue will need to be provided to the Booth Instructor when the Inadvertent Containment Spray Actuation is to occur.

This is an Alternate Path JPM. Prior to starting the Containment Spray Pump 1A, an Inadvertent Containment Spray Actuation occurs. This will require the candidate to respond to the Containment Spray Actuation Annunciator and perform the actions contained in the Annunciator Response Instructions.

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 # 138 and verify:
 - Step Counter position annunciator light on CP-005 is out.
 - Red Light at the end of CP-010 is out.
 - ICS Annunciators have stopped counting up.
 - Steam Dump Controller PK-0557 Potentiometer Setting is set at 8.46.
- 5) Check and clean the following procedures:
 - OPOP02-SI-0001, Safety Injection Accumulators
 - OPOP09-AN-05M3, Annunciator Lampbox 5M03 Response Instructions
- 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) Execute lesson plan # nrc2009_jpmS2andS5 (Description JPM S2 & S5) AND go to 'Start Lesson'. This lesson plan is for this JPM.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME_____

SAT/UNSAT Performance Step: 1

Ensure Prerequisites section has been completed and Precautions and Notes section has been read.

Standard:

Ensures that the Prerequisites Section has been completed and initialed. Reads the Notes and Precautions Section of the procedure.

Comment:

The candidate will be provided with a partially completed working copy of the procedure for his/her use.

Cue:

If asked, the Containment Spray Pump 1A Functional Test is not being performed in conjunction with any other testing.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2

Conduct a prejob briefing, including any changes in Work Risk Assessment as noted in the remarks section of the PPDS (Procedure Performance Data Sheet).

Standard:

Conducts a prejob brief.

Comment:

Cue:

As the Unit Supervisor, give the following briefing points to the applicant:

- Use good 3-way communications with the Plant Operators in the field helping perform the test.
- Inform the Unit Supervisor of any problems encountered conducting the test.

As per the Initial Conditions, there are no changes in the Work Risk Assessment.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3

ENSURE CS “PUMP 1A(2A) DISCH ISOL, MOV-0001A” is closed using the handswitch on CP002.

Standard:

Ensures that CS “PUMP 1A DISCH ISOL, MOV-0001A” is closed by observing that the GREEN indicating light is illuminated and that the RED indicating light is extinguished.

Comment:

This is a procedure step that requires Independent Verification. Due to the nature of an evaluated JPM, true Independent Verification cannot be performed. The evaluator will need to initial for Independent Verification even though true Independent Verification cannot be performed.

The Control Switch and Indicating Lights for MOV-0001A are located on the bench board portion of ZCP-002.

Cue:

When asked for Independent Verification for performance of the step, initial the space “Ind. Verify” as the Independent Verifier or inform the candidate that Independent Verification has been performed.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4

UNLOCK and OPEN “1(2)-CS-0008A SIS CSS TEST LINE 1A(2A) ISOL VALVE.

Standard:

Directs the Plant Operator to UNLOCK and OPEN 1-CS-0008A SIS CSS Test Line 1A Isol Valve.

Comment:

This valve is located on the -29 foot level Train A Containment Spray System, Safety Injection System Pump Room which is located in the Fuel Handling Building (FHB).

The applicant may refer to the Unlocking and Opening of 1-CS-0008A as “Perform Step 5.3.2 of the procedure.” This procedure step performs the action of Unlocking and Opening 1-CS-0008A. (See cue below.)

Cue:

After a short period of time as the Plant Operator in the FHB, inform the candidate that 1-CS-0008A is UNLOCKED and OPEN.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5

THROTTLE “1(2)-CS-0009A SIS CSS TEST LINE 1A(2A) VALVE” to 25% open.

Standard:

Directs the Plant Operator to THROTTLE 1-CS-0009A SIS CSS Test Line 1A Valve to 25% open.

Comment:

This valve is located on the -29 foot level Train A Containment Spray System, Safety Injection System Pump Room which is located in the Fuel Handling Building (FHB).

The applicant may refer to the Throttling of 1-CS-0009A as “Perform Step 5.3.3 of the procedure.” This procedure step performs the action of Throttling 1-CS-0009A to 25% open. (See cue below.)

It is at this point that an Inadvertent Containment Spray Actuation occurs.

A cue will need to be given to the Simulator Booth Instructor to insert the Inadvertent Containment Spray Actuation malfunction at this time.

Cue:

After a short period of time as the Plant Operator in the FHB, inform the candidate that 1-CS-0009A is THROTTLED to 25% open.

Notes:

Signal the Booth Instructor to activate the Inadvertent Containment Spray Actuation malfunction.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 6

Respond to/investigate Annunciator 05M3 Window D-7 CNTMT SPR ACT.

Standard:

*Responds to/investigates Annunciator 05M3 Window D-7 CNTMT SPR ACT. References
0POP09-AN-05M3 Annunciator Lampbox 5M03 Response Instructions for Window D-7.*

Comment:

Annunciator 05M3 Window D-7 is across the Control Room from where the candidate will be standing. It may require a cue from the evaluator to get the candidate to respond to the annunciator.

The Inadvertent Containment Spray Actuation will automatically open the all three trains Containment Spray Pump Discharge Valves (1-CS-MOV-0001A, B, C). The Containment Spray Pumps will not start because they are started via the sequencer and the sequencer has not received a signal to start a Mode 1 sequence.

Cue:

If the candidate does not respond to the annunciator, as the Unit Supervisor, direct the candidate to respond to/investigate the alarm that has come in on Annunciator Panel 05M3.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 7

CHECK Containment Pressure is less than 9.5 psig.

Standard:

Checks that Containment Pressure is less than 9.5 psig and that entry into OPOP05-EO-EO00, Reactor Trip or Safety Injection is not needed.

Comment:

The most probable way for the candidate to check the status of Containment Pressure is to use the QDPS computer system. There are several ways to check what Containment Pressure is and all are acceptable to use.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 8 (C)

Determine the Containment Spray Actuation is inadvertent and that spray flow is NOT initiated.

Standard:

Determines that the Containment Spray Actuation was inadvertent and that spray flow was not initiated.

Comment:

With Containment Pressure not going above 9.5 psig, the determination is made that this is an inadvertent Containment Spray Actuation. Spray flow was not initiated because the Containment Spray Pumps have not received a start signal via the sequencer.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 9 (C)

Reset Containment Spray signal.

Standard:

Resets the Containment Spray Actuation signal by depressing the Containment Spray AUTO ACT Reset(Block) pushbuttons for all three trains.

Observes that the Red CS ACTUATE lights on the Containment Spray ESF Status Monitoring Panels for all three trains extinguish.

Comment:

The Containment Spray Reset(Block) pushbuttons are located on the bench board portion of ZCP-002.

The Containment Spray ESF Status Monitoring Panels are located on the vertical portion of ZCP-002.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 10 (C)

Reset Containment Isolation Phase B.

Standard:

Resets the Containment Phase B signal by depressing the Containment Phase B Reset(Block) pushbuttons for all three trains.

Observes that the Red Phase B lights on the Containment Isolation Phase A/B ESF Status Monitoring Panel for all three trains extinguish.

Comment:

The Phase B Reset(Block) pushbuttons are located on the slope portion of ZCP-002.

The Containment Isolation Phase A/B ESF Status Monitoring Panel is located on the vertical portion of ZCP-002.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 11 (C)

Verify the following CCW valves open:

- ___ INL OCIV MOV-0318
- ___ INL OCIV MOV-0291
- ___ OUTL ICIV MOV-0542
- ___ OUTL OCIV MOV-0404
- ___ OUTL ICIV MOV-0403
- ___ OUTL OCIV FY-4493

Standard:

Opens the following CCW valves:

- ___ *INL OCIV MOV-0318*
- ___ *INL OCIV MOV-0291*
- ___ *OUTL ICIV MOV-0542*
- ___ *OUTL OCIV MOV-0404*
- ___ *OUTL ICIV MOV-0403*
- ___ *OUTL OCIV FY-4493*

Comment:

The above listed CCW valves (Phase B Valves) received a close signal when the Inadvertent Containment Spray Actuation occurred. These valves will need to be opened.

The control switches for the above listed CCW valves are located on the slope section of ZCP-001 and ZCP-002.

Cue:

If the candidate requests to open the above listed CCW (Phase B) valves, as the Unit Supervisor direct the candidate to open the listed valves.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 12

Monitor Reactor Coolant Pump temperatures: Stator, Bearing, and Thermal Barrier.

Standard:

Monitors Reactor Coolant Pump Stator, Bearing, and Thermal Barrier temperatures on all four Reactor Coolant Pumps.

Comment:

The Integrated Computer System is used to monitor Reactor Coolant Pump Temperatures. Typically, a graphics screen (RC-010) from the Custom Graphics Menu will be pulled up and displayed. It provides all the required temperature data for all four Reactor Coolant Pumps.

Cue:

Notes:

The applicant may reference either 0POP04-RC-0002, RCP Off-Normal, or 0POP02-RC-0004, Operation of Reactor Coolant Pump to determine the temperature limits of the Reactor Coolant Pumps.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 13

CLOSE “DISCH ISOL MOV-0001A, B, and C”.

Standard:

Closes “DISCH ISOL MOV-0001A, B, and C”.

Comment:

Cue:

Notes:

–TERMINATE THE JPM –

JPM STOP TIME_____

VERIFICATION OF COMPLETION

Job Performance Measure: Perform Containment Spray Pump Performance Test

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:

The Unit is at 100% power. Containment Spray Pump 1A Functional Test is scheduled to be performed. Administrative approval to perform test has been given by the Shift Supervisor. The prerequisites have been met and initialed in the procedure. There are no changes in the Work Risk Assessment.

INITIATING CUE:

You are directed to perform Containment Spray Pump 1A Functional Test in accordance with OPOP07-CS-0001, Containment Spray Pump 1A(2A) Functional Test, starting at Step 5.0.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **RESTORE OFFSITE POWER TO ESF BUS**

JPM NO.: **NRC S6**

REVISION: **1**

LOCATION: **SIMULATOR**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: RESTORE OFFSITE POWER TO ESF BUS

JPM No.: S6

Rev. No: 1

STP Task: 44650 Transfer an Emergency Bus from the Emergency Diesel Generator to offsite power.

STP Objective: 44650 Transfer an ESF BUS from the Emergency Diesel Generator to offsite power IAW 0POP02-DG-0001/2/3 until the diesel is back in normal standby lineup.

Related K/A Reference: 062 A4.07 [3.1/3.1], Ability to manually operate and/or monitor in the control room: Synchronizing and paralleling of different AC supplies.

064 A3.06 [3.3/3.4], Ability to monitor automatic operation of the ED/G system, including: Start and stop.

064 A4.01 [4.0/4.3], Ability to manually operate and/or monitor in the control room: Local and remote operation of the ED/G.

References: 0POP02-DG-0001, Rev. 45, Emergency Diesel Generator 11(21)

Task Normally Completed By: RO/SRO

Method of Testing: Actual Performance

Location of Testing: Simulator

Time Critical Task: NO

Alternate Path JPM: NO

Validation Time: 30 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 fault occurred on 4.16KV ESF BUS E1A supply breaker E1A/1. Emergency Diesel Generator 11 started and loaded normally. The A ESF BUS supply breaker E1A/1 has been repaired and re-installed.

INITIATING CUE:

The Unit Supervisor directs you to restore normal off-site power (Standby Bus 1F) to 4.16KV ESF Bus 'A' AND Place ESF Diesel Generator 11 in a cooldown cycle in accordance with 0POP02-DG-0001, Emergency Diesel Generator 11(21) Section 9.0

- The requirement for having a second operator and the Unit /Shift Manager available during the synchronization task has been waived by the Shift Manager.
- Per the Shift Manager, the time requirements in the unloading rate table of 0POP02-DG-0001 are waived.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

4.16KV ESF bus E1A is being supplied from its associated standby bus. ESF Diesel Generator 11 is in a cooldown cycle.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

None. The student is expected to use the simulator copy of the procedure.

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 S3 and S6 are to be 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 # 139 and verify:
 - Step counter position annunciator light is out.
 - Red light at the end of CP-010 is out.
 - ICS Annunciators have stopped counting up.
 - Steam Dump Controller PK-0557 is set at 4.24.
- 5) Ensure the breaker control sw. target flags agree with breaker position for the following:
 - STBY Bus 1F to E1A Transformer (CP-010)
 - E1A Normal Supply Breaker (CP-003)
 - DG #11 Output Breaker (CP-003)
- 6) Check and clean the following procedures:
 - 0POP02-DG-0001, Emergency Diesel Generator 11(21)
 - 0POP09-AN-04M8, Annunciator Lampbox 4M08 Response Instructions
 - 0POP05-EO-EO30, Steam Generator Tube Rupture
- 7) Place simulator in run. Silence/acknowledge/reset alarms as appropriate.
- 8) Place the simulator in 'FREEZE' until the examiners are ready to proceed.
- 8) There is no simulator lesson for either of these JPM's.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME _____

SAT/UNSAT Performance Step: 1

Obtain a copy of the applicable Emergency Diesel Generator procedure.

Standard:

The applicant obtains a copy of 0POP02-DG-0001, Emergency Diesel Generator 11(21).

Comment:

The applicant should use the simulator copy of 0POP02-DG-0001, Emergency Diesel Generator 11(21).

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2

The applicant reviews the Notes and Precautions section of 0POP02-DG-0001, Emergency Diesel Generator 11(21).

Standard:

The applicant reviews the Notes and Precautions section of the procedure and goes to “Section 9.0, Transferring 4.16 KV Bus E1A (E2A) from Diesel Generator 11(21) to Offsite Supply.”

Comment:

Cue:

Throughout this JPM, **IF** applicant asks the local operator to investigate the cause of a “DG11 TROUBLE” alarm, report alarm is due to “Standpipe Level Off-normal”.

If asked about the loads listed in procedure step 4.24, as the Unit Supervisor inform the applicant that the requirements of procedure step 4.24 are met.

Notes:

SAT/UNSAT Performance Step: 3

VERIFY Diesel Generator 11 is the only source of power to ESF Bus E1A. (0POP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.1)

Standard:

The applicant checks to ensure that Diesel Generator 11 is the only source of power to ESF Bus E1A.

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4

Verify breaker alignment for transfer of power supply from Diesel Generator 11 to Standby Bus 1F. (0POP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.2)

Standard:

The Operator VERIFIES each of the following is in the proper position on CP-010:

_____ *"EMER BUS 1L TO XFMR E1A BKR SW-EMER" is OPEN*

_____ *"EMER BUS 1L TO XFMR E1A DISC SW-EMER" is OPEN*

_____ *"STBY BUS 1F TO XFMR E1A DISC SW-NORM" is CLOSED*

_____ *"STBY BUS 1F TO XFMR E1A BKR SW-NORM" is CLOSED*

Comment:

Procedure step 9.3, Transferring ESF DG to Emergency Bus 1L, is N/A.

Cue:

If the operator asks for clarification, tell him that the Unit Supervisor has directed that the bus be energized from STBY Bus 1F (which is energized from UNIT 1 AUX XFMR).

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5

ENSURE any activated protective relays reset. (ZLP101) (0POP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.4)

Standard:

The applicant directs a Plant Operator to locally reset any protective relay that may have tripped.

Comment:

Cue:

As Plant Operator, report that all protective relays are reset.

Notes:

SAT/UNSAT Performance Step: 6

ENSURE the Train 'A' Load Sequencer is reset. (0POP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.5)

Standard:

The operator depresses the white sequencer RESET pushbutton on CP-003 for ESF Diesel Generator 11 OR verifies the Train 'A' Sequencer is reset.

Comment:

- The Load Sequencer will already be reset ("LOOPWR" status lights are clear), thus the student need only verify its status.
- Computer Indication of sequencer reset is on ICS display 9713

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 7

Momentarily DEPRESS the Diesel Generator 11 "RESET" pushbutton to ensure the non-emergency trip logic reset. (CP003) (OPOP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.6)

Standard:

The operator depresses the white RESET pushbutton on CP-003 for Diesel Generator 11.

Comment:

Cue:

If asked, the Unit Supervisor reports that No non-emergency trip signal was received while the diesel was running in the Emergency Mode.

If asked, the Unit Supervisor reports that Non-Class 1E 125 VDC control power was not lost while the diesel was operating in the Emergency Mode.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 8

Verify the MASTER TRIP CIRCUIT "RESET" light illuminated. (ZLP102) (0POP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.7)

Standard:

The applicant directs a Plant Operator to verify the MASTER TRIP CIRCUIT RESET light on ZLP102 is illuminated.

Comment:

Cue:

As Plant Operator, report the Master Trip Circuit Reset light is on.

Notes:

SAT/UNSAT Performance Step: 9 (C)

DEPRESS the "RELEASE" from Emergency Mode Operation pushbutton. (CP-003) (0POP03-DG-0001, Emergency Diesel Generator 11(21), Step 9.8)

Standard:

The Operator depresses the white "RELEASE" (from Emergency Mode) pushbutton on CP-003 for ESF Diesel Generator 11.

Comment:

Caution prior to procedure Step 9.8: Operator should anticipate a lowering of frequency and voltage and may adjust speed and voltage if needed.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 10

Verify the “Emergency Mode” white light is extinguished (ZLP-102). (0POP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.9)

Standard:

The operator directs a Plant Operator to verify the white “Emergency Mode” light on ZLP-102 is extinguished.

Comment:

Cue:

As Plant Operator, report the white “Emergency Mode” light on ZLP-102 is extinguished

Notes:

SAT/UNSAT Performance Step: 11

Ensure the ENGINE START MODE switch is in the IDLE position (ZLP-102) (0POP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.10)

Standard:

The operator directs a Plant Operator to verify the ENGINE START MODE switch on ZLP-102 is in the IDLE position.

Comment:

Cue:

As Plant Operator, report the ENGINE START MODE switch is in the IDLE position.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 12 (C)

ENSURE the GOV MODE SEL switch in the PARALLEL position. (CP003) (OPOP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.11)

Standard:

The operator places the GOV MODE SEL switch in the PARALLEL position.

Comment:

Caution prior to procedure Step 9.11: Operator should anticipate a lowering of frequency and voltage and may adjust speed and voltage if needed.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 13(C)*

Parallel the diesel with off-site power. (OPOP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.12 through 9.16)

Standard:

The operator performs ALL of the following for the diesel being shutdown:

- _____ *A. *PLACES the SYNCHROSCOPE for Diesel Generator 11 in the ON position. (CP003)*
- _____ B. *ENSURES the US/SS is present when synchronizing Diesel Generator 11. (Note 1)*
- _____ *C. *ADJUSTS engine speed to cause the synchroscope to move slowly in the SLOW direction using the GOV switch. (CP003)*
- _____ *D. *ADJUSTS DG 11 Output voltage using DG 11 VOLT ADJ until DG 11 output voltage is equal to XFRMR E1A VOLTS*
- _____ E. *MONITORS the DG 11 Voltage Meter for all three phases of voltage.*
- _____ *F. *CLOSES ESF Bus E1A Normal SPLY BKR E1A/1 when the synchroscope is approximately in the 12:05 position. (CP003)*
- _____ G. *PLACES the SYNCHROSCOPE switch in the OFF position. (CP003)*

Comment:

- * - Denotes critical portion of the step
- A second operator is NOT AVAILABLE to read the required steps per the procedure. THE EVALUATOR **WILL NOT** BE THE READER.

Cue:

Note 1 - The requirement for having a second operator and the Unit /Shift Manager available during the synchronization task has been waived by the Shift Manager. (per Initiating Cue)

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 14(C)

Unload the diesel. (0POP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.17 through 9.20)

Standard:

The operator performs ALL of the following for the diesel to be shutdown:

- _____ A. *Using the Diesel Generator 11 GOV switch, DECREASES diesel generator load to approximately 100 KW.*
- _____ B. *Using the Diesel Generator 11 VOLT ADJ switch, ADJUST diesel generator voltage to between 4000 V and 4275 V.*
- _____ C. *Opens the Diesel Generator 11 DG OUTP BKR. (CP003)*

Comment:

The procedure recommends actions 'A' and 'B' above be done concurrently while unloading DG 11. Adjustments may not be needed based on actual parameter values.

For time compression considerations in the simulator, the recommended Diesel Generator unloading rates of step 4.45 will not be followed. See cue below.

Cue:

As US/SS, inform the applicant that the diesel is to be unloaded within 5 minutes. This consideration will apply to load and voltage rates of change.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 15

ENSURE ENGINE START MODE switch is in the RATED position. (ZLP102) (0POP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.21)

Standard:

The operator directs a Plant Operator to ensure the ESF Diesel Generator 11 ENGINE START MODE switch in the RATED position.

Comment:

Cue:

- As Plant Operator, if asked the as found position of the switch, report that the ENGINE START MODE switch is in the IDLE position.
- As Plant Operator, report the ESF Diesel Generator 11 ENGINE START MODE switch is now in the RATED position.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 16

STOP Diesel Generator 11. (OPOP02-DG-0001, Emergency Diesel Generator 11(21), Step 9.22)

Standard:

_____ *The operator TURNS Diesel Generator 11 NORMAL control switch to the STOP position.
(CP003)*

_____ *WHEN Diesel Generator 11 has entered the cooldown cycle, THEN the operator verifies
that generator voltage decays indicating proper operation of the Generator Exciter Shunt
Relay (K-1) by observing generator voltage decay.*

Comment:

Cue:

Notes:

- TERMINATE THE JPM -

JPM STOP TIME _____

Comment [COMMENT1]: NOTE TO
DEVELOPER:
BE CAREFUL NOT TO LOSE THE
HORIZONTAL LINE CODE BETWEEN STEPS
. . .

VERIFICATION OF COMPLETION

Job Performance Measure: RESTORE OFFSITE POWER TO ESF BUS

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 fault occurred on 4.16KV ESF BUS E1A supply breaker E1A/1. Emergency Diesel Generator 11 started and loaded normally. The A ESF BUS supply breaker E1A/1 has been repaired and re-installed.

INITIATING CUE:

The Unit Supervisor directs you to restore normal off-site power (Standby Bus 1F) to 4.16KV ESF Bus 'A' AND Place ESF Diesel Generator 11 in a cooldown cycle in accordance with OPOP02-DG-0001, Emergency Diesel Generator 11(21) Section 9.0

- The requirement for having a second operator and the Unit /Shift Manager available during the synchronization task has been waived by the Shift Manager.
- Per the Shift Manager, the time requirements in the unloading rate table of OPOP02-DG-0001 are waived.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **BYPASS A FAILED POWER RANGE CHANNEL**

JPM NO.: **NRC S7**

REVISION: **1**

LOCATION: **Simulator**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: BYPASS A FAILED POWER RANGE CHANNEL

JPM No.: S7

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 0POP04-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: 0POP04-NI-0001, Nuclear Instrument Malfunction, Rev 19

Task Normally Completed By: RO

Method of Testing: Actual Performance

Location of Testing: Simulator

Time Critical Task: No

Alternate Path JPM: No

Validation Time: 7 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 approximately 14% power by RCS ΔT .

INITIATING CUE:

I&C was in the process of adjusting NI channels to agree with RCS ΔT power when Power Range NI-0043 failed 5 minutes ago. The Immediate Actions (Step 1) of OPOP04-NI-0001, Nuclear Instrument Malfunction, have been completed.

You are directed to bypass the failed Power Range Channel, NI-0043, and verify Permissives in accordance with Addendum 3 of OPOP04-NI-0001, Nuclear Instrument Malfunction.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Power Range Channel N-43 has been bypassed and P-7, P-8, P-9, and P-10 have been determined to be in the correct state.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

None

NOTES:

None

SIMULATOR SETUP:

- 1) JPMs S1 and S7 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 # 137 and verify:
 - Step Counter position annunciator light on CP-005 is out.
 - Red Light at the end of CP-010 is out.
 - ICS Annunciators have stopped counting up.
 - Steam Dump Controller PK-0557 Potentiometer Setting is set at 8.2.
- 5) Check and clean the following procedures (JPM specific):
 - 0POP04-NI-0001, Nuclear Instrument Malfunction
- 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.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME_____

SAT/UNSAT Performance Step: 1

Obtain a copy of 0POP04-NI-0001, Nuclear Instrumentation Malfunction.

Standard:

Obtains a copy of 0POP04-NI-0001, Nuclear Instrumentation Malfunction.

Comment:

The applicant should use the simulator copy of the procedure. No working copy will be provided by the Examiner.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2

STOP any Main Turbine Load Changes.

Standard:

Determines the Main Turbine is NOT in service.

Comment:

The Turbine will be on the Turning Gear as part of the initial conditions.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3

MAINTAIN RCS Tavg within 1.5°F or Tref using Manual Rod Motion.

Standard:

Verifies that Tavg is within 1.5°F of Tref.

Comment:

Indicated Tavg will be above Tref by 3-4 °F because the turbine (Tref signal) is not in service. Tavg will be within 1.5 °F of program however.

Cue:

If the applicant attempts to take action to control Tavg, inform him/her that another RO has the responsibility for maintaining Tavg at program.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4 (C)

Bypass Power Range NI N-43 by selecting the indicated positions on the following switches:

<u>SWITCH</u>	<u>POSITION</u>
_____ COMPARATOR CHANNEL DEFEAT -----	BYPASS N43
_____ POWER MISMATCH BYPASS -----	BYPASS PR N43
_____ ROD STOP BYPASS -----	BYPASS PR N43
_____ DETECTOR CURRENT COMPARATOR UPPER SECTION-----	PRN43
_____ DETECTOR CURRENT COMPARATOR LOWER SECTION -----	PRN43

Standard:

Bypasses Power Range NI N-43 by selecting the indicated positions on the following switches:

<u>SWITCH</u>	<u>POSITION</u>
_____ COMPARATOR CHANNEL DEFEAT -----	BYPASS N43
_____ POWER MISMATCH BYPASS -----	BYPASS PR N43
_____ ROD STOP BYPASS -----	BYPASS PR N43
_____ DETECTOR CURRENT COMPARATOR UPPER SECTION -----	PRN43
_____ DETECTOR CURRENT COMPARATOR LOWER SECTION -----	PRN43

Comment:

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5 (C)

ENSURE the following Permissives are in the correct state within one hour of the Power Range Channel N-43 Failure:

<u>PERMISSIVE</u>	<u>STATE</u>
_____ P-7 POWER OPER RX TRIPS BLKD Lampbox 5M24 Window B-2 -----	OFF
_____ P-8 THREE LOOP OPERATION PERMITTED Lampbox 5M24 Window B-3 -----	ON
_____ P-9 RX/TURB TRIP BLOCKED Lampbox 5M24 Window B-4 -----	ON
_____ P-10 MAN BLOCK INT/LO PR RX TRP PERM Lampbox 5M24 Window A-2 -----	ON

Standard:

Ensures that the following Permissives are in the correct state within one hour of the Power Range Channel N-43 Failure:

<u>PERMISSIVE</u>	<u>STATE</u>
_____ <i>P-7 POWER OPER RX TRIPS BLKD</i> <i>Lampbox 5M24 Window B-2 -----</i>	<i>OFF</i>
_____ <i>P-8 THREE LOOP OPERATION PERMITTED</i> <i>Lampbox 5M24 Window B-3 -----</i>	<i>ON</i>
_____ <i>P-9 RX/TURB TRIP BLOCKED</i> <i>Lampbox 5M24 Window B-4 -----</i>	<i>ON</i>
_____ <i>P-10 MAN BLOCK INT/LO PR RX TRP PERM</i> <i>Lampbox 5M24 Window A-2 -----</i>	<i>ON</i>

Comment:

Cue:

Notes:

–TERMINATE THE JPM –

JPM STOP TIME_____

VERIFICATION OF COMPLETION

Job Performance Measure: BYPASS A FAILED POWER RANGE CHANNEL

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:

The Unit is at approximately 14% power by RCS ΔT .

INITIATING CUE:

I&C was in the process of adjusting NI channels to agree with RCS ΔT power when Power Range NI-0043 failed 5 minutes ago. The Immediate Actions (Step 1) of OPOP04-NI-0001, Nuclear Instrument Malfunction, have been completed.

You are directed to bypass the failed Power Range Channel, NI-0043, and verify Permissives in accordance with Addendum 3 of OPOP04-NI-0001, Nuclear Instrument Malfunction.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **START CCW TRAIN**

JPM NO.: **NRC S8**

REVISION: **1**

LOCATION: **Simulator**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: START CCW TRAIN

JPM No.: S8

Rev. No: 1

STP Task: T-4950, Startup a CCWS Train

STP Objective: CRO4950, Start a CCWS Train in accordance with POP02-CC-0001

Related K/A Reference: 008 A4.01, Ability to manually operate and/or monitor in the control room: CCW indications and controls. (3.3/3.1)

References: 0POP02-CC-0001, Component Cooling Water, Rev. 34

Task Normally Completed By: RO

Method of Testing: Actual Performance

Location of Testing: 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:

The plant is currently in Mode 3. RCS Temperature is being maintained at approximately 567°F. Pressurizer Pressure is 2235 psig. RCP's 1A, 1C and 1D are in service. There are no ESF DG's running in either unit.

INITIATING CUE:

You are directed to start Component Cooling Water (CCW) Train 1B in accordance with Section 10.0 of OPOP02-CC-0001, Component Cooling Water.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

CCW Train 'B' is running supplying CCW loads.

NOTE TO EXAMINER: This JPM is paired with S4 which requires an applicant to check alarms on Control Panel CP-002 where this JPM will be performed. Delay the start of this JPM until the other examiner and applicant have performed their alarm checks and have moved away from Panel CP-002.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

None

NOTES:

None

SIMULATOR SETUP:

- 1) JPMs S4 and S8 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 # 140 and verify:
 - Step Counter position annunciator light on CP-005 is out.
 - Red Light at the end of CP-010 is out.
 - ICS Annunciators have stopped counting up.
 - Steam Dump Controller is set at 8.44
- 5) Check and clean the following procedures (JPM specific):
 - 0POP02-CC-0001, Component Cooling Water
- 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.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME_____

SAT/UNSAT Performance Step: 1

Obtain a copy of 0POP02-CC-0001, Component Cooling Water

Standard:

Obtains a copy of 0POP02-CC-0001, Component Cooling Water

Comment:

The applicant should use the simulator copy of the procedure. No working copy will be provided by the Examiner.

The applicant should review Notes and Precautions.

Procedure Section 10 will be used to start the CCW train.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2

- Ensure CCW Train 'B' has been filled and vented
- Ensure only one Rad Monitor valve is open for the running CCW train
- Ensure Supplementary Cooler control switch in AUTO for CCW pump to be started.
- Ensure ECW pump associated with the CCW pump to be started is running.
- Ensure CCW/ECW mode selector switches for all trains are in OFF.

Standard:

- *Ensures CCW Train 'B' has been filled and vented*
- *Ensures CCW Train 'A' valve FV-4524 is open and FV-4525 and FV-4526 are closed*
- *Ensures Supplementary Cooler control switch in AUTO for CCW pump 'B' (Pump 1B/RM 67E, SUPP CLR 11B HM-VAH002).*
- *Ensures 'B' ECW pump in service*
- *Ensures CCW/ECW mode selector switches for all trains are in OFF.*

Comment:

When all mode switches are in OFF, alarm CCW STBY TRN NOT SELECTED will annunciate.

Applicant may line up CCW to the 'B' RHR Heat Exchanger based on the note before procedure step 10.5.

Cue:

If the applicant seeks to determine that CCW Train 'B' has been filled and vented, inform him/her that it is filled and vented.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3 (C)

- Start desired CCW pump
- If CCW pump 1B was started then ensure the following valves open:
 - CCW SPLY HDR ISOL, MOV-0314
 - CCW RET HDR ISOL, MOV-0132
 - SUPPLY ISOL, MOV-0770
 - RET ISOL, MOV-0774

Standard:

- *Starts CCW Pump '1B'*
- *Ensures the following valves open:*
 - *CCW SPLY HDR ISOL, MOV-0314*
 - *CCW RET HDR ISOL, MOV-0132*
 - *SUPPLY ISOL, MOV-0770*
 - *RET ISOL, MOV-0774*

Comment:

- The applicant may make contact a plant operator to check the pump out before starting.
- The applicant may want to make a plant announcement prior to starting the pump. DO NOT ALLOW A PLANT ANNOUNCEMENT TO BE MADE. THE PA BUTTONS ON THE COMMUNICATIONS CONSOLE HAVE BEEN TAPED OVER TO PREVENT THIS.
- Flow will be <7500 gpm on both trains because there are not enough cooling loads in service. The NOTE prior to Step 10.5 of the procedure allows a CCW train RHR Hx CCW Outlet valve to be opened as necessary to keep flow above 7500 gpm in that train.

Cue:

If the applicant acts to contact a plant operator to check out the pump before start, inform him/her that the pump is ready for a start.

If the applicant asks the plant operator if the pump had a satisfactory start, inform him/her that the pump is running satisfactory.

If the applicant informs you of the low flow condition and/or requests to open the RHR Hx CCW Outlet valve, acknowledge that flow is low and inform him/her the RHR Hx Outlet valve/s can be opened.

If the applicant seeks permission to open the train CCW to RHR Hx valve to keep CCW flow up, inform him/her they have permission. This action is allowed by a note preceding step 10.5 in the procedure.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4

- Check CCW header pressure greater than 80 psig on all running CCW trains
- Check flow on all running CCW trains is 7500-15000 gpm.
- Ensure the Supplementary Cooler is running for the CCW pump started.

Standard:

- *Checks CCW header pressure greater than 80 psig on CCW trains 'A' and 'B'*
- *Checks flow on 'A' and 'B' CCW trains is 7500-15000 gpm.*
- *Ensures the Supplementary Cooler (067E) is running for CCW pump '1B'*

Comment:

Cue:

If the applicant seeks permission to open the train CCW to RHR Hx valve to keep CCW flow up, inform him/her they have permission. This action is allowed by a note preceding step 10.5 in the procedure.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5

If desired to have a CCW Train in Standby mode of operation and pressures and flows are within values previously specified, then place a non-running CCW pump mode selector switch in Standby.

Standard:

Places the CCW/ECW TRAIN 'C' MODE SEL switch in the STANDBY position.

Comment:

Placing the CCW/ECW TRAIN 'C' MODE SEL switch to the RUN position will start the CCW Pump '1C' and the associated ECW Pump '1C' (if not running).

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 6

Ensure CCW/ECW mode selector switch for running CCW pump(s) in “OFF” or “RUN”.

Standard:

Places one of the following switches to the RUN position:

- CCW/ECW TRAIN ‘A’ MODE SEL
- CCW/ECW TRAIN ‘B’ MODE SEL

Leaves one of the following switches in the OFF position:

- CCW/ECW TRAIN ‘A’ MODE SEL
- CCW/ECW TRAIN ‘B’ MODE SEL

Comment:

The final position of the CCW/ECW Train Mode Selector Switches should be with one train in RUN, one train in STANDBY, and one train in OFF.

Cue:

If the applicant seeks information on which CCW/ECW Train Mode Selector Switch to place in RUN and which to leave in OFF, inform him/her to place ‘C’ Train in STANDBY and ‘B’ Train in RUN.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 7

Maintain CCW System temperature greater than or equal to 60°F and less than or equal to 105°F by regulating CCW HX Bypass and OUTLET valves as necessary, per Section 11.0.

Standard:

Verifies that CCW System temperature is between 60° and 105°F.

Comment:

Cue:

Notes:

–TERMINATE THE JPM –

JPM STOP TIME_____

VERIFICATION OF COMPLETION

Job Performance Measure: START CCW TRAIN

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:

The plant is currently in Mode 3. RCS Temperature is being maintained at approximately 567°F. Pressurizer Pressure is 2235 psig. RCP's 1A, 1C and 1D are in service. There are no ESF DG's running in either unit.

INITIATING CUE:

You are directed to start Component Cooling Water (CCW) Train 1B in accordance with Section 10.0 of OPOP02-CC-0001, Component Cooling Water.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **PERFORM ADDENDUM 8 SECONDARY CONTAMINATION CONTROL**

JPM NO.: **NRC P1**

REVISION: **1**

LOCATION: **UNIT 1 or UNIT 2**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: PERFORM ADDENDUM 8 SECONDARY CONTAMINATION CONTROL

JPM No.: P1

Rev. No: 1

STP Task: 80550, Respond to a SGTR with a loss of reactor coolant (subcooled recovery desired).

STP Objective: 80189, Per an Off-Normal Procedure when directed by the Control Room, describe the appropriate local operations that a Plant Operator would execute and the locations of the associated equipment.

Related K/A Reference: EPE 038 EA1.32 [4.6/4.7], Ability to operate and monitor the following as they apply to a SGTR: Isolation of a ruptured S/G

References: OPOP05-EO-EO30, Steam Generator Tube Rupture, Rev 21

Task Normally Completed By: PO

Method of Testing: Simulated

Location of Testing: Plant

Time Critical Task: NO

Alternate Path JPM: NO

Validation Time: 25 minutes

Required Materials (Tools/Equipment): Handout copy of Addendum 8, Secondary Contamination Control, to OPOP05-EO-EO30, Steam Generator Tube Rupture

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 steam generator tube rupture has occurred. The control room is implementing 0POP05-EO-EO30, Steam Generator Tube Rupture.

INITIATING CUE:

The Unit Supervisor directs you to complete 0POP05-EO-EO30, Addendum 8, Secondary Contamination Control.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Locates all components on 0POP05-EO-EO30, Addendum 8, Secondary Contamination Control, and correctly completes the addendum.

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

Addendum 8, Secondary Contamination Control, of OPOP05-EO-EO30, Steam Generator Tube Rupture

NOTES:

This JPM can be conducted on either unit. Circle desired unit **UNIT 1 / UNIT 2**

For simulation, all initial component positions are “as-found” and should not require cueing by the evaluator.

The addendum can be completed in any order.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME _____

SAT/UNSAT Performance Step: 1

Reviews procedure and proceeds to the correct unit.

Standard:

Proceeds to the correct unit.

Comment:

The applicant should obtain the required PPE for the task.

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2 (C)

Locates and properly positions Main Steam to Auxiliary Boiler valves.

Standard:

Correctly positions the following valves:

_____ *1(2)-MS-0604 MAIN STEAM TO AUX STEAM HEADER MOV-0186 BYPASS VALVE –
CLOSED*

_____ *1(2)-MS-0605 MAIN STEAM TO AUX STEAM HEADER MOV-0304 BYPASS VALVE –
CLOSED*

Comment:

Cue:

The initial valve position is “as found” if requested by the applicant.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3 (C)

Locates and properly positions Turbine Building Sump 1 Pump breakers.

Standard:

Correctly positions the following breakers:

_____ TGB SUMP #1 PUMP 1A(2A) WEST CNDSR PIT MCC 1F5 (2F5) / B2 – OPEN

_____ TGB SUMP #1 PUMP 1B(2B) WEST CNDSR PIT MCC 1F5 (2F5) / C2 – OPEN

_____ TGB SUMP #1 PUMP 1C(2C) WEST CNDSR PIT MCC 1G3 (2G3) / D1 – OPEN

_____ TGB SUMP #1 PUMP 1D(2D) WEST CNDSR PIT MCC 1G3 (2G3) / D2 – OPEN

Comment:

Cue:

The initial breaker position is “as found” if requested by the applicant.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4 (C)

Locates and properly positions Condenser Hotwell Dump Pump breaker.

Standard:

Correctly positions the following breaker:

_____ *CONDENSATE HOTWELL DUMP PUMP MCC 1F1 (2F1) / H1 – OPEN*

Comment:

Cue:

The initial breaker position is “as found” if requested by the applicant.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5 (C)

Locates and properly positions Hotwell Recirc to Secondary Makeup Tank valve.

Standard:

Correctly positions the following valve:

_____ *I(2)-CD-0124 CONDENSATE HOTWELL REJECT TO SECONDARY MAKE-UP TANK
LV-7006 OUTLET ISOL VALVE – CLOSED*

Comment:

Cue:

The initial valve position is “as found” if requested by the applicant.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 6 (C)

Locates and properly positions Condenser Return to Auxiliary Boiler valves.

Standard:

Correctly positions the following valves:

_____ *1(2)-CD-0559 CONDENSATE HOTWELL REJECT BYPASS VALVE – CLOSED*

_____ *1(2)-CD-0134 CONDENSATE HOTWELL REJECT TO SECONDARY MAKE-UP TANK
LV-7006 BYPASS VALVE – CLOSED*

Comment:

Cue:

The initial valve position is “as found” if requested by the applicant.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 7 (C)

Locates and properly positions Oily Waste System Discharge Isolation valves.

Standard:

Correctly positions the following valves:

_____ 0-0W-0021 EFFLUENT SURGE TANK TO RESERVOIR ISOLATION VALVE –
CLOSED

_____ 0-0W-0022 EFFLUENT SURGE TANK TO GROSS OIL SEPARATOR ISOLATION
VALVE – OPEN

Comment:

Cue:

The initial valve position is “as found” if requested by the applicant.

Notes:

- TERMINATE THE JPM -

JPM STOP TIME _____

VERIFICATION OF COMPLETION

Job Performance Measure: **PERFORM ADDENDUM 8 SECONDARY
CONTAMINATION CONTROL**

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 steam generator tube rupture has occurred. The control room is implementing 0POP05-EO-EO30, Steam Generator Tube Rupture.

INITIATING CUE:

The Unit Supervisor directs you to complete 0POP05-EO-EO30, Addendum 8, Secondary Contamination Control.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **ACTIONS AT AUXILIARY SHUTDOWN PANEL FOR CONTROL
ROOM EVACUATION**

JPM NO.: **NRC P2**

REVISION: **1**

LOCATION: **UNIT 1 or UNIT 2**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: ACTIONS AT AUXILIARY SHUTDOWN PANEL FOR CONTROL ROOM EVACUATION

JPM No.: P2

Rev. No: 1

STP Task: 85700, Respond to a Control Room Evacuation.

STP Objective: 85700, Respond to a Control Room Evacuation in accordance with 0POP04-ZO-0001.

Related

K/A Reference: APE 068 AA1.12 [4.4/4.4], Ability to operate and / or monitor the following as they apply to the Control Room Evacuation: Auxiliary shutdown panel controls and indicators

References: 0POP04-ZO-0001, Control Room Evacuation, Rev 31

Task Normally Completed By: RO

Method of Testing: Simulated

Location of Testing: Plant

Time Critical Task: NO

Alternate Path JPM: YES

Validation Time: 20 minutes

Required Materials

(Tools/Equipment): Student Handout copy of 0POP04-ZO-0001, Control Room Evacuation

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 Control Room is being evacuated due to a fire in the relay room. The Control Room staff is implementing 0POP04-ZO-0001, Control Room Evacuation.

INITIATING CUE:

The Unit Supervisor directs you to assume Primary Reactor Operator duties at the Auxiliary Shutdown Panel in accordance with step 9 of 0POP04-ZO-0001. You are to continue with step 10 of the procedure.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Steps 10 through 19 of 0POP04-ZO-0001 completed satisfactorily with the following equipment status:

- *Both centrifugal charging pumps secured in accordance with step 15.*
- *Letdown isolation valve LCV-465 closed in accordance with step 17.*
- *Pressurizer PORV block valves MOV-0001A and MOV-0001B open in accordance with step 19.*

JOB PERFORMANCE MEASURE INFORMATION SHEET

HANDOUTS:

Student Handout copy of 0POP04-ZO-0001, Control Room Evacuation, Rev 31.

NOTES:

This JPM can be conducted on either unit. Circle desired unit: **UNIT 1 / UNIT 2**

Communications with the control room will be simulated.

Contact the affected control room prior to commencing the JPM to obtain a set of “JPM Keys” and notify them that it may be necessary to change computer screens at the Aux Shutdown Panel (however no controls will be manipulated). The “JPM Keys” will need to be signed out by the Unit or Shift Supervisor.

All steps at the auxiliary shutdown panel will require cues.

All red/green lights will be OFF at the auxiliary shutdown panel.

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME _____

SAT/UNSAT Performance Step: 1

Reviews procedure and proceeds to the auxiliary shutdown panel.

Standard:

Proceeds to the auxiliary shutdown panel.

Comment:

Cue:

Notes:

The auxiliary shutdown panel is located on the 10' Electrical Auxiliary Building across from the elevator inside a locked room.

A set of "JPM Keys" will be required to access this room. They are obtained from the Control Room and are signed out by the Unit or Shift Supervisor.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2

(Step 10) Verify Reactor – TRIPPED

- Lower Range Flux NI-0045A indicates -
 - ONSCALE
 - CONSTANT OR LOWERING

OR

- Lower Range Flux NI-0046A indicates –
 - ONSCALE
 - CONSTANT OR LOWERING

Standard:

*Verifies instrument NI-0045A is onscale and the reading is constant or lowering **or** verifies instrument NI-0046A is onscale and the reading is constant or lowering.*

Comment:

Cue:

NI-0045A and NI-0046A indicate 4×10^4 cps (40,000 cps) and slowly lowering.

Notes:

Extended Range Nuclear Instruments can also be read on the QDPS Computer Displays and on the Plant Computer.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3

(Step 11) ESTABLISH communications per Addendum 1, Establishing ASP Communications, WHILE continuing with procedure.

Standard:

Locates and positions the following components per Addendum 1:

_____ (Step 1.a) Power supply switches PS-A, PS-B, and PS-C in OFF

_____ (Step 1.b) ESF-1 selector switch aligned to position A, B, or C

_____ (Step 1.c) SDG-1 selector is aligned to the same switch position as ESF-1

Comment:

Cue:

Initial position:

- Power supply switches PS-A, PS-B and PS-C are OFF

Final position:

- ESF-1 selector switch is aligned to whichever position the applicant chooses
- SDG-1 selector switch is aligned to the same position as ESF-1

Upon completion of Addendum 1 step 1, cue the applicant that step 2 is complete and to proceed with Step 12 of 0POP04-ZO-0001.

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 4

(Step 12) ENSURE Remote Shutdown Operators Performing addendums 2, 3, 4 and 5.

Standard:

_____ *Contacts the Operator at the ESF Train A Switchgear Room via radio or headset and ensures Addendum 2 is being performed.*

_____ *Contacts the Operator at the ESF Train B Switchgear Room via radio or headset and ensures Addendum 3 is being performed.*

_____ *Contacts the Operator at the ESF Train C Switchgear Room via radio or headset and ensures Addendum 4 is being performed.*

_____ *Contacts the Safe Shutdown Watch Operator in the TGB via radio and ensures Addendum 5 is being performed.*

Comment:

Cue:

As each station operator, acknowledge that the requested Addendum is being performed.

Notes:

Simulate radio/headset communications.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 5 (C)

(Step 13) PLACE Auxiliary Shutdown Panel switches in the ASP position.

Standard:

Correctly positions the following switches to the ASP position:

_____ *CONT XFER PORV PV-7441*

_____ *CONT XFER OCIV MOV-0019*

_____ *CONT XFER MS ISOL MOV-0143*

_____ *CONT XFER AFW REG FV-7526*

_____ *CONT XFER THROT/TRIP MOV-0514*

Comment:

Cue:

All switches:

Initial position - CR (as found)

Final position - ASP

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 6

(Step 14) ESTABLISH communications with the Shift Supervisor of the unaffected unit.

Standard:

Notifies the Shift Supervisor to perform Step 14.

Comment:

Cue:

As the Shift Supervisor, acknowledge the request.

Notes:

The Note prior to Step 14 indicates that this communication is performed by the Shift Supervisor (who is with the Reactor Operator at the Aux Shutdown Panel).

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 7 (C)

(Step 15) VERIFY both centrifugal charging pumps are secured.

Standard:

_____ *Determines CCP 1A (2A) is running and secures CCP 1A (2A) at the ASP.*

_____ *Verifies CCP 1B (2B) is secured.*

Comment:

Cue:

Initial condition

- CCP 1A (2A) - RUNNING (red light on / green light off).
- CCP 1B (2B) - SECURED (green light on / red light off).

Final condition (after applicant takes handswitch to OFF):

- CCP 1A (2A) - SECURED (green light on / red light off).

Provide indication that CCP 1B (2B) is secured when verified by the applicant (red light off / green light on).

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 8

(Step 16) VERIFY PDP SECURED.

Standard:

Verifies PDP is secured by establishing that the PDP was not running when the Control Room was evacuated.

Comment:

Cue:

Inform the applicant that the PDP was not running when the Control Room was evacuated.

Notes:

The PDP has no indication at the Aux Shutdown Panel.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 9 (C)

(Step 17) ENSURE Letdown Isolation valve LCV-465 is closed.

Standard:

Determines LCV-465 is open and closes LCV-465 utilizing the handswitch on the ASP.

Comment:

Cue:

Initial position:

- LCV-465 - OPEN (red light on / green light off).

Final position (after the applicant takes the handswitch to close);

- LCV-465 - CLOSED (green light on / red light off).

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 10

(Step 18) VERIFY reactor vessel head vent valves closed.

Standard:

Correctly verifies the following valve indication at the ASP:

_____ *Reactor Vessel Head Vent Isolation valves ISOL HV-3657A OR ISOL HV-3658A -
CLOSED.*

_____ *Reactor Vessel Head Vent Isolation valves ISOL HV-3657B OR ISOL HV-3658B -
CLOSED.*

_____ *Reactor Vessel Head Vent Throttle Valves HCV-0601 and HCV-0602 - CLOSED.*

Comment:

HCV-0601 and HCV-0602 have UP (open) and DOWN (closed) pushbuttons on their controllers. The controllers also have a Valve Position (VPI) on them. The controllers will have the DOWN pushbutton backlit green indicating that the valve is in the closed position.

Cue:

All valves:

Initial position - CLOSED (green light on / red light off)

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 11 (C)

(Step 19) OPEN Pressurizer PORV Block Valves.

Standard:

OPENS Pressurizer PORV Block Valves MOV-0001A and MOV-0001B.

Comment:

The PORV Block Valves were closed in step 4.0 prior to evacuation of the Control Room.

Cue:

Both valves:

Initial position - CLOSED (green light on / red light off).

Final position - OPEN (red light on / green light off).

Notes:

- TERMINATE THE JPM -

JPM STOP TIME _____

VERIFICATION OF COMPLETION

Job Performance Measure: **ACTIONS AT AUXILIARY SHUTDOWN PANEL
FOR CONTROL ROOM EVACUATION**

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:

The Control Room is being evacuated due to a fire in the relay room. The Control Room staff is implementing 0POP04-ZO-0001, Control Room Evacuation.

INITIATING CUE:

The Unit Supervisor directs you to assume Primary Reactor Operator duties at the Auxiliary Shutdown Panel in accordance with step 9 of 0POP04-ZO-0001. You are to continue with step 10 of the procedure.

NUCLEAR TRAINING DEPARTMENT
OPERATING JOB PERFORMANCE MEASURE

TITLE: **LOCALLY RE-ALIGN CHARGING PUMP SUCTION FROM THE
VCT TO THE RWST**

JPM NO.: **NRC P3**

REVISION: **1**

LOCATION: **UNIT 1 or UNIT 2**

JOB PERFORMANCE MEASURE INFORMATION SHEET

JPM Title: LOCALLY RE-ALIGN CHARGING PUMP SUCTION FROM THE VCT TO THE RWST

JPM No.: P3

Rev. No: 1

STP Task: T-82044, Respond to a Loss of All AC Power Condition.

STP Objective: CRO82044, Respond to a Loss of All AC Power Condition in accordance with 0POP05-EO-EC00.

Related

K/A Reference: 055 EK3.02 Loss of Offsite and Onsite Power (Station Blackout): Knowledge of the reasons for the following responses as they apply to the Station Blackout: Actions contained in EOP for loss of offsite and onsite power. (4.3/4.6)

References: 0POP05-EO-EC00, Loss of All AC Power, Rev 19.

Task Normally Completed By: PO

Method of Testing: Simulated

Location of Testing: In Plant

Time Critical Task: No

Alternate Path JPM: No

Validation Time: 15 minutes

Required Materials

(Tools/Equipment): Student Handout copy of Steps 3.h and 3.i of 0POP05-EO-EC00, Loss of All AC Power (page 7 of 37).

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 loss of all offsite power has occurred. All 4.16 KV ESF busses are de-energized. The Positive Displacement Charging Pump (PDP) has been started and is supplying seal injection

INITIATING CUE:

The Unit Supervisor directs you to re-align the Charging Pump suction from the Volume Control Tank (VCT) to the Refueling Water Storage Tank (RWST) in accordance with Step **3.h** and **3.i** of 0POP05-EO-EC00, Loss of All AC Power.

- DO NOT DISCLOSE INFORMATION BELOW THIS LINE -

COMPLETION CRITERIA:

Charging Pump suction has been re-aligned from the VCT to the RWST.

HANDOUTS:

Student Handout copy of Step 3.h and 3.i of 0POP05-EO-EC00, Loss of All AC Power.

NOTES:

JOB PERFORMANCE MEASURE CHECK SHEET

NOTE:

- Critical steps are identified by (C).
- Sequenced steps are identified by (S₁, S₂, . . .).

JPM START TIME_____

SAT/UNSAT Performance Step: 1

Obtain a copy of 0POP05-EO-EC00, Loss of All AC Power.

Standard:

Obtains a copy of 0POP05-EO-EC00, Loss of All AC Power.

Comment:

Provide the applicant with the handout copy of 0POP05-EO-EC00, Loss of All AC Power, Step 3.h and 3.i (page 7 of 37 of the procedure).

Cue:

Notes:

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 2 (C)

Locate and OPEN 1(2)-CV-MOV-0112C, CVCS CHARGING PUMPS SUCTION FROM RWST MOV OPERATOR.

Standard:

The applicant locates and opens the valve by performing the following:

- *Simulates depressing the declutch lever (the declutch lever may be held down, but this is not required).*
- *Simulates rotating the handwheel in a counter clockwise direction.*
- *Continues simulating counter clockwise rotation of the handwheel until the valve is full open (the handwheel will stop when the valve is on its open seat).*

Comment:

The as found position for this valve in the plant will be CLOSED.

Cue:

Initial Position - CLOSED (as found)

Final Position - OPEN

Notes:

The valve is located in Room 044 on the 10' elevation of the MAB.

JOB PERFORMANCE MEASURE CHECK SHEET

SAT/UNSAT Performance Step: 3 (C)

Locates and CLOSES 1(2)-CV-MOV-0112B, CVCS VOLUME CONTROL TANK OUTLET MOV OPERATOR, **OR** 1(2)-CV-MOV-0113A, CVCS VOLUME CONTROL TANK OUTLET MOV OPERATOR.

Standard:

*The applicant locates and CLOSES 1(2)-CV-MOV-0112B, CVCS VOLUME CONTROL TANK OUTLET MOV OPERATOR, **OR** 1(2)-CV-MOV-0113A, CVCS VOLUME CONTROL TANK OUTLET MOV OPERATOR, by performing the following:*

- *Simulates depressing the declutch lever (the declutch lever may be held down, but this is not required).*
- *Simulates rotating the handwheel in a clockwise direction.*
- *Continues simulating clockwise rotation of the handwheel until the valve is full closed (the handwheel will stop when the valve is on its closed seat).*

Comment:

The as found position for these valves in the plant will be OPEN.

Cue:

Initial Position - OPEN (as found, for either valve)

Final Position - CLOSED

Notes:

Both valves are located in Room 226 on the 41' elevation of the MAB.

–TERMINATE THE JPM –

JPM STOP TIME_____

VERIFICATION OF COMPLETION

**Job Performance Measure: LOCALLY RE-ALIGN CHARGING PUMP SUCTION
FROM THE VCT TO THE RWST**

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 loss of all offsite power has occurred. All 4.16 KV ESF busses are de-energized. The Positive Displacement Charging Pump (PDP) has been started and is supplying seal injection

INITIATING CUE:

The Unit Supervisor directs you to re-align the Charging Pump suction from the Volume Control Tank (VCT) to the Refueling Water Storage Tank (RWST) in accordance with Step **3.h** and **3.i** of 0POP05-EO-EC00, Loss of All AC Power.

INITIAL LICENSE EXAM

OPERATING TEST #1

SCENARIO #1

Revision # 1

Week of 12/7/2009

NOTE: THIS SCENARIO REQUIRES EXAMINER CUES

SCENARIO OUTLINE

Facility: STP

NRC Exam Scenario No.: 1

Op-Test No.: 1

Initial Conditions: 100% MOL; 913 ppm boron

Turnover: Emergency Diesel Generator #11 has been out of service 38 hours for planned routine maintenance. Work is scheduled to be complete in approximately 22 hours.

Surveillance Requirement 4.8.1.1.1.a is due in approximately 7 hours. Decrease Letdown flow by placing the 85-100 gpm orifice in service.

Event No.	Malf. No.	Event Type*	Event Description
1 (10 min)	N/A	SRO (N) RO (N)	Swap from the 120-150 gpm Letdown Orifice to the 85-100 gpm Letdown Orifice.
2 (25 min)	05-12-03 (0)	SRO (I) BOP (I)	SG 'C' Controlling Level Channel LT-539 Fails Low (Tech Spec)
3 (33min)	06-16-02 (0)	SRO (I) RO (I) BOP (I)	Turbine Impulse Channel PT-505 Fails Low (Tech Spec)
4 (45 min)	06-19-05 (0.3)	SRO (C) BOP (C) RO (R)	High Vibration on Main Turbine Bearing #5 Resulting in Down Power (Will require manual cues)
5 (75 min)	MS-18 (1) 05-01-01 (0.5)	SRO (M) BOP (M) RO (M)	Steam Line Rupture in Turbine Building with Failure of "B" Main Steam Isolation Valve to close
6 (NA)	01-35-02 (True)	SRO (C) RO (C)	Intermediate Range Nuclear Instrument NI-0036 is under compensated (Becomes evident after the Reactor Trip) (Integral to Scenario) (Tech Spec)
7 (NA)	50-AF-03 (True)	SRO (C) BOP (C) RO (C)	Failure of AFW Pump #13 (Integral to Scenario)

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

SCENARIO MISCELLANEOUS INFORMATION**INSTRUCTOR NOTES:**

Refer to the Instructor Guide 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 automatically recorded during the scenario. Once the scenario is complete for each crew, printout the Critical Parameters and label the printout with date, time, Crew # and scenario #.

- Reactor Power by ΔT and NI
- SG 'C' NR level (NOT LT-0539)
- SG 'B' AFW flow
- RCS Loop Tave (NOT Loop 'C')
- 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: Swap Letdown Orifices			
Time	Position	Required Operator Actions	Notes
	SRO	Directs the RO to place the 85 gpm orifice in service and remove the 120 gpm orifice from service per 0POP02-CV-0004, Chemical and Volume Control Subsystem	<i>During this evolution, there may be some alarms that come in temporarily. They will clear once the system has stabilized</i>
	SRO/RO	Notifies HP of pending changes in letdown flow	
	RO	Bypasses Letdown Demineralizers and notifies Chemistry they are bypassed	
	RO	Places Letdown pressure control valve PCV-0135 in manual and adjusts pressure to approximately 200 psig	
	RO	Opens the 85-100 gpm orifice isolation valve and throttles PCV-0135 to control letdown pressure	
	RO	Re-establishes a Letdown pressure of 350-380 psig	
	RO	Ensures Letdown relief valve did remain open if it lifted.	
	RO	Adjusts PCV-0135 to control letdown pressure at approximately 400 psig	
	RO	Closes the 120-150 gpm orifice isolation valve	
	RO	Re-establishes a Letdown pressure of 350-380 psig and places Letdown Pressure Control Valve, PCV-0135 in Automatic	<i>Event #2</i> can occur here once PCV-0135 is in AUTO and the Lead Examiner signals to proceed.
	RO	Returns Demineralizers to service	

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No.: #1 Event No.: 2			
Event Description: SG 'C'; Controlling Level Channel LT-539 Fails Low (Tech Spec)			
Time	Position	Required Operator Actions	Notes
	BOP	Acknowledges and reports annunciators on Control Panel CP0006: <ul style="list-style-type: none"> • SG 1C LVL DEV HI/LO • SG 1C LVL LO • SG 1C LVL LO-LO ALERT 	<i>Annunciators listed are not inclusive.</i>
	SRO/BOP C	Performs immediate actions of 0POP04-FW-0001: <ul style="list-style-type: none"> • PLACES SG 1C FEEDWATER REGULATING VALVE CONTROLLER IN MANUAL • ADJUSTS CONTROLLER OUTPUT TO MATCH FEED/STEAM FLOW AND RESTORE SG 1C LEVEL TO PROGRAM 	
	SRO (continuous)	Directs/ensures actions of 0POP04-FW-0001, Loss of Steam Generator Level Control	
	SRO	Ensures immediate actions are taken: <ul style="list-style-type: none"> • Takes manual control of 'C' MFRV • Determines SGFPT controls are responding. 	<i>MFRV – Main Feed Regulating Valve</i>
	SRO/BOP	Determines MFRV's are in service and 'C' Main. Reg Valve is responding in Manual.	
		Determines the LPFRV's are not in service.	<i>LPFRV – Low Power Feed Regulating Valve</i>
		Determines the SGFP Master Controller and individual SGFP Speed Controllers for operating SGFPT's are in AUTO.	
	SRO/BOP	Ensure appropriate Feed to steam DP.	
	BOP	Restores SG 1B NR level 68-74%	
	SRO/BOP	Ensure all SG levels 20-87.5%	

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No.: #1 Event No.: 2			
Event Description: SG 'C; Controlling Level Channel LT-539 Fails Low (Tech Spec)			
Time	Position	Required Operator Actions	Notes
	BOP	Checks SG water level control instruments for failures: <ul style="list-style-type: none"> • Level • Feed Flow • Steam Flow • Steam Pressure Identifies SG 1C level channel LT-539 has failed low.	
	SRO/BOP	Selects alternate channel for SG 1C level control.	
	BOP	Performs the following: <ul style="list-style-type: none"> • Verifies SG levels between 68% and 74% • Determines Controller is operable and places SG 1C Feed Regulating Valve in AUTO. 	
	BOP	Checks Feedpump Master Speed Controller in Auto.	
	SRO	Checks Tech Specs and determines the following apply: <ul style="list-style-type: none"> • Table 3.3-1, Item 14 (action 6) • Table 3.3-3, Item 5.b and 6.d (action 20) Both action 6 and action 20 indicate the channel can be bypassed, but must be tripped within 72 hr.	<i>Event # 3</i> will occur after TS have been consulted and on signal from Lead Evaluator.
	SRO	Notifies I&C to trip or bypass the failed channel.	

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No.: #1 Event No.: 3			
Event Description: Turbine Impulse Channel PT-505 Fails Low (Tech Spec)			
Time	Position	Required Operator Actions	Notes
	RO	Acknowledges and announces annunciators: <ul style="list-style-type: none"> • TREF/AUCT TAVG DEV • TURB IMP PRESS ROD WTHDR. BLKD 	
	RO/BOP	Determine PT-505 has failed.	
	SRO	Directs/ensures performance of 0POP04-TM-0004, Failure of Turbine Impulse Transmitter PT-505/506	
	RO	Places Rod Control in manual	<i>Rods will automatically insert due to the failure</i>
	RO	Verifies Tavg within 1.5° F of program Tavg	<i>Procedure allows withdrawal of rods up to their original position. Can also use dilution and turbine load to adjust Tavg.</i>
	SRO/BOP	Transfers steam dumps to "Pressure Control" mode	
	SRO/BOP	Defeats failed channel using IMP SEL switch	
	SRO/RO	Checks TURB IMP PRESS ROD WTHDRWL BLKD (5M02, E-5) extinguished	
	SRO/RO	Verifies Permissive P-13 is in the correct state for current plant conditions	<i>This is to comply with TS Table 3.3-1, item 19f. The correct condition is extinguished. Event #4 will occur after this TS requirement has been evaluated and the Lead Examiner signals to proceed.</i>
	SRO	Determines Reactor power is > 10% and contacts I&C to trip the bistable for the failed channel.	
	SRO	Based on PT-505 failure, leaves Rod Control in MANUAL.	

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No.: #1 Event No.: 4 Event Description: High vibration on Main Turbine Bearing #5 Resulting in Down Power			
Time	Position	Required Operator Actions	Notes
	BOP	Acknowledges and announces annunciator: <ul style="list-style-type: none"> • TURB GEN BRG VIB HI 	
	SRO	Directs/ensures performance of 0POP04-TM-0002, Turbine Monitoring Alarms	
	SRO/BOP	Determines Main Turbine Parameters Indicate an ALERT (yellow) for vibration on Main Turbine Bearing #5 and goes to procedure Addendum 2.	<i>A CUE is REQUIRED for the following information:</i> <ul style="list-style-type: none"> • #5 bearing vibration is 8 mils. • An ALERT (yellow) alarm is present. • Vibration is slowly rising. • Adjacent bearings (4 & 6) show 4 mils (green) and steady.
	SRO/BOP	Determines Main Turbine vibration is less than 14 mils.	<i>A CUE is REQUIRED:</i> <i>If asked for vibration data after the initial report, indicate # 5 bearing vibration is continuing to rise in 0.25 or 0.5 mil increments with each report given. DO NOT give a reading > 12 mils.</i>
	SRO/BOP	Determines Exciter Bearing Vibration is < 7 mils.	<i>A CUE is REQUIRED:</i> <i>Indicate that the Exciter Brg. vibration is 4 mils and steady.</i>
	SRO/BOP	Checks Main Turbine Lube Oil Cooler discharge temperature is 110-120 °F.	
	SRO/BOP	Monitors Main Turbine Bearing Drain Oil and Bearing Metal Temperatures on plant computer: <ul style="list-style-type: none"> • Main Turbine Bearing Metal Temperature is less than 210° F • Main Bearing Drain Oil Temperature is less than 175° F 	<i>All temperatures are within specification</i>

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No.: #1 Event No.: 4			
Event Description: High vibration on Main Turbine Bearing #5 Resulting in Down Power			
Time	Position	Required Operator Actions	Notes
	SRO	Dispatches a Plant Operator to check Seal Oil temperatures.	
	SRO/BOP	Checks Main Turbine bearing metal temperature is < 225 °F.	
	SRO	Determines Main Turbine Vibration is greater than 7 mils and contacts System Engineer for additional guidance	<i>One minute after contacting the System Engineer, the Operations Manager will direct the Unit Supervisor to lower turbine load 100 MW at 2% per minute per OPOP04-TM-0005, Fast Load Reduction.</i>
	SRO	Resets Turbine Vibration Alarm.	<i>A CUE is REQUIRED: Inform the SRO that an extra RO will shortly reset the alarm.</i>
	SRO	Transitions to OPOP04-TM-0005, Fast Load Reduction, to commence lowering power.	
	ALL	Commence a load reduction to evaluate the effects of turbine load on vibration <ul style="list-style-type: none"> • Commences boration • Ensures Control Rods are in AUTO • Turbine load reduces • Monitor key parameters <ul style="list-style-type: none"> ○ Gen MVARs ○ Tavg deviation ○ Pzr Level ○ RCS Pressure ○ SG Level ○ MSR Temperatures 	<i>Rods cannot be placed in AUTO due to PT-505 failure.</i> <i>Event 5 will occur once sufficient power reduction has been performed and the Lead Examiner signals to proceed.</i>

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No.: #1 Event No.: 4			
Event Description: High vibration on Main Turbine Bearing #5 Resulting in Down Power			
Time	Position	Required Operator Actions	Notes
	SRO/BOP	Check Steam Dumps armed.	<i>Steam Dumps will be armed because they are in Steam Pressure Mode.</i>
	SRO/BOP	Monitor Steam Dumps responding to Tave/Tref error.	<i>Steam Dumps will not respond to temperature error. The operators will have to maintain Tavg within 3°F of Tref.</i>
	SRO/BOP	Ensures Main Turbine is being operated within limits of Addendum 1, Main Turbine Exhaust Pressure Limitations.	
	SRO/RO	Checks Reactor power. If $\geq 95\%$, cannot proceed until power is below 95%.	<i>Event 5</i> will occur once sufficient power reduction has been performed and the Lead Examiner signals to proceed.

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No.: #1 Event No.: 5 Event Description: Steam Line Rupture in Turbine Building with Failure of “B” Main Steam Isolation Valve to close			
Time	Position	Required Operator Actions	Notes
	ALL	Responds to: <ul style="list-style-type: none"> Increasing Steam Flow SG LEVEL DEVIATION ALARMS 	<i>Reports of loud noise in Turbine Building</i>
	ALL	Diagnose Reactor Trip and Steam Break	
	SRO	Directs/ensures crew enters 0POP05-EO-EO00, Reactor Trip or Safety Injection	<i>Conditions will exist for Main Steam Isolation.</i>
	RO/BOP	Completes immediate actions of EO00. Reactor Trip/SI: <ul style="list-style-type: none"> Reactor Tripped Turbine Tripped AC ESF Busses energized SI actuated or required 	<i>Conditions for Safety Injection will quickly develop during this time.</i>
	SRO	Directs/ensures the immediate actions of EO00, Reactor Trip/SI have been completed	
	SRO/BOP	Directs BOP to perform Addendum 5, Verification of SI Equipment Operation <ul style="list-style-type: none"> FW Isolation Check for Steamline Isolation AFW Status Phase ‘A’ Containment Isolation ECW and CCW Containment Cooling ECCS pump and valve status Containment Ventilation Isolation HVAC systems (CR/EAB/FHB) 	<ul style="list-style-type: none"> <i>If not already done, will attempt to close MSIV ‘B’ using handswitch when verifying Steamline Isolation. May dispatch an operator to fail closed locally.</i> <i>Should place # 12 AFWP in PTL to stop feeding the faulted SG.</i> <p><u>Event #7</u> AFW pump #13 failed to start on SI signal. Addendum 5 will identify the pump failure to start.</p>

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No.: #1 Event No.: 5			
Event Description: Steam Line Rupture in Turbine Building with Failure of “B” Main Steam Isolation Valve to close			
Time	Position	Required Operator Actions	Notes
	SRO/RO	Check plant status: <ul style="list-style-type: none"> • RCP Seal cooling • RCS cooldown • Pzr PORV and Spray valve status • Excess Letdown Isol Valves • Monitor if RCP’s should be stopped. • Selected Cntmt Isolation Valves 	<i>RCP’s should be stopped by now.</i>
	SRO/RO	Determines SG “B” is faulted	
	BOP	Completes Addendum 5. Reports MSIV “B” would not close and that AFW Pump #13 was manually started	<i>May not complete until after transition to EO20.</i>
	SRO	Informs crew of transition to EO20, Faulted SG Isolation, and to monitor Critical Safety Functions	
	SRO/BOP	Check MSIV’s and MSIB’s closed. Determines MSIV “B” will not close and dispatches an operator for local operation (Addendum 1)	<i>MSIV is mechanically bound and will not close locally</i>
	SRO	Directs Addendum 3 be performed upon report that MSIV “B” will not close.	
		Checks pressures in all SG’s and determines ‘B’ SG is faulted.	

OPERATOR ACTIONS (Cont')

Op-Test No.: #1 Scenario No.: #1 Event No.: 5			
Event Description: Steam Line Rupture in Turbine Building with Failure of "B" Main Steam Isolation Valve to close			
Time	Position	Required Operator Actions	Notes
	ALL (C)	Isolates the faulted SG ("B") <ul style="list-style-type: none"> • Verifies FWIV's closed • Verifies FWIB's closed • Verifies FW Preheater bypass valves closed • Verifies FW regulating and low power FW regulating valves closed • Isolates AFW flow <ul style="list-style-type: none"> ○ Reset SI ○ Reset ESF load sequencers ○ Reset SG LO-LO level AFW actuations ○ Check SG 1D intact ○ Closes AFW OCIV • Verifies SG "B" PORV closed • Verifies Blowdown and sample isolation valves closed 	
	ALL	Check Secondary Radiation	<i>Secondary radiation levels are normal</i>
	ALL	Check is SI flow should be terminated <ul style="list-style-type: none"> • RCS subcooling - >35° F • Secondary heat sink – NR in one SG > 14% OR total AFW Flow > 576 gpm. • RCS pressure criteria > 1745 psig, stable or rising • Pressurizer level > 8% 	<i>Conditions may or may not be met for transition.</i> <i>If met, the crew will transition to 0POP05-EO-ES11, SI Termination.</i> <i>If not met, the crew will transition to 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant until conditions are met for transition to ES11.</i>
	SRO	Determines SI cannot be terminated and transitions to 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant.	
	SRO	Determines RCPs are secured.	
	SRO	Determines RCS pressure is above 415 psig and below 1985 psig. <ul style="list-style-type: none"> • Blocks Low Steamline Pressure SI. 	

OPERATOR ACTIONS (Cont')

Op-Test No.: #1 Scenario No.: #1 Event No.: 5			
Event Description: Steam Line Rupture in Turbine Building with Failure of "B" Main Steam Isolation Valve to close			
Time	Position	Required Operator Actions	Notes
	SRO/BOP	Depressurizes intact SGs to 990-1000 psig using SG PORV's.	<ul style="list-style-type: none"> • <i>Condenser isn't available due to Main Steam Isolation earlier.</i> • <i>SG pressures may already be below 1000 psig.</i>
	SRO/BOP	Once SG pressures are established below 1000 psig: <ul style="list-style-type: none"> • Adjust SG PORV Controller setpoints to 990-1000 psig. • Verifies SG PORV Controllers are in AUTO • Verifies SG PORV's are controlling pressure properly. 	<i>'B' SG Controller is in MANUAL due to loss of 4160v Bus E1B earlier.</i>
	SRO/BOP	Determine no faulted SGs exist that haven't been isolated.	
	SRO/RO	RESET: <ul style="list-style-type: none"> • SI • ESF Load Sequencers • Phase A • Phase B 	
	SRO/BOP	Control AFW flow to SGs to control NR levels 22%(34%) – 50% <ul style="list-style-type: none"> • Maintain AFW flow >576 gpm until at least 1 SG NR is > 14% (34%) 	<i>SI termination conditions should be satisfied by now. When they are, the SRO should transition to 0POP05-EO-ES11, SI Termination.</i>
	ALL	Determine conditions exist for SI termination.	

OPERATOR ACTIONS (Cont')

Op-Test No.: #1 Scenario No.: #1 Event No.: 5 Event Description: Steam Line Rupture in Turbine Building with Failure of "B" Main Steam Isolation Valve to close			
Time	Position	Required Operator Actions	Notes
	SRO	Transitions to 0POP05-EO-ES11, SI Termination.	
		Resets the following: <ul style="list-style-type: none"> • SI • ESF Load Sequencers • Containment Isolation Phase 'A' • Containment Isolation Phase 'B' 	<i>These systems have been previously reset.</i>
	SRO/BOP	Align IA to RCB	
	ALL	Place SFP Cooling in service: <ul style="list-style-type: none"> • Verifies ≥ 2 CCW Pumps in service. • Aligns CCW to the SFP Hx • Ensures a SFPC Pump is running 	
	SRO/RO	Stops LHSI and HHSI Pumps and places them in AUTO.	<i>Terminate Scenario.</i>

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No.: #1 Event No.: 6			
Event Description: Intermediate Range Channel N36 failure of Compensating Voltage			
Time	Position	Required Operator Actions	Notes
	RO	Determines IR Channel N36 has failed in high direction (under-compensated) and informs SRO.	<i>This event will not be apparent until 15-20 minutes after the reactor trip</i>
	SRO	Directs RO to manually energize Source Range Instruments once Intermediate Range N35 is below 10^{-10} amps	
	RO	Manually energizes Source Range Instruments with the SR TRN R and S BLOCK/UNBLOCK switch on CP-005	
	RO	Determines both Source Range Instruments are reading properly, reports status to SRO	

OPERATOR ACTIONS (Cont')

Op-Test No.: #1 Scenario No.: #1 Event No.: 7			
Event Description: Failure of AFW Pump #13 to start on SI signal (Integral to Scenario)			
Time	Position	Required Operator Actions	Notes
	BOP	During performance of Addendum 5 of 0POP05-EO-EO00, determines that AFW Pump #13 failed to start automatically	<i>This event occurs after reactor trip and SI</i>
	BOP	Manually starts AFW Pump #13	

CRITICAL TASK SUMMARY

POSITION	EXPECTED RESPONSE	ACCEPTANCE CRITERIA	SAT/ UNSAT
SRO/BOP C	Performs immediate actions of 0POP04-FW-0001: <ul style="list-style-type: none"> PLACES SG 1C FEEDWATER REGULATING VALVE CONTROLLER IN MANUAL ADJUSTS CONTROLLER OUTPUT TO MATCH FEED/STEAM FLOW AND RESTORE SG 1C LEVEL TO PROGRAM 	Manually controls SG "C" level such that a manual or automatic reactor trip does not occur	
ALL (C)	Isolates SG "B" <ul style="list-style-type: none"> FWIV's FWIB's FW Preheater bypass valves FW regulating and low power FW regulating valves AFW flow <ul style="list-style-type: none"> Reset SI Reset ESF load sequencers Reset SG LO-LO level AFW actuations Check SG 1D intact AFW OCIV SG "B" PORV Blowdown and sample isolation valve 	Isolate Auxiliary Feedwater flow to SG "B" prior to transition out of 0POP05-EO-EO20, Faulted Steam Generator Isolation	

TURNOVER INFORMATION

- Reactor Power is 100%. Maintain stable conditions.
- ESF Diesel Generator #11 has been out of service for 38 hours for planned maintenance (Turbocharger bearing replacement). 0PSP03-EA-0002, ESF Power Availability, is due in 7 hours. The diesel is expected to be returned to service in 22 hours.
- After assuming the watch, place the 85-100 gpm Letdown Orifice in service and remove the 120-150 gpm orifice from service in accordance with 0POP02-CV-0004, Chemical and Volume Control System Subsystem. This is to support a Chemistry evaluation the CVCS.
- Cycle Burnup is 10000 MWD/MTU (MOL)
- RCS Boron Concentration is 913 ppm
- Dilutions to maintain current power are approximately 10 gallons every half hour. Total Batch Integrator set at 10 gallons, getting 11.
- Boric Acid Tanks 'A' and 'B' are at 7380 ppm.
- 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.
- This IS the Load Control Unit

INITIAL LICENSE EXAM

NRC OPERATING TEST # 1

SCENARIO # 2

Revision # 1

Week of 12/7/2009

SCENARIO OUTLINE

Facility: STP

NRC Exam Scenario No.: 2

Op-Test No.: 1

Initial Conditions: 3% MOL; 1500 ppm boron

Turnover: Continue with the plant startup. Currently at Step 6.2 of 0POP03-ZG-0005, Plant Startup to 100%. Condensate Pump #12 and Feedwater Booster Pump #11 are OOS for corrective maintenance.

Event No.	Malf. No.	Event Type*	Event Description
1 (18 min)	N/A	SRO (N) RO (R) BOP (N)	Raise power to between 6 and 8%
2 (28 min)	10-12-02 (True)	SRO (C) BOP (C) RO (C)	Loss of MCC E1A2 (Tech Spec)
3 (35 min)	Rose Dwg SAP 013S	SRO (C) BOP (C)	Steam Dump Valve PV-7496 fails open
4 (50 min)	02-19-03 (1)	SRO (I) RO (I)	Pressurizer Pressure PT-457 fails high. PORV PCV-0655A does not fully re-seat after opening. (Tech Spec)
5 (NA)	02-13-01 (0.5)	SRO (C) RO (C)	Pressurizer PORV 0655A fails to fully close (integral to the scenario)
6 (80 min)	50-HV-01 (1)	SRO (M) BOP (M) RO (M)	Leaking PZR PORV PCV-0655A fails open
7 (NA)	04-09-08 (1)	SRO (C) BOP (C)	Essential Chiller 12A fails to start. (integral to the scenario)

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

SCENARIO MISCELLANEOUS INFORMATION**INSTRUCTOR NOTES:**

Refer to the Instructor Guide 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 automatically recorded during the scenario. Once the scenario is complete for each crew, printout the Critical Parameters and label the printout with date, time, Crew # and scenario #.

- Reactor Power by ΔT and NI
- DA Level
- Pressurizer Pressure (NOT PT-457)
- HHSI Pump Status
- Pzr PORV 0655A position

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.: 2 Event No.: 1

Event Description: Raise Power to between 6 and 8%

Time	Position	Applicant's Actions or Behavior	Notes
	SRO	Directs the Reactor Operator to commence raising power to between 6 and 8% with control rods in MANUAL.	<i>Power increase should be within 10 %/hr., not to exceed 12 %/hr.</i>
	RO	Withdraws Control Rods to raise reactor power.	<i>Rod withdrawal should be incremental and timed to maintain the rate of power rise within prescribed limits.</i>
	RO/BOP	Verifies Steam Dumps are controlling Tave 568 °F and 570 °F.	
	SRO/RO	When Mode 1 is entered, record Unit, time and date.	
	SRO/BOP	Verify FWIV actuators pressure is ≥ 750 psig.*	<i>This action must be performed by a Plant Operator..</i>
	SRO/BOP	Ensure 2 CARS Pumps are in service.*	<i>Event 2 can occur here once power has been raised and Lead Evaluator signals to proceed.</i>

* SRO may or may not do these steps before reaching 6-8% Reactor power.

OPERATOR ACTIONS

Op-Test No.: # 1 Scenario No.: 2 Event No.: 2 Event Description: Loss of 480 VAC MCC E1A2			
Time	Position	Applicant's Actions or Behavior	Notes
	RO	Acknowledges and responds to the following alarms: <ul style="list-style-type: none"> • 125V DC SYSTEM E1A11 TRBL • Numerous BYP/INOP alarms 	<i>These are symptoms of loss of the MCC.</i>
	SRO/RO	Enters 0POP09-AN-03M2, window A1 and 0POP09-AN-03M3 window A4	
	RO	Checks Bus E1A11 indications at CP-003: <ul style="list-style-type: none"> • Volts • Amps • Charger Current Determines there is no battery charger supplying 125 VDC Bus E1A11, bus is energized from it's battery	
	RO/BOP	Checks computer points to determine Bus E1A11 status.	<i>Should note 'Trouble' on #1 Charger and E1A11 Switchboard.</i>
	SRO/RO/BOP	Dispatches an operator to determine cause of E1A11 alarm.	
	ALL	Determines 480V MCC E1A2 is de-energized.	
	SRO	Determines Bus E1A11 must be re-energized by a charger within 15 minutes or Battery E1A11 will be inoperable	<i>This is a Tech Spec consideration.</i>

OPERATOR ACTIONS

Op-Test No.: # 1 Scenario No.: 2 Event No.: 2			
Event Description: Loss of 480 VAC MCC E1A2			
Time	Position	Applicant's Actions or Behavior	Notes
	SRO	Directs Plant Operator to place the standby Charger in service on Bus E1A11 per OPOP02-EE-0001	<i>The crew may perform a 'Control Loop Alignment' before placing the Standby Charger in service to ensure controls are not selected to inst. powered from that train.</i>
	SRO	Refers to Tech Specs *	<ul style="list-style-type: none"> • <i>The SRO will likely review the TS referenced in the Annunciator Response Procedure at this time, however, there are other TS that apply. It's recommended the TS evaluation be done after the scenario is terminated to allow sufficient time.</i> • <i>Event #3 can occur once the Standby Charger has been placed in service and on the Lead Evaluator signal.</i>
	ALL	May perform Board walkdowns and/or refer to prints to determine effects of loss of 480V MCC E1A2.	

* DUE TO MULTIPLE TECH SPECS, THE TS EVALUATION FOR THIS EVENT SHOULD BE DONE FOLLOWING TERMINATION OF THE SCENARIO.

THE NEXT PAGE PROVIDES THE DETAILS OF HOW THE TECH SPEC EVALUATION SHOULD BE CONDUCTED.

OPERATOR ACTIONS (Cont')**Op-Test No.:** # 1**Scenario No.:** # 2**Event No.:** 2**Event Description:** Loss of 480v MCC E1A2 (cont'd)

Time	Position	Required Operator Actions	Notes
<p><u>Examiner Note:</u> The intent of the Tech Spec evaluation is to determine if the candidate can identify at least one of the most limiting Tech Spec actions that apply under the prescribed conditions.</p> <p>Conduct the evaluation as follows:</p> <ol style="list-style-type: none"> 1) Provide the candidate with a copy of the initial conditions of the scenario if he/she does not have theirs available (there's a copy attached to the back of this scenario lesson). 2) Ask the candidate the following: <p>“Given the initial conditions of the scenario, and taking into account the loss of the ESF 480v MCC E1A2, that occurred after power was raised to 6-8%, – were there any Tech Specs that needed to be considered?” <u>The simulator CAN be used to evaluate Tech Spec requirements.</u></p> <p>If the answer is no – then terminate the Tech Spec evaluation.</p> <p>If the answer is yes, ask the candidate to identify at least 3 Tech Specs that would apply (see listing of TS below) under the conditions provided (initial conditions of the scenario and loss of the 480v MCC) including one of the most limiting (MARKED BY **).</p> <p>If after 5-7 minutes the candidate has not identified at least one of the most limiting conditions (MARKED BY **) below, ask him/her if there are any actions that would apply at 24 hr. or less.</p> <ul style="list-style-type: none"> • 3.4.4 ** RCS Relief Valves, Action d due to loss of power to PORV Block Valve MOV-0001A: 1 hr. action that has already been satisfied by placing the PORV in the closed position. • 3.8.2.1.a ** DC Sources, Action a, due to no Battery Charger connected to 125 VDC Bus E1A11: 2 hr. action, but will not apply once the Standby Charger is placed in service. • 3.6.3 ** Containment Isolation, action a-d due to valves MOV-0025 losing power: 24 hr. action. ▪ 3.5.2 ECCS, action a due to multiple valves without power on ‘A’ Train ECCS: 7 day action or apply CRMP. ▪ 3.7.3 Component Cooling Water, action a due to multiple valves without power on ‘A’ Train CCW: 7 days. <p>NOTE: There may be others, but these are the major ones that exist.</p> 			

OPERATOR ACTIONS

Op-Test No.: 1 Scenario No.: 2 Event No.: 3

Event Description: Steam Dump Valve PV-7496 fails open

Time	Position	Applicant's Actions or Behavior	Notes
	RO	Notes the following: <ul style="list-style-type: none"> Reactor power rising RCS Tavg lowering RCS Pressure lowering Pzr level lowering 	
	BOP	Notes that position indication light of Steam Dump PV-7496 shows the valve is open (RED)	<i>Operator may not see this indication immediately as other Steam Dumps are open at this time and indicate RED.</i>
	ALL	Determine there is excessive steam demand	<i>This action can be taken any time during this event.</i>
	SRO	Enters 0POP04-MS-0001, Excessive Steam Demand.	<i>SRO may also use Addendum 13 of 0POP03-ZG-0005.</i>
	SRO/RO	Determines Reactor power is $\leq 100\%$	
	SRO/BOP	Checks Steam Dump Valves closed and determines PV-7496 is open.	
	SRO/BOP	Places Train 'A' and 'B' INTLK SEL SW. to the OFF/RESET position.	<i>This step is optional depending on whether the SRO determines if the Steam Dumps can be closed or not. It's likely they will all be closed by this time.</i>
	SRO/BOP	Dispatches a Plant Operator to manually isolate the stuck open Steam Dump.	
	SRO/BOP	Once the failed open Steam Dump valve is isolated, the Train 'A' and 'B' INTLK SEL SW. are returned to the ON position.	<i>This step will not be necessary if the switches were not re-positioned to begin with.</i>
	SRO	Evaluates for Unit Shutdown based on: <ul style="list-style-type: none"> Leak size Leak location Loss of secondary inventory Whether MSIV's need to be closed. 	<u>Event # 4</u> can occur here on the Lead Evaluator's signal.
	SRO	Determines shutdown is not required and maintains current power level.	

OPERATOR ACTIONS

Op-Test No.: 1 Scenario No.: 2 Event No.: 4 and 5			
Event Description: Pressurizer pressure controlling channel (PT-457) fails high			
Time	Position	Applicant's Actions or Behavior	Notes
	RO	Identify and respond to annunciators on CP004 indicative of a failed Pressurizer pressure channel: <ul style="list-style-type: none"> • PRZR PRESS DEV LO/BU HTRS ON • PRZR PRESS LO PORV BLKD • PRZR PRESS HI RX TRIP ALERT 	
	RO	Diagnoses a failed Pressure channel (high) and informs the SRO.	
	RO	De-selects the failed channel	<i>This is an immediate action step</i>
	SRO (continuous)	Enters 0POP04-RP-0001, Loss of Automatic Pressurizer Pressure Control.	
	RO/SRO	Determine PT-457 is inoperable and the immediate actions have been taken.	
	RO	Checks Pressurize Pressure Controller operable	
	SRO/RO (C)	Checks Pressurizer PORV's closed. Determines PORV 655A is not full closed and manually closes the valve.	<i>This is Event #5. Actions may be performed sooner if the crew diagnoses the open PORV earlier.</i>
	RO	Checks normal spray valves are closed and spray line temperature normal.	
	RO	Checks Auxiliary Spray Valve closed.	
	RO	ENSURES Pressurizer pressure between 2210 and 2250; Ensures Pzr Heaters are energized appropriately if pressure is low.	<i>There's also a continuous action step to maintain a pressure band of 2210-2250</i>
	RO	Ensures an operable Pressurizer Pressure channel is selected on CP-005 Pressure Recorder.	
	RO	Checks Pressurizer Pressure Controller is operable and that the output is correct for current plant conditions.	

Time	Position	Applicant's Actions or Behavior	Notes
	RO	Checks the following Pressurizer Pressure features: <ul style="list-style-type: none"> • Spray Valves in Auto • Heaters in Auto • PORV's in Auto • PORV Block Valves open • Pressure Controller in Auto • Pressure 2220-2250 psig 	<i>-Except for failed PORV</i>
	SRO	NOTIFIES I&C to trip or bypass bistables for the failed channel Addendum 1 and INITIATES corrective action.	
	SRO/RO	Determine P-11 status appropriate for plant conditions.	<i>This is for Tech Spec compliance. The status light should be out.</i>
	SRO	Refers to Technical Specifications and determines that Table 3.3.1 action 6 and 3.3.3 action 20 currently apply for the failed channel (72 hr.) T.S. 3.4.4, Action a or b applies for inoperable PORV.* Both are 1 hr. actions. T.S 3.4.4, Action d applies for the inoperable PORV Block Valve (due to loss of power to MCC E1A2). This is a 1 hr. action.	<i>Both TS table 3.3-1 and 3.3-2 indicate the channel MAY be bypassed, but MUST be tripped within 72 hr. Event # 6 will occur here once Lead Examiner indicates so. T.S. 3.4.4 items are all 1 hr. action statements.</i>

* TS action is dependent on whether the PORV leakage can be classified as 'excessive seat leakage'. The difference in action is whether power is removed from the block valve or not, however, with a loss of MCC E1A2 earlier in the scenario, the block valve has no power.

OPERATOR ACTIONS (Cont')

Op-Test No.: # 1 Scenario No.: 2 Event No.: 6			
Event Description: PORV 655A fails open, cannot be isolated			
Time	Position	Applicant's Actions or Behavior	Notes
	RO	Determines RCS pressure is lowering due to Pressurizer PORV PCV-0655A failing open.	
	SRO	Directs the Reactor Operator to trip the Reactor and Initiate Safety Injection and enters 0POP05-EO-EO00, Reactor Trip or Safety Injection	<i>There may not be time to manually initiate a Reactor Trip or Safety Injection. If these actions occur automatically, the crew would then enter the Reactor Trip/SI procedure (0POP05-EO-EO00).</i>
	RO/BOP	Complete immediate actions of EO00, Reactor Trip/SI: <ul style="list-style-type: none"> • Reactor tripped • Turbine tripped • AC ESF Busses energized • Determines SI is actuated or required 	
	SRO	Directs/ensures the immediate actions of EO00, Reactor Trip/SI have been completed.	
	ALL (continuous)	Monitor for RCP trip criteria: <ul style="list-style-type: none"> • RCS Pressure < 1430 psig • At least 1 HHSI Pump running 	<ul style="list-style-type: none"> - <i>Conditions may exist by this time to trip the RCPs.</i> - <i>Monitoring for trip criteria is a continuous action step in this procedure, thus the crew should trip RCPs when the trip criteria is satisfied.</i>
	ALL continuous (C)	WHEN RCP TRIP CRITERIA EXISTS, THE RCPS ARE TRIPPED BEFORE EXITING 0POP05-EO-EO00.	

OPERATOR ACTIONS (Cont')

Op-Test No.: # 1 Scenario No.: 2 Event No.: 6			
Event Description: PORV 655A fails open, cannot be isolated			
Time	Position	Applicant's Actions or Behavior	Notes
	SRO/BOP	Directs BOP to perform Addendum 5, Verification of SI Equipment Operation <ul style="list-style-type: none"> FW Isolation Check for Steamline Isolation AFW Status Phase 'A' Containment Isolation ECW and CCW Containment Cooling ECCS pump and valve status Containment Ventilation Isolation HVAC systems (CR/EAB/FHB	<i>Should note that Essential Chiller # 12A failed to start. Refer to Event 7 Operator Actions.</i> <i>- MOV-0025 cannot close due to loss of power, can be closed from the field.</i>
	SRO/RO	Determines Containment Spray is not required.	
	SRO/RO	Check plant status: <ul style="list-style-type: none"> RCP Seal cooling RCS cooldown Pzr valve status Excess Letdown Isol Valves Selected Cntmt Isolation Valves 	<ul style="list-style-type: none"> <i>The MSIV's will likely have to be closed due to cooldown (low decay heat, no RCP's).</i> <i>Procedure step for checking Pzr Valve status requires a transition to EO10 because a PORV is open and cannot be closed or isolated.</i>
	SRO	Transitions to 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant.	
	ALL	Implement Critical Safety Functions once EO00 Addendum 5 complete.	
	ALL continuous	Monitor if RCPs should be tripped: <ul style="list-style-type: none"> RCS Pressure < 1430 psig At least 1 HHSI Pump running 	<i>RCPs should have been tripped prior to exiting 0POP05-EO-EO00.</i>
	SRO/RO	Determines RCS pressure is > 415 psig, < 1985 psig and Blocks Low Steamline Pressure SI.	

OPERATOR ACTIONS (Cont')

Op-Test No.: # 1 Scenario No.: 2 Event No.: 6 (cont'd)			
Event Description: PORV 655A fails open, cannot be isolated			
Time	Position	Applicant's Actions or Behavior	Notes
	SRO/RO	De-pressurize SG's to below 1000 psig and adjusts: <ul style="list-style-type: none"> • Steam Dumps set to maintain 980-994 psig • SG PORVs set to maintain 995-1000 psig 	<i>SG pressures may already be <1000 psig If a Main Steam Isolation has occurred, only the SG PORV's need be adjusted. If the condenser isn't available, the SG PORV's will be used to control SG pressure.</i>
	SRO/BOP	Determine SG's are intact	
	RO	Resets actuation systems: <ul style="list-style-type: none"> • SI • ESF Sequencers • Phase 'A' • Phase 'B' 	
	BOP	Check intact SG levels > 14% NR. Control AFW to maintain levels 22-50%	
	BOP	Checks for secondary radiation: <ul style="list-style-type: none"> • Resets SG Blowdown and Sample Isolation. • Notifies Chemistry to sample SGs. • Checks Rad Monitors 	<i>The stuck open PORV will re-seat during this step. This will cause the RCS to re-pressurize and drive a transition to OPOP05-EO-ES11, SI Termination.</i>
	RO	Checks Pressurizer PORV and PORV Isolation Valve status	<i>PORV 655A will still be stuck open & cannot be closed or isolated (isolation valve is without power).</i>
	BOP	Establishes Inst. Air to Containment	
	RO	Monitor Containment H2 - Places H2 Monitors in service	

OPERATOR ACTIONS (Cont')

Op-Test No.: # 1 Scenario No.: 2 Event No.: 6 (cont'd)			
Event Description: PORV 655A fails open, cannot be isolated			
Time	Position	Applicant's Actions or Behavior	Notes
	SRO/RO	Ensure Spent Fuel Pool Cooling is in service within 2.5. hrs. <ul style="list-style-type: none"> • CCW Pump Running • CCW aligned to SFP Hx • SFP Pump running 	
	SRO/RO	Check if Charging flow has been established: <ul style="list-style-type: none"> • At least one CCP running • Charging Flow established • Control Charging flow to restore Pressurizer level. 	<i>Operator will have to re-establish charging flow because the Charging OCIV was manually closed earlier.</i>
	SRO/RO	Check if SI can be terminated: <ul style="list-style-type: none"> • RCS subcooling > 35 °F • Heat Sink (> 576 gpm AFW or 1 SG > 14% NR) • RCS pressure > 1745 & stable • Pressurizer level > 8% 	<i>These criteria will be met at this time or shortly thereafter.</i>
	SRO/RO	Monitor if Containment Spray should be stopped.	<i>Containment Spray did not actuate.</i>
	SRO	Determines SI Termination Criteria is met and transitions to 0POP05-EO-ES11, SI Termination.	<i>This transition is also on the CIP.</i>
	SRO/RO	Resets actuation systems: <ul style="list-style-type: none"> • SI • ESF Sequencers • Phase 'A' • Phase 'B' 	<i>These actuation systems were reset earlier in EO10.</i>
	SRO/BOP	Establishes Inst. Air to Containment	<i>This action was performed earlier in EO10.</i>
	SRO/RO	Ensure Spent Fuel Pool Cooling is in service within 2.5. hrs. <ul style="list-style-type: none"> • CCW Pump Running • CCW aligned to SFP Hx • SFP Pump running 	<i>This action was performed earlier in EO10.</i>

OPERATOR ACTIONS (Cont')

Op-Test No.: # 1 Scenario No.: 2 Event No.: 6 (cont'd)			
Event Description: PORV 655A fails open, cannot be isolated			
Time	Position	Applicant's Actions or Behavior	Notes
	SRO/RO	Stop SI Pumps and place them in AUTO: <ul style="list-style-type: none"> • HHSI • LHSI 	<i>Approximately 2 minutes after securing HHSI Pump 'A', the PORV will re-open.</i>
	SRO/RO	Check if Charging flow has been established: <ul style="list-style-type: none"> • At least one CCP running • Charging Flow established Control Charging flow to restore Pressurizer level.	<i>This action was performed earlier in EO10, however charging flow was likely not initiated because of high Pressurizer level.</i>
	SRO/RO	Monitors for SI re-initiation criteria: <ul style="list-style-type: none"> • RCS subcooling > 35 °F • Pressurizer level > 8% 	
	SRO/RO	Monitor if Containment Spray should be stopped.	<i>Containment Spray is not in service.</i>
	SRO/RO	Verifies all control rods are fully inserted.	
		Checks if Letdown can be established.	
	ALL	Determines RCS pressure and subcooling lowering. Recognizes the Pzr PORV has re-opened.	<i>This condition will occur once the Pzr PORV re-opens.</i>
	SRO/RO (C)	DETERMINES RCS SUBCOOLING WILL BE LOWERING BELOW 35 °F OR IS BELOW 35 °F AND MANUALLY STARTS SI PUMPS.	
	SRO	Transitions to 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant.	<i>Terminate Scenario</i>

OPERATOR ACTIONS (Cont')

Op-Test No.: # 1 Scenario No.: 2 Event No.: 7			
Event Description: 12A Essential Chiller Fails to Start			
Time	Position	Required Operator Actions	Notes
	BOP	Determines Essential Chiller 12A has not started.	
	BOP	Attempts a manual start of Essential Chiller 12A.	<i>Per Addendum 5 guidance.</i>
	BOP	Determines Essential Chiller 12A will not start.	
	BOP	Secures 'A' Train EAB HVAC: <ul style="list-style-type: none"> • Return Fan • Supply Fan 	<i>Per Addendum 5 guidance, but may first inform SRO to get concurrence.</i>

CRITICAL TASK SUMMARY

POSITION	EXPECTED RESPONSE	ACCEPTANCE CRITERIA	SAT/ UNSAT
SRO/BOP	<ul style="list-style-type: none">• DETERMINES PT-457 HAS FAILED HIGH• DETERMINES PRESSURIZER PORV PCV-0655A DID NOT CLOSE; MANUALLY CLOSES THE VALVE.	Manually control Pressurizer pressure such that a manual or automatic Reactor trip is not necessary.	
ALL	<ul style="list-style-type: none">• DETERMINES RCP TRIP CRITERIA EXISTS.• TRIPS ALL RCPs	Manually trip the RCP's to minimize inventory loss (SBLOCA) prior to exiting 0POP05-EO-EO00, Reactor Trip or Safety Injection.	
SRO/RO	DETERMINES RCS SUBCOOLING WILL BE LOWERING BELOW 35 °F OR IS BELOW 35 °F AND MANUALLY STARTS SI PUMPS.	Manually starts SI pumps when subcooling is less than 35 °F.	

TURNOVER INFORMATION

- Reactor Power is approximately 3% during a plant startup following a trip from full power 2 days ago due to a grid disturbance.
- Continue with the plant startup at step 6.2 of 0POP03-ZG-0005.
 - DO NOT place SG Blowdown in service (ZG-0005, step 6.5) until Reactor Power is 6-8%.
- Condensate Pump # 12 is OOS for motor maintenance (investigation of abnormal vibration).
- FW Booster Pump # 11 is OOS for oil change.
- Cycle Burnup is 10000 MWD/MTU (MOL)
- RCS Boron Concentration is 1500 ppm
- Control Rods are being used to maintain current power. Xenon effects are negligible at the current power level.
- Total Batch Integrator set at 10 gallons, getting 11.
- Boric Acid Tanks 'A' and 'B' are at 7320 ppm.
- 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.
- This is NOT the Load Control Unit

INITIAL LICENSE EXAM

NRC OPERATING TEST # 1

SCENARIO # 3

Revision # 1

Week of 12/7/2009

SCENARIO OUTLINE

Facility: STP		Scenario No.: 3		Op-Test No.: 1	
Initial Conditions: 38% MOL; 1232 ppm boron;					
Turnover: Continue with plant startup. Currently at Step 7.25 of OPOP03-ZG-0005 ready to place a second Steam Generator Feedwater Pump (SGFP) in service. SGFP #12 is warmed up and idling at 3300 RPM. Circ Water Pump #14 and Containment Spray Pump 1A are OOS for maintenance.					
Event No.	Malf. No.	Event Type*	Event Description		
1 (10 min)	N/A	SRO (N) BOP (N)	Place Steam Generator Feedwater Pump #12 in service.		
2 (20 min)	02-20-01 (1)	SRO (I) RO (I)	Pressurizer Level transmitter LT-465 fails high (Tech Spec)		
3 (33 min)	50-BM-01 (1)	SRO (C) RO (C)	Volume Control Tank level channel LT-0113 fails high.		
4 (40 min)	08-28-02 (True)	SRO (C) BOP (C)	Low Pressure Heater Drip (LPHD) Pump #12 trips		
5 (45 min)	03-09-01 (True)	SRO (C) RO (C)	Centrifugal Charging Pump 1A trips. (Tech Spec)		
6 (75 min)	50-HB-12 (0.2)	SRO (M) RO (M) BOP (M)	Steam Generator Tube Rupture in “D” Steam Generator		
7 (NA)	05-16-02 (True)	SRO (I) BOP (I)	Loss of Steam Dump Control in Steam Pressure Mode (integral to the scenario)		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

SCENARIO MISCELLANEOUS INFORMATION**INSTRUCTOR NOTES:**

Refer to the Instructor Guide 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 automatically recorded during the scenario. Once the scenario is complete for each crew, printout the Critical Parameters and label the printout with date, time, Crew # and scenario #.

- VCT Level (LT-0112)
- Pressurizer Level (NOT LT-465)
- Charging Flow (FI-205A)
- RCS Loop 'A' T-Cold
- SG 'B' Pressure
- SG 'B' WR Level
- Source Range Level (NI-31)

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: Place SGFP # 12 in service			
Time	Position	Applicant's Actions or Behavior	Notes
	SRO	Directs BOP to place SGFP # 12 in service per OPOP02-FW-0002, SGFP Turbine.	
	BOP	Ensures/acknowledges Pre-startup testing has been completed.	<i>This information was part of the turnover</i>
	BOP	Verifies the "SG LVL CONTROL" light is lit.	
	BOP	Verifies the SUFP is in AUTO	
	BOP	Checks the 'Increase speed' PB is lit.	<i>The procedure step instructs the operator to depress this PB until the light is continuously lit, however, the light will already be lit from earlier operations to bring the SGFP to 3300 rpm.</i>
	BOP	Opens SGFP # 12 Discharge Valve, MOV-0072.	
	BOP	Ensures the SGFP Speed Controller is in MANUAL and at minimum output.	
	BOP	Raises SGFP # 12 speed to match discharge pressure of in-service SGFP.	<i>Required DP is the DP on the in-service SGFP.</i>
	BOP	When SGFP #12 speed matches the SGFP Master Controller or the in-service SGFP, place the Speed Controller in AUTO.	
	BOP	Monitors for proper operation of the Speed Controller.	<u>Event # 2</u> can occur here.
		Ensures the Speed Controller for the original in-service SGFP is in AUTO	
		Verifies SGFP Lube Oil temperatures are within 110-120 °F.	<i>Must contact a Plant Operator to monitor SGFP lube oil temperatures.</i>
	BOP	Informs the Unit Supervisor SGFP #12 is in service in AUTO.	

OPERATOR ACTIONS (Cont')**Op Test # 1 Scenario No.: 3 Event No.: 2****Event Description: Pressurizer Level Channel LT-465 Fails High**

Time	Position	Applicant's Actions or Behavior	Notes
	RO	Acknowledges and reports the following Annunciators on Control Panel CP004: <ul style="list-style-type: none"> • PRZR LEVEL HI RX TRIP ALERT • PRZR LEVEL DEV HI B/U HTRS ON • CHG FLOW HI/LO 	<i>Operator may diagnose that Pressurizer level channel LI-0465 has failed high at this point. If not, there is a procedure step to diagnose for instrument failure.</i>
	SRO (continuous)	Directs/ensures actions of 0POP04-RP-0002, Loss of Automatic Pressurizer Level Control.	
	RO (C)	Places FCV-0205, CHG FLOW CONT in MANUAL and adjusts as necessary to maintain Pressurizer level at program.	<i>The failure will result in automatic Pzr. level control lowering charging flow and Pzr. Level if no action taken.</i>
	RO	Verifies Letdown is in service.	
	RO	Checks Pzr. Level channels operable and reports Pzr. Level Channel 465 has failed high.	
	RO SRO	Performs the following for the noted failure: <ul style="list-style-type: none"> • De-selects the failed channel. • Selects the Pzr. Level Recorder on CP-005 to an operable channel. • Places Heater Group 1C to ON • Notifies I&C to trip or bypass the failed channel. 	<ul style="list-style-type: none"> • <i>May already be selected to an operable channel.</i> • <i>This is a Tech Spec action.</i>
	RO	Checks that all Tavg channels are operable and that Tavg is within 1.5 °F of Tref.	
	RO	Checks: <ul style="list-style-type: none"> • Pzr. Level is > 17% • Normal Letdown is in service 	
	RO	Determines Pzr. Level Controller LK-0665 is operable, places controller in MANUAL to adjust output to match Charging Flow Controller, then returns controller to AUTO.	
	RO	Determines Charging Flow Controller FK-0205 is operable.	

OPERATOR ACTIONS (Cont')**Op-Test No.: # 1 Scenario No.: # 1 Event No.: 2****Event Description: Pressurizer Level Channel LT-465 fails high (cont'd)**

Time	Position	Applicant's Actions or Behavior	Notes
	RO	Places FCV-0205, CHG FLOW CONT in AUTO and ensures Pressurizer level is being maintained at program.	
	RO	Check that Excess Letdown is isolated.	
	SRO	Refers to TS for failed Channel and determines the following:	<i>TS Table 3.3-1, item 12, Action 6 states the channel may be bypassed, but must be tripped in < 72 hr.</i> <i><u>Event # 3</u> will occur once TS have been consulted.</i>

OPERATOR ACTIONS (Cont')

Op-Test No.: #1 Scenario No.: 3 Event No.: 3 Event Description: 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"> • Determines LT-113 is failed using ICS computer • Monitors computer points and or LT-112 indication on CP-004 to control VCT level 	<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 <28%</i>
	RO	Places LCV-0112A handswitch to the VCT position and ensures valve position changes	<i>Event # 4</i> can occur here once LCV-0112A positioned to the VCT.
	SRO	Ensures RO initiates VCT makeup if VCT level goes <28%	
	SRO/RO/ BOP	Contacts I&C to investigate failure	

OPERATOR ACTIONS

Op-Test No.: 1 Scenario No.: 3 Event No.: 4

Event Description: Low Pressure Heater Drip Pump #12 Trips

Time	Position	Applicant's Actions or Behavior	Notes
	BOP	Acknowledges and announces Annunciator: <ul style="list-style-type: none"> LP HDP TRIP. 	
	BOP	Reports that Heater Drip Pump #12 has tripped. Refers to Annunciator Response.	<i>The ARP will direct the crew to go to 0POP04-CD-0001, Loss of Condensate Flow.</i>
	SRO	Enters 0POP04-CD-0001, Loss of Condensate Flow.	
	SRO/BOP	Determines there are sufficient Condensate pumps in service.	
	BOP	Checks Low Pressure Heater Drip Pump status – determines LPHD Pump #12 has tripped.	
	BOP	Checks FW Htr. Strings 15 and 16 are in service.	
	BOP	Checks DA Level Controller to be less than 100%	
	BOP	Monitors for rising DA Level.	<i>Unit Supv can start an additional Condensate Pump if desired.</i>
	BOP	Checks Flash Tank #12 High Level Dump is maintaining Flash Tank #12 level.	<i>If the High Level Dump is not controlling level the operator will close the level control valve and have an operator fail open the High Level Dump Valve.</i>
	BOP	Places the Flash Tank #12 Level Control Valve in MANUAL and close the valve	
	SRO/BOP	<ul style="list-style-type: none"> Dispatches a Plant Operator to determine the cause of trip for LPHD Pump #12. From Plant Operator report, determines LPHD Pump cannot be restarted without performing maintenance. 	<u>Event # 5</u> can occur here.
	BOP	Checks DA level is stable. If so, places DA Level Controller in AUTO	

OPERATOR ACTIONS (Cont')**Op-Test No.: #1 Scenario No.: 3 Event No.: 5****Event Description:** 1A 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.	<i>Other alarms will come in and clear as the operator works his way thru re-establishing charging.</i>
	RO	Recognizes and reports that CCP 1A has tripped.	
	SRO	Directs/ensures 0POP09-AN-04M8-F3 annunciator response actions to manually start CCP 1B.	
	RO	Ensures the following: <ul style="list-style-type: none"> • FCV-0205, CHG FLOW CONT VLV is closed • MOV-8377B, CCP 1B DISCH ISOL is open • FCV-0202, CCP 1B RECIRC is open • CCP 1B white L.O. AVAILABLE light is lit 	
	RO	Start Centrifugal Charging Pump 1B.	
	RO	Adjusts charging flow and seal injection flow as necessary.	
	RO	Performs the following: <ul style="list-style-type: none"> • Closes FCV-0202, CCP 1B RECIRC • Returns FCV-0205, CHG FLOW CONT to AUTO. 	<i>Once pressurizer level has been returned to program</i>
	SRO	Declares CCP 1A inoperable and refers to Technical Requirement Manual 3.1.2.2, <u>Charging Pumps and Flowpaths Operating</u> , and enters Action 'b' statement to restore CCP 1A to operable status within 7 days.	<i>Event # 6</i> can occur here after TS have been consulted.

OPERATOR ACTIONS (Cont')**Op-Test No.:** #1 **Scenario No.:** 3 **Events No.:** 6**Event Description:** 1D Steam Generator Tube Rupture, Steam Dump Failure

Time	Position	Applicant's Actions or Behavior	Notes
	RO/BOP	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 as 1B SG.	
	SRO (continuous)	Directs/ensures operator actions of OPOP04-RC-0004, Steam Generator Tube Leakage.	<i>Only a few, if any, actions of OPOP04-RC-0004 will be performed because the leak rate quickly escalates into a rupture requiring a Reactor trip and SI.</i>
	SRO/BOP	Verify affected SG is SG 1D	
	SRO	Notes procedure requirement to maintain contact with HP prior to performing local operator actions	
	SRO	Notifies Chemistry to sample SG's and monitor selected Rad monitors.	
	SRO/BOP	Ensures letdown is aligned to Demins	
	SRO/RO	Maintains Pzr. Level on program with letdown or charging flow adjustments.	
	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/BOP	Checks Main Turbine is in service.	
	SRO/BOP	Checks leakrate conditions and determines that a plant shutdown using OPOP04-TM-0005, Fast Load Reduction, is necessary.	
	SRO	Transitions to OPOP04-TM-0005, Fast Load Reduction,	

OPERATOR ACTIONS (Cont')**Op-Test No.:** #1 **Scenario No.:** 3 **Events No.:** 6**Event Description:** 1D Steam Generator Tube Rupture, Steam Dump Failure

Time	Position	Applicant's Actions or Behavior	Notes
	ALL	Reactor Trip and SI initiated due to failure to maintain Pzr level and/or VCT level.	<i>Crew may or may not have opportunity to manually actuate before auto actuation occurs.</i>
	SRO	Enters 0POP05-EO-EO00, Reactor Trip or SI	
	RO/BOP	Completes immediate actions of EO00, Reactor Trip/SI: <ul style="list-style-type: none"> • Reactor tripped • Turbine tripped • AC ESF Busses energized • Determines SI is actuated or required 	
	SRO	Directs/ensures the immediate actions of EO00, Reactor Trip/SI have been completed.	
	SRO/BOP	Stops AFW flow to 'D' SG by tripping the turbine and isolating the steam supply.	<i>This action is on the CIP and can be done anytime.</i>
	ALL (continuous)	Monitor for RCP trip criteria: <ul style="list-style-type: none"> • RCS Pressure < 1430 psig • At least 1 HHSI Pump running 	<i>Conditions for tripping RCP's should not exist at this time.</i>
	SRO/BOP	Directs BOP to perform Addendum 5, Verification of SI Equipment Operation: <ul style="list-style-type: none"> • FW Isolation • Check for Steamline Isolation • AFW Status • Phase 'A' Containment Isolation • ECW and CCW • Containment Cooling • ECCS pump and valve status • Containment Ventilation Isolation • HVAC systems (CR/EAB/FHB) 	<i>May have to throttle AFW to limit RCS cooldown.</i>
	SRO/RO	Check plant status: <ul style="list-style-type: none"> • RCP Seal cooling • RCS cooldown • Pzr valve status • Excess Letdown Isol Valves • Selected Cntmt Isolation Valves 	

Op-Test No.: #1 Scenario No.: 3 Events No.: 6

Event Description: 1D Steam Generator Tube Rupture, Steam Dump Failure

Time	Position	Applicant's Actions or Behavior	Notes
	ALL	Determines SG 1D is ruptured.	
	SRO	Transitions to EO30, SGTR based on abnormal SG radiation.	
	ALL (continuous)	Monitors the status of Critical Safety Functions when the crew transitions to OPOP05-EO-EO30.	<i>Cannot implement FRP's until Addendum 5 of OPOP05-EO-EO00, Reactor Trip or Safety Injection, is completed.</i>
	SRO/RO (continuous)	Checks RCP trip criteria. Ensures RCPs are tripped if RCS pressure drops to less than 1430 psig	
	BOP	Identifies Ruptured SG as SG 1D.	
	SRO/BOP (C)	Isolates Feedwater flow into and steam flow from SG 1D by: <ul style="list-style-type: none"> • Adjusting SG 1D PORV setpoint to between 1260 and 1265 psig and checking SG PORV is closed • Verifying Blowdown isolated. • Check SG 1D Ruptured – secures Turbine-Driven AFWP. • Closing SG 1D MSIV and MSIB • Verifies ruptured SG level is >14% then isolates AFW to ruptured SG • Reset SI and SG Lo-Lo Level signals (done earlier). • Close SG 1D AFW OCIV 	<i>To secure the Turbine-driven AFWP, the operator will have to:</i> <ul style="list-style-type: none"> • <i>Reset SI</i> • <i>Reset SG Lo-Lo Level</i> • <i>Trip Turbine</i> • <i>Close Turbine steam inlet</i> • <i>De-energize steam inlet</i>
	SRO/BOP	Determines SG D pressure is > 468 psig	

OPERATOR ACTIONS (Cont')

Op-Test No.: #1 Scenario No.: 1 Events No.: 4 through 6

Event Description: 1B Steam Generator Tube Rupture (5 minute ramp), ATWS, Steam Dump Failure, IR Channel Failure

Time	Position	Applicant's Actions or Behavior	Notes
	SRO/RO	Checks Pzr PORV availability: <ul style="list-style-type: none"> • Power to Isolation Valves • PORV's closed • At least one Isolation Valve open. 	
	SRO/BOP	INITIATES RCS COOLDOWN <ul style="list-style-type: none"> • Determines target temperature • Blocks Low Steamline Pressure SI when RCS pressure <1985 psig • Determines condenser is available • Places Steam Dumps in Steam Pressure Mode • Dumps steam to condenser at max rate. <ul style="list-style-type: none"> • Steam Dumps fail to open and crew must use SG PORVs for cooldown • Stops cooldown when target temp reached. 	<p><u>Event #7</u> will be apparent when the crew attempts to open the Steam Dumps. With this failure, the crew will have to use the SG PORV's to perform the RCS cooldown.</p> <p>Terminate scenario after crew initiates cooldown using SG PORV's.</p>
	RO	Reset actuation systems for: <ul style="list-style-type: none"> • SI • SI Auto Recirc • Sequencers • Phase 'A' and 'B' Isolations 	These steps can be done concurrent with the cooldown
	RO/BOP	Restores IA to containment when directed by verifying IA pressure is >95 psig and opening the IA OCIV.	These steps can be done concurrent with the cooldown
	SRO/BOP	Ensures Intact SG levels are 22-50%	These steps can be done concurrent with the cooldown
	SRO/RO	Establish maximum charging flow	This step cannot be done until the target cooldown temperature is reached.

CRITICAL TASK SUMMARY

POSITION	EXPECTED RESPONSE	ACCEPTANCE CRITERIA	SAT/ UNSAT
SRO/RO	<ul style="list-style-type: none"> • DETERMINES PRESSURIZER LEVEL CHANNEL LT-465 HAS FAILED. • PLACES CHARGING FLOW CONTROLLER IN MANUAL TO CONTROL PRESSURIZER LEVEL TO PROGRAM 	Manually control Pressurizer level such that a manual or automatic reactor trip is not necessary.	
SRO/BOP	<p>ISOLATES FEEDWATER FLOW INTO AND STEAM FLOW FROM SG 1D BY:</p> <ul style="list-style-type: none"> • ADJUSTING SG 1D PORV SETPOINT TO BETWEEN 1260 AND 1265 PSIG AND CHECKING SG PORV IS CLOSED • VERIFYING BLOWDOWN ISOLATED. • CHECK SG 1D RUPTURED – SECURES TURBINE-DRIVEN AFWP. • CLOSING SG 1D MSIV AND MSIB • VERIFIES RUPTURED SG LEVEL IS >14% THEN ISOLATES AFW TO RUPTURED SG • RESET SI AND SG LO-LO LEVEL SIGNALS (DONE EARLIER). • CLOSES SG 1D AFW OCIV 	Isolates the ruptured SG (1D) prior to initiating RCS cooldown.	

TURNOVER INFORMATION

- Reactor Power is approximately 38% during a plant startup (0POP03-ZG-0005, step 7.25). Chemistry is satisfactory for power operation (step 7.25.1)
- SGFP #12 is warmed up and idling. Place SGFP #12 in service after taking the watch. Pre-startup testing has been completed.
- Maintain current power level until SGFPT #12 is placed in service.
- Circ Water Pump # 14 is OOS for motor maintenance (investigation of abnormal vibration).
- Containment Spray Pump 1A is OOS for shaft seal repair.
- Cycle Burnup is 10000 MWD/MTU (MOL)
- RCS Boron Concentration is 1232 ppm
- Dilutions to maintain current power are approximately 10 gallons every half hour. Total Batch Integrator set at 10 gallons, getting 11. Xenon is building in with the power increase.
- Boric Acid Tanks 'A' and 'B' are at 7335 ppm.
- 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.
- This is NOT the Load Control Unit

INITIAL LICENSE EXAM

OPERATING TEST # 1

SCENARIO #4

Revision 1

Week of 12/7/2009

Facility: STP		Scenario No.: 4		Op-Test No.: 1	
Initial Conditions: 75% MOL; 967 ppm boron					
Turnover: Maintain current power. 'B' Train LHSI and HHSI pumps are OOS for maintenance.					
Event No.	Malf. No.	Event Type*	Event Description		
1 (14 min)	02-28-02 (1.0)	SRO (I) RO (I)	Loop 'D' T-cold fails high. (Tech Spec)		
2 (27 min)	05-22-02 (0.0)	SRO (I) BOP (I)	Controlling Steam Pressure channel on 'B' Steam Generator fails low. (Tech Spec)		
3 (42 min)	03-12-01 (0.25)	SRO (C) RO (C)	Letdown leak outside containment.		
4 (49 min)	08-10-01 (0.65)	SRO (N) BOP (N)	Loss of SGFPT # 11 Speed Control		
5 (76 min)	02-01-03 (0.3)	SRO (M) BOP (M) RO (M)	Large Break LOCA on Loop 'C' cold leg occurs (integral to scenario, occurs 5-10 sec after C-7 is reset).		
6 (NA)	04-09-02 (True)	SRO (C) BOP (C)	Essential Cooling Water Pump 1B trips after the SI. (triggered during Phase A isolation verification)		
7 (NA)	01-12-03 A/B/C (True)	SRO (C) RO (C)	All Trains of Safety Injection fail to automatically actuate. (integral to the scenario)		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

SCENARIO MISCELLANEOUS INFORMATION

INSTRUCTOR NOTES:

Refer to the Instructor Guide 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 automatically recorded during the scenario. Once the scenario is complete for each crew, printout the Critical Parameters and label the printout with date, time, Crew # and scenario #.

1. 'B' SG NR Level
2. Pressurizer pressure
3. Pressurizer level
4. RCS WR Pressure
5. CET's
6. Charging 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 Scenario No. 4 Event No. 1			
Event Description: Loop 'D' T-Cold fails high			
Time	Position	Applicant's Actions or Behavior	Notes
	RO	Acknowledges and reports multiple 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-440B.	
	RO	Selects Loop 4 Defeat on the following switches: <ul style="list-style-type: none"> • BYP SEL ΔT • BYP SEL T AVG 	
	RO	Ensures Tavg is maintained within 1.5 °F of Tref.	
	RO	Check Pressurizer level at or trending to program level.	<i>The operator may have to take manual control of FCV-0205, CHG FLOW CONT, trend Pressurizer level to program.</i>
	SRO/RO	Determine whether to restore Rod Control to Auto	<i>The SRO may or may not decide to use Auto Rod Control.</i>
		IF Auto Rod Control is desired, THEN Establish Tavg within 0.5 °F of Tref by adjusting: <ul style="list-style-type: none"> • Control Rod position • RCS Boron • Turbine load THEN place rods in AUTO.	<i>If Auto Rod Control is not desired, then the crew will maintain Tavg within 1.5 °F of Tref.</i>
	RO	Ensures ΔT and ΔT Setpoints Recorder selected to an operable channel.	

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No. 4 Event No. 1			
Event Description: Loop 'D' T-Cold fails high			
Time	Position	Applicant's Actions or Behavior	Notes
	SRO	Initiates actions per Tech Spec 3.3.1 (Table 3.3-1, items 8 and 9) and Tech Spec 3.3.2 (Table 3.3-3, items 5.f and 9.b) <i>Item 9.b will not be entered as the minimum channels req'd. is being met with the 3 remaining channels.</i>	<i>Event # 2 to occur here once TS have been consulted for the failed temperature channel and on signal from the Lead Evaluator..</i>
	SRO	NOTIFY I&C To Place The Affected Channel In Trip Or Bypass in accordance with 0PSP02-RC-0410.	

OPERATOR ACTIONS (Cont')

Op-Test No.: #1 Scenario No. 4 Event No. 2			
Event Description: SG 'B' Steam Pressure Channel PT-524 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"> • SG 1B STM PRESS LO ALERT • SG 1B STM/FW FLOW MSMTCH • SG 1B STM PRESS RATE HI ALERT 	
	SRO/BOP (C)	Performs immediate actions of 0POP04-FW-0001: <ul style="list-style-type: none"> • PLACES SG 1B FEEDWATER MAIN FEED REG. VALVE (MFRV) CONTROLLER IN MANUAL • ADJUSTS CONTROLLER OUTPUT TO RESTORE SG 1B LEVEL TO PROGRAM 	
	SRO (continuous)	Directs/ensures actions of 0POP04-FW-0001, Loss of Steam Generator Level Control.	
	SRO	Ensures immediate actions are taken: <ul style="list-style-type: none"> • Takes manual control of 'B' MFRV • Determines SGFPT controls are responding. 	<i>MFRV – Main Feed Regulating Valve</i>
	SRO/BOP	Determines MFRV's are in service and 'B' Main. Reg Valve is responding in Manual.	
		Determines the LPFRV's are not in service.	<i>LPFRV – Low Power Feed Regulating Valve</i>
		Determines the SGFP Master Controller and individual SGFP Speed Controllers for operating SGFPT's are in AUTO.	
	SRO/BOP	Ensure appropriate Feed to steam DP.	
	BOP	Restores SG 1B NR level 68-74%	
	SRO/BOP	Ensure all SG levels 20-87.5%	

OPERATOR ACTIONS (Cont')**Op-Test No.:** #1 **Scenario No.** 4 **Event No.** 2**Event Description:** SG 'B' Steam Pressure Channel PT-524 fails low

Time	Position	Applicant's Actions or Behavior	Notes
	BOP	Checks SG water level control instruments for failures. Identifies that steam pressure channel PT-524 for SG 1B has failed low.	
	BOP	Selects alternate steamflow channel for SG 1B level control.	
	BOP	Performs the following: <ul style="list-style-type: none"> • Verifies SG levels between 68% and 74% • Places SG 1B Feed Regulating Valve in AUTO 	
	BOP	Checks Feedpump Master Speed Controller in Auto.	
	SRO	Checks Tech Specs and determines the following apply: <ul style="list-style-type: none"> • Table 3.3-3, items 1.f, 4.c and 4.e (action 20 for all 3) 	<i>Event # 3</i> will occur after TS have been consulted and on signal from Lead Evaluator.
	SRO	Notifies I&C to trip or bypass the failed channel.	

OPERATOR ACTIONS (Cont')

Op-Test No.: 1 Scenario No. 4 Event No.: 3			
Event Description: Leak in Letdown line outside containment.			
Time	Position	Applicant's Actions or Behavior	Notes
	RO/BOP	<ul style="list-style-type: none"> • Acknowledges and reports a LETDN HX OUTL FLOW HI/LO alarm on CP-004. • Acknowledges and reports radiation monitoring alarm in MAB and on the Unit Vent. 	<i>Letdown flow and VCT level will also be lowering.</i>
	RO/BOP	Report indications of excessive RCS leakage based on the following indications: <ul style="list-style-type: none"> • Decreasing RCS pressure • Decreasing Pressurizer level • Charging and letdown flow imbalance • MAB radiation monitors in alarm 	
	SRO (continuous)	Enters POP04-RC-0003, Excessive RCS Leakage and directs operator actions.	<i>Crew may initially enter 0POP04-CV-0004, Loss of Normal Letdown, based on ARP instruction; however, this procedure doesn't address a leak situation.</i>
	RO (continuous)	Control charging and letdown to maintain Pressurizer level >17% and VCT level > 15%.	<i>If either of these cannot be maintained, the crew should trip the Reactor.</i>
	RO	Determines RCS leakrate through estimation based on Pzr and VCT level, charging and letdown flowrates (if letdown still in service)	<i>Can also do an RCS leak surveillance, but should do estimations at the least. Leakrate is approx. 70 gpm, but will be difficult to determine accurately due to changing plant conditions.</i>
	SRO/RO	Determine leakage is from the MAB based on: <ul style="list-style-type: none"> • MAB radiation abnormal • Letdown flow and pressure changes 	
	SRO	Goes to Addendum 1 and directs actions to identify and isolate the leakage.	

OPERATOR ACTIONS (Cont')

Op-Test No.: 1 Scenario No. 4 Event No. 3			
Event Description: Leak in Letdown line outside containment.			
Time	Position	Applicant's Actions or Behavior	Notes
	SRO/RO	Determines MAB radiation levels are not normal and dispatches an operator with HP coverage to determine source of leak and isolate the leak	
	SRO/RO	Ensures all primary sample valves are closed.	
	SRO	Consults System Engineering and Plant Mgmt.	
	SRO	Evaluates Tech Spec 3.4.6.2, RCS Leakage	<i>TS 3.4.6.2 action 'b' applies</i>
	RO	Checks RCP seal parameters normal	
	SRO/RO	Removes normal Charging and Letdown from service: <ul style="list-style-type: none"> • Isolates Letdown by closing FV-0011. • Isolates Charging by closing FCV-0205 • Ensures proper seal injection flow (6-13 gpm) • Closes LD orifice isolation valves and LD stop valves. • Closes Charging line OCIV 	<i>After Letdown is isolated, the crew should subsequently determine that RCS leakage has stopped.</i> <i>Event #4</i> <i>can occur once Charging and Letdown have been isolated in this step and on Lead Evaluator's signal.</i>
	SRO	Directs the RO to place excess letdown in service per POP02-CV-0004, Chemical Volume Control System Operating Procedure to control RCS inventory based on loss of normal letdown.	

OPERATOR ACTIONS

Op-Test No.: #1 Scenario No. 4 Event No. 4			
Event Description: SGFPT # 11 Loss of Speed Control			
Time	Position	Applicant's Actions or Behavior	Notes
	BOP	Responds to ICS alarm and determines it is a #12 SGFPT SUCT FLOW HI alarm.	
	BOP	Checks status of SGFPT's and determines # 11 SGFPT speed is lowering and SG levels are lowering.	
	SRO (continuous)	Directs the BOP operator to perform immediate actions for 0POP04-FW-0002, Steam Generator Feedpump Trip, and enters 0POP04-FW-0002	
	SRO/BOP	Determines there are inadequate SGFPT's running and verifies the following: <ul style="list-style-type: none"> • SUFP started • Standby FW Booster Pump started 	
	SRO/BOP	Checks Master Speed Controller Operable in Automatic: <ul style="list-style-type: none"> • Steam Pressure xmtr. PT-557 operable. • Feed Pressure xmtr. PT-558 operable. • Controlling Steamflow channels operable. 	
	SRO/BOP	Checks Feedflow is adequate for steam flow.	
	SRO/BOP	Checks SGFP Recirculation Valves are operating properly.	
	SRO/BOP	Determines Reactor power is > 15%.	
	SRO/BOP	Determines SG NR levels are trending to program level.	<i>Program level is 70% NR for any power level.</i>
	SRO/BOP	Checks Feed-to-Steam DP is > required OR SGFP Master Controller demand is at 100%.	<i>SGFP Master Controller demand will be at 100%.</i>
	SRO/RO	Verifies AFD is within required band.	
	SRO/BOP	Check Steam Dump status: <ul style="list-style-type: none"> • Tavg Mode. • Minimum demand and Steam Dumps closed. 	
	SRO/BOP	Reset Steam Dump Controller C-7	<i>Event # 5 will automatically occur here.</i>

OPERATOR ACTIONS (Cont')**Op-Test No.: # 1 Scenario No. 4 Event No. 5 and 7****Event Description: RCS LBLOCA**

Time	Position	Applicant's Actions or Behavior	Notes
	All	Determines the Reactor has tripped and Safety Injection has automatically occurred.	
	SRO	Directs the crew to perform their immediate actions for a Reactor trip. Enters 0POP05-EO-EO00, Reactor Trip or Safety Injection	
	RO/BOP (C) for SRO/RO * denotes critical step	Complete immediate actions of EO00, Reactor Trip/SI: <ul style="list-style-type: none"> • Reactor tripped • Turbine tripped • AC ESF Busses energized • *DETERMINES SI IS NOT ACTUATED AND MANUALLY ACTUATES SI AND VERIFIES ALL 3 TRAINS HAVE ACTUATED. 	<i>Event 7: Operator should note that no Trains of SI have actuated and manually actuates SI.</i>
	SRO	Directs/ensures the immediate actions of EO00, Reactor Trip/SI have been completed.	
	ALL (continuous)	Monitor for RCP trip criteria: <ul style="list-style-type: none"> • RCS Pressure < 1430 psig • At least 1 HHSI Pump running 	- <i>Conditions will exist by this time to trip the RCPs.</i>
	ALL (continuous)	Monitor/apply adverse containment values because containment pressure is ≥ 5 psig.	

OPERATOR ACTIONS (Cont')**Op-Test No.: # 1 Scenario No. 4 Event No. 5 and 7****Event Description: RCS LBLOCA**

Time	Position	Applicant's Actions or Behavior	Notes
	SRO/BOP	Directs BOP to perform Addendum 5, Verification of SI Equipment Operation <ul style="list-style-type: none"> • FW Isolation • Check for Steamline Isolation • AFW Status • Phase 'A' Containment Isolation • ECW and CCW • Containment Cooling • ECCS pump and valve status • Containment Ventilation Isolation • HVAC systems (CR/EAB/FHB 	<i>The operator should note 'A' LHSI pump did not start and cannot be started manually.</i> <u>Event #6.</u> Trip of ECW Pump will occur during this step. Refer to the 'Operator Actions' for Event 6.
	SRO/RO	Determines Containment Spray is operating correctly and Phase 'B' Isolation has occurred.	
	SRO/RO	Check plant status: <ul style="list-style-type: none"> • RCP Seal cooling • RCS cooldown • Pzr valve status • Excess Letdown Isol Valves • Selected Cntmt Isolation Valves 	
	ALL	Determine RCS isn't intact	
	SRO	Transitions to 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant.	<ul style="list-style-type: none"> • At this time there should be Orange paths on both Core Cooling and Containment and a Red Path on Integrity. The Unit Supervisor should implement the higher priority procedure: FRP1 for Integrity. • Crew will NOT implement any FRPs until Addendum 5 is complete and EO exited.

OPERATOR ACTIONS (Cont')**Op-Test No.: # 1 Scenario No. 4 Event No. 5 and 7****Event Description: RCS LBLOCA**

Time	Position	Applicant's Actions or Behavior	Notes
	SRO	Informs crew of transition to 0POP05-EO-E010, Loss of Reactor or Secondary Coolant and to monitor Critical Safety Functions	
	SRO	Determines there's a Red Path on Integrity CSF and transitions to 0POP05-EO-FRP1, Response to Imminent Pressurized Thermal Shock.	<i>Once Addendum 5 and EO00 are complete.</i>
	SRO/RO	Determines RCS pressure is < 415 psig.	
	SRO/RO	Determines LHSI Pump flow is > 500 gpm.	<i>This is exit criteria for FRP1.</i>
	SRO	Determines there's an Orange Path on Core Cooling CSF and transitions to 0POP05-EO-FRC2.	<i>This is the next highest FRP condition.</i>
	SRO/RO	Verifies proper SI Valve alignment.	
	SRO/RO	Verifies SI flow in ALL Trains	<i>This condition is not met because Train 'B' HHSI and LHSI are OOS. Also, 'A' LHSI Pump didn't start and cannot be started. The SRO should go to the RNO actions to place charging in service.</i>

OPERATOR ACTIONS (Cont')**Op-Test No.: # 1 Scenario No. 4 Event No. 5 and 7****Event Description: RCS LBLOCA**

Time	Position	Applicant's Actions or Behavior	Notes
	SRO/RO (C) * denotes critical step	Establish Charging Flow: <ul style="list-style-type: none"> • Reset SI • Reset Phase A Isolation • Align CCP suction to RWST • Ensure Charging Flow Control Valve FCV-0205 is closed. • Open Recirc valve for CCP to be started. • Start all available CCPs. • Ensure CCP Discharge Valves are open. • Ensure normal or alternate charging isolation valve is open. • Open charging OCIV. • *OPEN CHARGING FLOW CONTROL VALVE FCV-0205 TO OBTAIN MAXIMUM CHARGING FLOW. • Close CCP Recirc valves. 	<i>These steps are the RNO actions referred to above.</i> <i>Once Charging Flow is established, the Control Room will receive a call from the OSC Mgr. telling them 'B' LHSI Pump is available for service. Once available, the crew should start this pump.</i> <i>Maximum charging flow should be at least 400 gpm going to the RCS, but < 480 gpm total going thru the <u>PUMPS</u>.</i>
	SRO/RO	Determines RCS pressure is < 415 psig.	
	SRO/RO	Checks for indicated LHSI flow.	<i>Crew should start 'B' LHSI Pump if not already done.</i>
	SRO/RO	Checks RCS Vent Paths: <ul style="list-style-type: none"> • Power to Pzr PORV Isol. Valves. • Pzr PORV's closed. • At least one Pzr PORV Isol Valve open. • Rx Head Vent Valves closed. 	

OPERATOR ACTIONS (Cont')**Op-Test No.: # 1 Scenario No. 4 Event No. 5 and 7****Event Description: RCS LBLOCA**

Time	Position	Applicant's Actions or Behavior	Notes
	SRO/RO	Determines no RCPs running.	
	SRO/RO	Check core cooling: <ul style="list-style-type: none"> Core Exit TC's < 708 °F RVWL ≥ 20% plenum. 	<i>Terminate scenario once Core Exit TC's begin to lower or at discretion of Lead Examiner.</i>
	SRO/RO	Checks SI Accumulator Isolation Valves open.	
	SRO/BOP	Monitor intact SG levels: <ul style="list-style-type: none"> NR levels > 34% Control AFW flow to maintain NR levels between 34% and 50%. 	<i>34% is required due to adverse Containment conditions.</i>
	SRO/BOP	Depressurize all intact SGs to 255 psig: <ul style="list-style-type: none"> Block Low Steamline Pressure SI. Maintain RCS cooldown rate < 100 °F/hr. Check condenser is available. Place Steam Dumps in Steam Pressure Mode. Check RCS Tavg is < 563 °F Place Steam Dump Intlk Sel. Switches to 'Bypass Interlock' Dump steam to condenser from intact SGs until: <ul style="list-style-type: none"> SG pressures < 255 psig 2 or more RCS hot leg temperatures < 420 °F. 	<i>This is actually beyond the control of the operator for this plant condition.</i>
	SRO/RO	Check LHSI Pumps running	
	SRO/RO	Check if SI Accumulator should be isolated: <ul style="list-style-type: none"> 2 or more RCS hot leg temperatures < 420 °F. Reset SI Energize all SI Accumulator Isolation Valves. Close all SI Accumulator Isolation Valves. De-energize all SI Accumulator Isolation Valves. 	

OPERATOR ACTIONS (Cont')**Op-Test No.: # 1 Scenario No. 4 Event No. 5 and 7****Event Description: RCS LBLOCA**

Time	Position	Applicant's Actions or Behavior	Notes
	SRO/BOP	Depressurize all intact SGs to atmospheric pressure: <ul style="list-style-type: none">• Maintain RCS cooldown rate < 100 °F/hr.• Check condenser is available.• Check Steam Dumps in Steam Pressure Mode.• Dump steam to condenser from intact SGs until:<ul style="list-style-type: none">○ SG pressures < 255 psig○ 2 or more RCS hot leg temperatures < 420 °F.	
	SRO/RO	Verify HHSI and LHSI flow.	
	SRO/RO	Check core cooling: <ul style="list-style-type: none">• 20% RVWL Plenum level• 2 or more RCS hot leg temperatures < 420 °F.	

OPERATOR ACTIONS

Op-Test No.: # 1 Scenario No. 4 Event No. 6			
Event Description: ECW Pump 1B Trips			
Time	Position	Applicant's Actions or Behavior	Notes
	BOP	Acknowledges and responds to the following alarm: <ul style="list-style-type: none">• ECW PMP 1B TRIP	<i>A DG 11 TRBL alarm will also come in.</i>
	BOP	Determines ECW Pump 'B' has tripped. Informs the US.	
	SRO/ BOP	Directs/places #12 ESF DG in Emergency Stop.	
	SRO/ BOP	Directs/places Essential Chiller 12A handswitch in PTL.	

CRITICAL TASK SUMMARY

POSITION	EXPECTED RESPONSE	ACCEPTANCE CRITERIA	SAT/ UNSAT
SRO/BOP	<ul style="list-style-type: none">• PLACES SG 1B FEEDWATER MAIN FEED REG. VALVE (MFRV) CONTROLLER IN MANUAL• ADJUSTS CONTROLLER OUTPUT TO RESTORE SG 1B LEVEL TO PROGRAM	Manually control SG 1A level such that a manual or automatic Reactor trip does NOT occur.	
SRO/RO	OPEN CHARGING FLOW CONTROL VALVE FCV-0205 TO OBTAIN MAXIMUM CHARGING FLOW.	Establish maximum charging flow during degraded core cooling conditions.	
SRO/RO	DETERMINES SI IS NOT ACTUATED AND MANUALLY ACTUATES SI AND VERIFIES ALL 3 TRAINS HAVE ACTUATED.	Manually initiates SI and verifies all 3 trains have actuated before exiting 0POP05-EO-EO00, Reactor Trip or Safety Injection.	

TURNOVER INFORMATION

- Reactor Power is 75%. Plant Startup in progress. Currently in procedure 0POP03-ZG-0005, Plant Startup to 100%, Step 7.38. Maintain this power level until Operations Management gives direction to recommence the power ascension.
- 'B' Train HHSI and LHSI Pumps are OOS for maintenance (pump seal replacement)
- Cycle Burnup is 10000 MWD/MTU (MOL)
- RCS Boron Concentration is 971 ppm
- Total Batch Integrator set at 10 gallons, getting 11. Xenon concentration is increasing.
- Boric Acid Tanks 'A' and 'B' are at 7700 ppm.
- 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 recirculation
- This is NOT the Load Control Unit