

Facility: Wolf Creek Task No.: N/A  
 Task Title: Perform A QPTR Calculation JPM No.: 2007 NRC A1a RO  
 K/A Reference: 015 A1.04 (3.5)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
 Classroom  X  Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is at 100% power.

NPIS is out of service.

Task Standard: Determines QPTR outside of TS limits and informs CRS/SM

Required Materials: Calculator, Partially completed STS RE-012, QPTR Determination.

General References: WCRX-21, Rev. 13. Control Room Operating Curves And Tables  
reference Manual, Cycle 16.  
STS RE-012, Rev. 10, Quadrant Power Tilt Ration Determination.

Handouts: Partially completed STS RE-012

Initiating Cue: The Shift manager has directed you to complete the manual calculation for QPTR using the partially completed procedure provided, in accordance with the STS RE-012, section 8.4. A flux map is not required.

Time Critical Task: NO

Validation Time: 20 Minutes

(Denote Critical Steps with an asterisk)

Note: The purpose of this JPM is to have the candidate calculate QPTR and to correctly determine TS LCO being exceeded. The candidate will be provided a copy of STS RE-012 with Initial Conditions signed off, and Steps complete up to 8.4 and a copy of page 7.5 from WCGS Curves & Tables. Additionally, a data sheet with upper and lower detector currents will be provided

- |                              |   |
|------------------------------|---|
| <b>Performance Step: 1</b>   | Obtain partially completed procedure  |
| <b>Standard:</b>             | Obtains procedure   |
| <b>Comment:</b>              | <b>Cue: Hand candidate a copy of partially filled out STS RE-012 and data sheet.</b>  |
| <b>* Performance Step: 2</b> | Normalize each of the detector currents recorded in 8.4.3 by dividing each current by the corresponding normalizing factor.   |
| <b>Standard:</b>             | Locates normalization factors and divide currents by normalization factors. Results: Upper: 256.7, 241.8, 229.9, and 222.9. Lower: 258.8, 264.9, 221.7, and 238.3. Values may vary by $\pm 0.1$ |
| <b>Comment:</b>              |   |
| <b>* Performance Step: 3</b> | Calculate average normalized current for top and lower currents   |
| <b>Standard:</b>             | Performs calculation.<br>Average upper: Value between 237 to 238.2.<br>Average lower: Value between 245 and 246.5   |
| <b>Comment:</b>              |   |
| <b>* Performance Step: 4</b> | Calculate Quadrant Power Tilt for top and bottom detectors  |
| <b>Standard:</b>             | Performs calculation. Approximate values:<br>Upper: 1.08, 1.02, 0.96, 0.94<br>Lower: 1.05, 1.08, .90, .97<br>Value should be within 0.5 of approximate values.                                  |
| <b>Comment:</b>              |   |

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**Performance Step: 5** Record Highest Quadrant Power Tilt Ratio  
**Standard:** Records highest value. Value recorded should be  $1.08 \pm 0.5$ .

**Comment:**

**Performance Step: 6** Determine if flux map is required  
**Standard:** Identify from cue that flux map is not required and go to Section 8.6

**Comment:**

\* **Performance Step: 7** Determine highest QPTR is  $>1.02$ . Immediately inform CRS/SM  
**Standard:** Refer to Attachment 1 and determine that QPTR exceeds 1.02  
Immediately inform CRS/SM

**Comment:**

**Terminating Cue:** When the candidate has determined QPTR and informed the CRS/SM, the evaluation for this JPM is complete

Job Performance Measure No.: Wolf Creek 2007 NRC A1a RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result:                      SAT    \_\_\_\_\_                      UNSAT    \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS:      The plant is at 100% power.

NPIS is out of service.

INITIATING CUE:            The Shift manager has directed you to complete the manual calculation for QPTR using the partially completed procedure provided, in accordance with the STS RE-012, section 8.4. A flux map is not required.

Facility: Wolf Creek Task No.: N/A  
 Task Title: Determine RCS boration required to reach Cold Shutdown conditions JPM No.: 2007 NRC RO A1b  
 K/A Reference: 2.1.25

Examinee: NRC Examiner:  
 Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
 Classroom  X  Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is in Hot Standby. RCS temperature is stable at 557 degrees F. Current RCS boron concentration is 150 ppm. Core burnup is 19150 MWD/MTU.

Task Standard: Calculate the amount of boration required to reach Cold Shutdown Boron Concentration.

Required Materials: Calculator, Curves & Tables, Boration/Dilution Tables.

General References: WCRX-21, Rev. 13. Control Room Operating Curves And Tables reference Manual, Cycle 16.  
 WCRX-1, Rev. 0, Boration/Dilution Tables  
 SYS BG-200, Rev. 34 Reactor Makeup Control System Normal Operation.

Handouts:

Initiating Cue: The Control Room Supervisor has directed you to calculate the amount of boration necessary to borate the RCS to Cold Shutdown Xenon Free conditions (prior to starting the cooldown). The RCS will be cooled down to 200 degrees.

Time Critical Task: NO

Validation Time: 20 Minutes

(Denote Critical Steps with an asterisk)

Note: The purpose of this JPM is to have the candidate calculate the amount of boron to be added to the RCS in order to borate to Cold Shutdown Xenon-free conditions.

- \* **Performance Step: 1** Determine boron concentration for 200 degrees, 19000 MWD/MTU burnup from Table 7.1
- Standard:** Determine required boron concentration at 200 degrees from Table 7.1 or WCGS Curves & Tables.
- Comment:** **Value should be 930 ppm.**
- \* **Performance Step: 2** Calculate the amount of boric acid necessary to raise RCS boron concentration from 150 ppm to Cold Shutdown Xenon Free required concentration.
- Standard:** Determine amount of boric acid from boration/dilution tables.
- Comment:** **Accept range from 7700 to 7950 gallons.**
- Terminating Cue:** **When the candidate has calculated the amount of boric acid needed, this JPM may be terminated.**



Job Performance Measure No.: Wolf Creek 2007 NRC RO A1b

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result:                      SAT    \_\_\_\_\_                      UNSAT    \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS:      The plant is in Hot Standby. RCS temperature is stable at 557 degrees F. Current RCS boron concentration is 150 ppm. Core burnup is 19150 MWD/MTU.

INITIATING CUE:            The Control Room Supervisor has directed you to calculate the amount of boration necessary to borate the RCS to Cold Shutdown Xenon Free conditions (prior to starting the cooldown). The RCS will be cooled down to 200 degrees.

Facility: Wolf Creek Task No.: N/A  
 Task Title: Identify clearance boundaries for safety related equipment JPM No.: 2007 NRC A2 RO  
 K/A Reference: 2.2.13

Examinee: NRC Examiner:  
 Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
 Classroom  X  Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is in Mode 6. The "A" RHR pump is to be tagged out for a suction strainer flange leak.

Task Standard: Determine the boundaries to safely repair RHR Pump A. Identify 2 of the 3 mistakes.

Required Materials: Electrical & Mechanical prints for EJ system.

General References: AP 21E-001, Rev. 21, Clearance Orders.  
 M-12EJ01  
 Clearance Order: R14 EJ-A-0014

Handouts: Clearance order for "A" RHR Pump

Initiating Cue: The Shift manager has directed you to verify the necessary clearance order boundaries for work on the "A" RHR suction strainer flange. Determine any mistakes or omissions and mark up the proposed clearance.

Time Critical Task: NO

Validation Time: 20 Minutes

(Denote Critical Steps with an asterisk)

Note: The purpose of this JPM is to have the candidate evaluate clearance order boundaries to safely allow work on "A" RHR pump.

- |  |  |
|--|--|
| <p><b>* Performance Step: 1</b></p> <p><b>Standard:</b></p> <p><b>Comment:</b></p> | <p><b>* Identify mechanical isolation valves for "A" RHR</b></p> <p>See Key for mistakes in proposed clearance.</p>    |
| <p><b>* Performance Step: 2</b></p> <p><b>Standard:</b></p> <p><b>Comment:</b></p> | <p><b>* Identify electrical breakers to be opened.</b></p> <p>See Key for mistakes in proposed clearance.</p>          |
| <p><b>* Performance Step: 3</b></p> <p><b>Standard:</b></p> <p><b>Comment:</b></p> | <p>Identify vents and drains to depressurize and drain system.</p> <p>See Key for mistakes in proposed clearance.</p>  |
| <p><b>Performance Step: 3</b></p> <p><b>Standard:</b></p> <p><b>Comment:</b></p>   | <p>Identify sequence for hanging tags</p> <p>See Key for sequence.</p>   |
| <p><b>Terminating Cue:</b></p>   | <p><b>When the candidate has completed their review and returned the marked up CO, this JPM may be terminated.</b></p> |

Job Performance Measure No.: Wolf Creek 2007 NRC RO A2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result:                      SAT    \_\_\_\_\_                      UNSAT    \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS:      The plant is in Mode 6. The "A" RHR is to be tagged out to repair a suction strainer flangeleak.

INITIATING CUE:            The Shift manager has directed you identify the necessary clearance order boundaries for work on the "A" RHR suction strainer flange. Review the proposed Clearance Order. Determine any mistakes or omissions and mark up the proposed clearance.

Facility: Wolf Creek Task No.: N/A  
 Task Title: Determine Stay Time for work to be performed JPM No.: 2007 NRC A3 RO  
 K/A Reference: 2.3.10

Examinee: NRC Examiner:  
 Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
 Classroom  X  Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is in Mode 4. Preparations are underway to start RHR cooling trains.

Task Standard: Calculate stay time based on RWP dose limits.

Required Materials: RWP(s), Survey map of RHR HX room.

General References: RWP 070005 Rev. 2

Handouts: RWP(s), Survey map of RHR HX room.

Initiating Cue: The Shift manager has assigned you to be the local operator at EJ V-001, RHR "A" to Letdown isolation. For this task,

- identify the correct RWP and task #.
- describe the dress out requirements.
- identify the dosimetry settings .
- estimate your stay time in the lowest dose area of the room.

Time Critical Task: NO

Validation Time: Minutes

(Denote Critical Steps with an asterisk)

Note: The purpose of this JPM is to have the candidate determine the maximum stay time for an operator stationed at BN-V8717 during Refueling Pool drain down.

- \* Performance Step: 1**      **\* Identify RWP, task number and dose limits on RWP**
- Standard:**                      Determines RWP 2007-0005 should be used, Task #2, and dose limits of 5 mRem and 50mRem/hr.
- Comment:**
- Performance Step: 2**      Describe the dress out requirements for the area.
- Standard:**                      Determine that area is not a contaminated area, no dress out required.
- Comment:**
- \* Performance Step: 3**      **\* Identify dose rates in the area of EJ V –001.**
- Standard:**                      Locate EJ V-001 on survey map and determine lowest general area radiation level for room. Lowest general area reading is 2.5 mRem/hr.
- Comment:**
- \* Performance Step: 4**      **\* Divide dose limit by highest general area to determine maximum stay time.**
- Standard:**                      Perform calculation. 5 mRem dose limit from RWP divided by 2.5 mRem/hr = 2 hours.
- Comment:**
- Terminating Cue:**              **Once examinee has determined maximum stay time, this JPM is complete.**



Job Performance Measure No.: Wolf Creek 2007 NRC RO A3

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result:                      SAT    \_\_\_\_\_                      UNSAT    \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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INITIAL CONDITIONS:      The plant is in Mode 4. Preparations are underway to start RHR cooling trains.

INITIATING CUE:      The Shift manager has assigned you to be the local operator at EJ V-001, RHR "A" to Letdown isolation. For this task,

- identify the correct RWP and task #.
- describe the dress out requirements.
- identify the dosimetry settings .
- estimate your stay time in the lowest dose area of the room.

Facility: Wolf Creek Task No.: N/A  
 Task Title: Perform A QPTR Calculation And Direct Appropriate Actions JPM No.: 2007 NRC A1a SRO  
 K/A Reference: 015 A1.04 (3.5)

Examinee: NRC Examiner:  
 Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
 Classroom  X  Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is at 100% power.

NPIS is out of service.

Task Standard: Determines QPTR outside of TS limits and initiates corrective action IAW Technical Specifications

Required Materials: Calculator, Partially completed STS RE-012, QPTR Determination.

General References: WCRX-21, Rev. 13. Control Room Operating Curves And Tables reference Manual, Cycle 16.  
 STS RE-012, Rev. 10, Quadrant Power Tilt Ration Determination.

Handouts: Partially completed

Initiating Cue: The Shift manager has directed you to complete the manual calculation for QPTR using the partially completed procedure provided, in accordance with the STS RE-012, section 8.4. A flux map is not required. Determine if the calculated values meet Technical Specification limits, and any appropriate actions to take, if necessary.

Time Critical Task: NO

Validation Time: 20 Minutes

(Denote Critical Steps with an asterisk)

Note: The purpose of this JPM is to have the candidate calculate QPTR and to correctly apply the TS actions. The candidate will be provided a STS RE-012 with upper and lower NIS detector currents already filled out.

**Performance Step: 1**

**Standard:** Obtains procedure

**Comment:** **Cue: Hand candidate a copy of partially filled out**

**Performance Step: 2** Normalize each of the detector currents recorded in 8.4.3 by dividing each current by the corresponding normalizing factor.

**Standard:** Locates normalization factors and divide currents by normalization factors. Results: Upper: 256.7, 241.8, 229.9, and 222.9. Lower: 258.8, 264.9, 221.7, and 238.3. Values may vary by  $\pm 0.1$

**Comment:**

\* **Performance Step: 3** Calculate average normalized current for top and lower currents

**Standard:** Performs calculation.

Average upper: Value between 237 to 238.2.

Average lower: Value between 245 and 246.5

**Comment:**

\* **Performance Step: 4** Calculate Quadrant Power Tilt for top and bottom detectors

**Standard:** Performs calculation. Approximate values:

Upper: 1.08, 1.02, 0.96, 0.94

Lower: 1.05, 1.08, .90, .97

Value should be within 0.5 of approximate values.

**Comment:**

- 
- \* **Performance Step: 5** Record Highest Quadrant Power Tilt and appropriate signatures  
**Standard:** Records highest value. Value recorded should be  $1.08 \pm 0.5$ .
- Comment:**
- Performance Step: 6** Determine if flux map is required  
**Standard:** Identify from cue that flux map is not required and go to Section 8.6
- Comment:**
- Performance Step: 7** Determine requirements of TS are NOT met  
**Standard:** Refer to TS and determine that QPTR exceeds 1.02 and determine that a power reduction is necessary. Action A.1. Additionally actions A.2, A.3, A.4, A.5, A.6, and A.7.
- Comment:**
- Terminating Cue:** When the candidate has determined appropriate action per TS, the evaluation for this JPM is complete

Job Performance Measure No.: WC 2007 NRC A1a SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result:                                      SAT    \_\_\_\_\_                                      UNSAT    \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS:      The plant is at 100% power.

NPIS is out of service.

INITIATING CUE:            The Shift manager has directed you to complete the manual calculation for QPTR using the partially completed procedure provided, in accordance with the STS RE-012, section 8.4. A flux map is not required. Determine if the calculated values meet Technical Specification limits, and any appropriate actions to take, if necessary.

Facility: Wolf Creek Task No.: N/A  
 Task Title: Determine RCS boration required to reach Cold Shutdown conditions JPM No.: 2007 NRC SRO A1b  
 K/A Reference: 2.1.25

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
 Classroom  X  Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is in Hot Standby. RCS temperature is stable at 557 degrees F. Current RCS boron concentration is 150 ppm. Core burnup is 19150 MWD/MTU.

Task Standard: Calculate the amount of boration required to reach Cold Shutdown Boron Concentration.

Required Materials: Calculator, Curves & Tables, Boration/Dilution Tables.

General References: WCRX-21, Rev. 13. Control Room Operating Curves And Tables reference Manual, Cycle 16.  
 WCRX-1, Rev. 0, Boration/Dilution Tables  
 SYS BG-200, Rev. 34 Reactor Makeup Control System Normal Operation.

Handouts:

Initiating Cue: The Control Room Supervisor has directed you to calculate the amount of boration necessary to borate the RCS to Cold Shutdown Xenon Free conditions (prior to starting the cooldown). The RCS will be cooled down to 200 degrees.

Time Critical Task: NO

Validation Time: 20 Minutes



(Denote Critical Steps with an asterisk)

Note: The purpose of this JPM is to have the candidate calculate the amount of boron to be added to the RCS in order to borate to Cold Shutdown Xenon-free conditions.

- \* **Performance Step: 1** Determine boron concentration for 200 degrees, 19000 MWD/MTU burnup from Table 7.1
- Standard:** Determine required boron concentration at 200 degrees from Table 7.1 or WCGS Curves & Tables.
- Comment:** **Value should be 930 ppm.**
- \* **Performance Step: 2** Calculate the amount of boric acid necessary to raise RCS boron concentration from 150 ppm to Cold Shutdown Xenon Free required concentration.
- Standard:** Determine amount of boric acid from boration/dilution tables.
- Comment:** **Accept range from 7700 to 7950 gallons.**
- Terminating Cue:** **When the candidate has calculated the amount of boric acid needed, this JPM may be terminated.**

Job Performance Measure No.: Wolf Creek 2007 NRC RO A1b

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result:                      SAT    \_\_\_\_\_                      UNSAT    \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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INITIAL CONDITIONS: The plant is in Hot Standby. RCS temperature is stable at 557 degrees F. Current RCS boron concentration is 150 ppm. Core burnup is 19150 MWD/MTU.

INITIATING CUE: The Control Room Supervisor has directed you to calculate the amount of boration necessary to borate the RCS to Cold Shutdown Xenon Free conditions (prior to starting the cooldown). The RCS will be cooled down to 200 degrees.

Facility: Wolf Creek Task No.: N/A  
 Task Title: Identify clearance boundaries for safety related equipment JPM No.: 2007 NRC A2 SRO  
 K/A Reference: 2.2.13

Examinee: NRC Examiner:  
 Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
 Classroom  X  Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is in Mode 6. The "A" RHR pump is to be tagged out for a suction strainer flange leak.

Task Standard: Determine the boundaries to safely repair RHR Pump A. Identify 2 of the 3 mistakes.

Required Materials: Electrical & Mechanical prints for EJ system.

General References: AP 21E-001, Rev. 21, Clearance Orders.  
 M-12EJ01  
 Clearance Order: R14 EJ-A-0014

Handouts: Clearance Order for "A" RHR Pump

Initiating Cue: The Shift manager has directed you to verify the necessary clearance order boundaries for work on the "A" RHR suction strainer flange. Determine any mistakes or omissions and mark up the proposed clearance.

Time Critical Task: NO

Validation Time: 20 Minutes

(Denote Critical Steps with an asterisk)

Note: The purpose of this JPM is to have the candidate evaluate clearance order boundaries to safely allow work on "A" RHR pump.

\* **Performance Step: 1** Identify mechanical isolation valves for "A" RHR

**Standard:** See Key for mistakes in proposed clearance.

**Comment:**

\* **Performance Step: 2** Identify electrical breakers to be opened.

**Standard:** See Key for mistakes in proposed clearance.

**Comment:**

\* **Performance Step: 3** Identify vents and drains to depressurize and drain system.

**Standard:** See Key for mistakes in proposed clearance.

**Comment:**

**Performance Step: 4** Identify sequence for hanging tags

**Standard:** See Key for sequence.

**Comment:**

**Terminating Cue:** **When the candidate has completed their review and returned the marked up CO, this JPM may be terminated.**

Job Performance Measure No.: Wolf Creek 2007 NRCSRO A2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result:                      SAT    \_\_\_\_\_                      UNSAT    \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS:      The plant is in Mode 6. The "A" RHR is to be tagged out to repair a suction strainer flange leak.

INITIATING CUE:            The Shift manager has directed you identify the necessary clearance order boundaries for work on the "A" RHR suction strainer flange. Review the proposed Clearance Order. Determine any mistakes or omissions and mark up the proposed clearance.

Facility: Wolf Creek Task No.: N/A  
 Task Title: Review a Release Permit For Approval JPM No.: 2007 NRC A3 SRO  
 K/A Reference: 2.3.8

Examinee: NRC Examiner:  
 Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
 Classroom \_\_\_\_\_ Simulator  X  Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is in Mode 1 at full power. Tank THB07A is to be released.

Task Standard: Review THB07A release permit and identify 3 errors

Required Materials: APF 07B-001-01-13, THB07A Release Permit

General References: APF 07B-001-01-13, THB07A Release Permit.  
 AP 07B-001, Radioactive Releases, Rev. 16

Handouts: THB07A Release Permit

Initiating Cue: Today is 10/29/07. Review the release permit for THB07A and identify 3 errors on the permit.

Time Critical Task: NO

Validation Time: 20 Minutes



(Denote Critical Steps with an asterisk)

**NOTE:**

Give the candidate the partially filled out APF 07B-01-013, for THB07A.

**Performance Step: 1** Review form for errors

**Standard:** Candidate reviews data on form.

**Comment:**

\* **Performance Step: 2** Identify expected Monitor Response exceeds alarm setpoints.

**Standard:** Identify that the Expected Monitor Response for HBL186 value shows a value greater than the Low and High setpoints.

**Comment:**

\* **Performance Step: 3** Identify that problem with monitor setpoints.

**Standard:** Identify that HIGH and LOW alarm setpoints appear to be swapped (LOW alarm set higher than HIGH alarm).

**Comment:**

\* **Performance Step: 4** Identify problem with setpoints entered/verified by...

**Standard:** Identify that the same individual performed the setpoint entry and setpoint verification.

**Comment:**

**Terminating Cue:** Any time after the candidate has identified the three error associated with the release form, this JPM is complete

Job Performance Measure No.: 2007 NRC Admin A3 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result:                      SAT    \_\_\_\_\_                      UNSAT    \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS:

The plant is in Mode 1 at full power. Tank THB07A is to be released

INITIATING CUE:

Today is 10/29/07. Review the release permit for THB07A and identify 3 errors on the permit.

Facility: Wolf Creek Task No.: N/A

Task Title: Classify an Event per the E-Plan and make Protective Action Recommendations JPM No.: 2007 NRC A4 SRO

K/A Reference: EPP0020703

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X

Classroom  X  Simulator \_\_\_\_\_ Plant \_\_\_\_\_

### READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: You are the Shift Manager.

A Large Break LOCA event has occurred. The crew has just transitioned to EMG E-1, Loss of Reactor or Secondary Coolant, and is working their way through the procedure. The Shift Engineer reports CSFST indication on Core Cooling status tree has just gone ORANGE. The crew is transitioning to EMG FR-C2, Response to Degraded Core Cooling.

The following plant conditions exist:

- ◆ Only Train A of ECCS equipment is running
- ◆ RCS pressure is less than 100 psig
- ◆ Containment pressure is 10 psig and slowly lowering
- ◆ The MET data indicates no precipitation with the wind from 320° at 6 mph and NO offsite release is occurring.
- ◆ CTMT Hi Range Monitors GT RE-59 & 60 are reading 150 Rem/hr.

Task Standard: Classify the event and make applicable protective action recommendations

Required Materials: APF 06-002-01, EMERGENCY ACTION LEVELS, EPP 06-006, PROTECTIVE ACTION RECOMMENDATIONS.

General References: APF 06-002-01, EMERGENCY ACTION LEVELS,  
EPP 06-006, PROTECTIVE ACTION RECOMMENDATIONS.

Handouts:

Initiating Cue: Classify this event and make any required protective action  
recommendations.

Time Critical Task: No Record Start Time

Validation Time: 15 Minutes

(Denote Critical Steps with an asterisk)

**NOTE:**

Give the candidate the partially filled out APF 07B-01-013, for THB07A.

**Performance Step: 1** Review APF 06-002-01, EMERGENCY ACTION LEVELS to determine classification

**Standard:** EAL trees should be reviewed in order.

**Comment:**

\* **Performance Step: 2** Identify classification requirement on EAL-3, LOSS OF REACTOR COOLANT BOUNDARY.

**Standard:** Identify Emergency classification on EAL-3, path should be indicated as LRCB1, LRCB2, LRCB3, LRCB4, LRCB8, – SITE AREA EMERGENCY.

**Comment:**

\* **Performance Step: 3** Make Protective Action Recommendation

**Standard:** Review EPP 06-006 to determine requirement to make PAR. Required PAR should include Evacuation of JRR and CCL

**Comment:**

**Terminating Cue:** Once examinee has completed classification and PAR, this JPM is complete.

Job Performance Measure No.: 2007 NRC Admin A3 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result:                      SAT    \_\_\_\_\_                      UNSAT    \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: You are the Shift Manager.

A Large Break LOCA event has occurred. The crew has just transitioned to EMG E-1, Loss of Reactor or Secondary Coolant, and is working their way through the procedure. The Shift Engineer reports CSFST indication on Core Cooling status tree has just gone ORANGE. The crew is transitioning to EMG FR-C2, Response to Degraded Core Cooling.

The following plant conditions exist:

- ◆ Only Train A of ECCS equipment is running
- ◆ RCS pressure is less than 100 psig
- ◆ Containment pressure is 10 psig and slowly lowering
- ◆ The MET data indicates no precipitation with the wind from 320° at 6 mph and NO offsite release is occurring.
- ◆ CTMT Hi Range Monitors GT RE-59 & 60 are reading 150 Rem/hr.

INITIATING CUE: Classify this event and make any required protective action recommendations.



# Simulator

## JOB PERFORMANCE MEASURE

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JPM NO: 2007 NRC A	K/A NO: 001 A2.19
COMPLETION TIME:	K/A RATING: 3.6 4.0
JOB TITLE: RO/SRO: Reactor Operator	REVISION: 0
TASK TITLE: Control AFD	
DUTY:	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB  PLANT \_\_\_\_\_ CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED \_\_\_\_\_ PERFORMED

REFERENCES:

TOOLS/EQUIPMENT: NONE

PREPARER: Charles M. Dunbar      DATE: 8/25/07  
\_\_\_\_\_

Init 33

RUN

Enter the following conditional malfunction:

{x03o140r} IMF mSF06B f:1

Read to Performer:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is at approximately 60% power following a load runback due to Stator Cooling Water. The problem has been corrected. The power transient caused a problem with  $\Delta I$ . OFN SF-012 has been entered and Attachment B is being performed.

**Initiating Cues:** The Control Room Supervisor directs you to borate the RCS 25 gallons at 10 gpm and adjust rods per Step B3 of OFN SF-012.

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

**Notes:** Provide copy of OFN SF-012, page 5 of 8 to examinee.

THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930)**.

**Task Standard:** Upon completion of this JPM, the Candidate will have taken actions to dampen a xenon oscillation and responded to a continuous rod withdrawal.

START TIME: \_\_\_\_\_

STOP TIME: \_\_\_\_\_

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Borate the RCS 25 gallons</p> <p>(Caution prior to Step B2 states "Borate prior to rod motion").</p> <p>Step B3</p>		<p>Borate the RCS using SYS BG-200, "Reactor Makeup Control System Operation", Attachment B</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. Set up to borate the RCS</p> <p>Turn on PZR B/U GROUP A/B, as directed by CRS, to mix Reactor Coolant System with Pressurizer water.</p> <p>SYS BG-200 Att. B, Step B.1.1</p>	<p>If asked, CRS directs RO to "<b>Energize both sets of B/U heaters</b>".</p>	<p>Turn on second set of B/U heaters.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>3. Rotate handswitch BG HS-26 to Normal-After-Stop</p> <p>Step B.1.2</p>		<p>Locate BG HS-26, turn switch to STOP, allow switch to spring return to NORMAL.</p>	<p><b>S U</b></p> <p>Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. Rotate handswitch BG HS-25 to Borate</p> <p>Step B.1.3</p>		<p>Locate BG HS-25, rotate switch to BORATE position.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>5. Ensure BG FK-110 is in Auto at desired rate</p> <p>Step B.1.4</p>		<p>Verify BG FK-110 in AUTO, recognize desired rate is 10 gpm.</p> <p>Set BG FK-110 to 2.5 turns <math>\pm</math> 0.2.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>6. BG FY-110B, BA COUNTER, set to desired gallons.</p>		<p>Open window on BG FY-110B, set thumbwheels to read 250 (25.0) gallons</p>	<p><b>S U</b></p> <p>Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. Commence boration BG HS-26 to Normal-After-Run</p> <p>Step B.2.1</p>		<p>Rotate BG HS-26 to RUN position, allow to spring return to NORMAL.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>8. Verify:</p> <ol style="list-style-type: none"> <li>1. One BORIC ACID TRANSFER PUMP running</li> <li>2. BG HIS-110B open</li> <li>3. BG HIS-110A throttles open</li> <li>4. BG FR-110 red pen at proper flowrate.</li> </ol> <p>Step B.2.2</p>		<p>Verify pumps start and valves position as required to borate the RCS.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>9. Ensure boration stops at BG FY-110B setpoint.</p>		<p>Verify BG HIS-110A and BG HIS-110B close and boric acid pumps stop when counter reaches zero.</p>	<p><b>S U</b></p> <p>Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. *Withdraw rods to maintain Tavg.  OFN SF-012, Step B.3	<b>NOTE: When rod motion begins, a malfunction will cause rod to step out continuously.</b>	Place rods in manual and withdraw rods as required to maintain Tavg.	<b>S U</b>  Comments:
11. Recognize that rods continue to move without demand.	<b>NOTE: Operator may cycle switch to AUTO and back to MANUAL as allowed by OFN SF-011, "Rod Control Malfunction" before taking any other action.</b>	Announce continued rod motion.	<b>S U</b>  Comments:
12. *Trip the reactor		Locate manual reactor trip switch and trip the reactor using manual reactor trip switch, SB HS-1.	<b>S U</b>  Comments:

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

**Tripping the reactor  
completes this JPM.  
RECORD STOP TIME  
ON PAGE 1**

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is at approximately 60% power following a load runback due to Stator Cooling Water. The problem has been corrected. The power transient caused a problem with  $\Delta I$ . OFN SF-012 has been entered and Attachment B is being performed.

**Initiating Cues:** The Control Room Supervisor directs you to borate the RCS 25 gallons at 10 gpm and adjust rods per Step B3 of OFN SF-012.



# Simulator

## JOB PERFORMANCE MEASURE

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JPM NO: 2007 NRC B	K/A NO: 004 K 3.07
COMPLETION TIME:	K/A RATING: 3.8/ 4.1
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Transfer from the NCP to a CCP (ASP)	
DUTY:	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB X PLANT \_\_\_\_\_ CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED \_\_\_\_\_ PERFORMED X

REFERENCES:

TOOLS/EQUIPMENT: NONE

PREPARER: \_\_\_\_\_ DATE: \_\_\_\_\_

**Simulator Setup:**

**Ensure the placard is on CCP A**

**Init 30**

**RUN**

**Run file NRC07S2**

**Ensure horns are on**

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is in Mode 1 with the service loop on the B Train.

**Initiating Cues:** The Control Room supervisor directs you to start the “B” CCP and secure the NCP, per 6.2 of SYS BG-201, to support maintenance of the NCP next shift. Initial conditions of SYS BG-201 are complete.

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

**Notes:** Provide an information only copy of SYS BG-201 to the Operator.

THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930)**.

**Task Standard:** Upon completion of this JPM the Operator will have placed CCP B in service per SYS BG-201 and then reestablished charging from the NCP when CCP B trips 30 seconds after it is started.

**START TIME:** \_\_\_\_\_

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

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. IF desired, THEN place CVCS DEMIN INLET DIVERT VLV to VCT position.</p> <p>STEP 6.2.1</p>	<p>When asked as CRS, CUE: <b>It is not desired to perform that step.</b></p>	<p>Ask CRS for directions.</p>	<p><b>S U</b> Comments:</p>
<p>2. Verify CCP Flow Control Valve is in MANUAL and set at 20%.</p> <p>STEP 6.2.2</p>		<p>Locate BG FK-121 on RL001. Verify it is set to 20 % output.</p>	<p><b>S U</b> Comments:</p>
<p>3. Verify CCP B Recirc Valve is OPEN.</p> <p>STEP 6.2.3</p>		<p>Locate BG HIS-8111 on RL001. Verify the Red light is lit</p>	<p><b>S U</b> Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. Verify CCW is being supplied to CCP B  STEP 6.2.4		Locate EG HIS-22 and EG HIS-24 on RL019. Verify CCW pump B running by the Red light lit on the handswitch	<b>S U</b> Comments:
5. IF RCS temperature is greater than or equal to 200°F, THEN ensure CCP A discharge header FCV-121 inlet isolation valve is locked closed  STEP 6.2.5	When called, CUE: <b>BG-8483A is locked closed</b>	Contact the Aux Watch to verify BG-V8483A is locked closed	<b>S U</b> Comments:
6. Unlock and open CCP B discharge Header FCV-121 Inlet Isolation valve  STEP 6.2.6	If contacted, CUE: <b>BG-8483C is open</b>	Contact Aux. Bldg. Operator, verify the status of BG-8483C.  OR  Acceptable for Operator to use the Blue OA tag to determine the position of BG-8483C.	<b>S U</b> Comments:

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. Ensure CCP B AUX L-O PUMP in auto.</p> <ul style="list-style-type: none"> <li>BG HIS-2AX</li> </ul> <p>STEP 6.2.7</p>		<p>Locate BG HIS-2AX on RL001. Handswitch in Mid (auto) position.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>8. *Start CCP B</p> <ul style="list-style-type: none"> <li>BG HIS-2A</li> </ul> <p>STEP 6.2.8</p>	<p>NOTE: This is a reactivity step and Operator should indicate the need for a peer check (Management Expectation – but not critical)</p> <p><b>BOOTH OPERATOR:</b>  <b>When</b> NCP flow controller (BG FK-462) has been decreased to ~30%, insert malfunction <b>mBG13B</b> to trip the “B” CCP.</p>	<p>Locate BG HIS-2A on RL001. Start the pump by turning the switch to RUN. Verify the Red light comes on and the Green light goes out</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>9. Note Annunciator 42E alarming</p>	<p>As CRS, CUE:</p> <p><b>Perform ALR 42E</b></p>	<p>Announce Annunciator 42A and 42E and that CCP B has tripped.</p>	<p><b>S U</b></p> <p>Comments</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. Check previously running charging pump tripped.</p> <p>ALR 00-42E, Step 1</p>		<p>Note that CCP B was running.</p>	<p><b>S U</b> Comments</p>
<p>11. Contact Electrical Maintenance to determine cause of pump trip.</p> <p>Step 2</p>	<p>When Operator starts to initiate call, CUE as CRS:</p> <p><b>I will make that call.</b></p>	<p>Call Maintenance.</p>	<p><b>S U</b> Comments</p>
<p>12. *Check Charging Pumps – NONE running. – NO</p> <p>Step 3</p>		<p>Realize the NCP is still running and proceed to the RNO.</p>	<p><b>S U</b> Comments</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>13. *Adjust charging and letdown flow as necessary to maintain PZR level at program.</p> <p>Step 3a RNO</p>	<p><b>NOTE:</b> This step may vary depending on how far the operator had progressed with increasing 121 flow prior to the pump trip.</p> <p><b>NOTE:</b> Actuating BG FCV-121 to ensure 121 is at 20% output is not a critical action at this time.</p> <p>If the Operator asks for desired flow guidance, CUE:</p> <p><b>Ensure charging and letdown matched.</b></p>	<p>Actuate BG FK-462 while actuating BG FCV-121 to attain desired charging through 462 and ensure 121 is at 20% output.</p>	<p><b>S U</b></p> <p>Comments</p>
<p>14. Return to procedure and step in effect.</p>	<p>When the Operator has established a flow thru 462 to regain or ensure program level CUE:</p> <p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>		<p><b>S U</b></p> <p>Comments</p>

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is in Mode 1 with the service loop on B Train.

**Initiating Cues:** The Control Room Supervisor directs you to start the "B" CCP and secure the NCP, per 6.2 of SYS BG-201, to support maintenance on the NCP next shift. Initial conditions of SYS BG-201 are complete.



# Simulator

## JOB PERFORMANCE MEASURE

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JPM NO: RO C	K/A NO: 003 K1.12 and 003A4.08
COMPLETION TIME:	K/A RATING: 3.0/3/3 – 3.2/2.9
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Restore CCW to the RCP's following Isolation (ASP)	
DUTY:	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB X PLANT \_\_\_\_\_ CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED \_\_\_\_\_ PERFORMED X

REFERENCES:

TOOLS/EQUIPMENT: NONE

PREPARER: \_\_\_\_\_ DATE: \_\_\_\_\_

**Init (any at-power IC)**

**RUN**

**Start one CCW pump in the idle train**

**File JPMS309**

;JPMS309

;Override CCW return from CTMT CLOSED

IOR P19046C

IOR P19046D f:1

;END OF FILE

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is stable in Mode 1. The crew has entered OFN BB-005 due to a loss of CCW to the Reactor Coolant Pumps.

**Initiating Cues:** The Control Room Supervisor directs you to perform Step 5 of OFN BB-005.

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

**Notes:**

THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930)**.

**Task Standard:** Upon completion of this JPM, the Candidate will have restored CCW flow to the RCP's.

**START TIME:** \_\_\_\_\_

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

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Step 5.</p> <p>Verify CCW to Service Loop and Containment.</p> <p>a. Ensure CCW Pumps –AT LEAST ONE RUNNING</p>		<p>Locate handswitches EG HIS-21, 22, 23, &amp; 24 on panel RL019. Verify a red lens lit on at least one of the handswitches.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. Ensure one pair of CCW service loop Supply and Return Valves for an operating CCW Pump – OPEN.</p> <p>❖ EG ZL-15 and EG ZL-53</p> <p><u>OR</u></p> <p>❖ EG ZL-16 and EG ZL-54</p>		<p>Locate EG ZL-15 and 53 or EG ZL-16 and 54 on panel RL019. Verify at least one set of red lens is lit.</p>	<p><b>S U</b></p> <p>Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>3. Ensure CCW to and from RCS isolation valves –OPEN.</p> <ul style="list-style-type: none"> <li>• EG HIS-58</li> <li>• EG HIS-59</li> <li>• EG HIS-60</li> <li>• EG HIS-71</li> </ul>		<p>Locate handswitch EG HIS-58 on panel RL019. Verify red lens lit.</p> <p>Locate handswitch EG HIS-59 on panel RL019. Verify red lens lit.</p> <p>Locate handswitch EG HIS-60 on panel RL019. Verify red lens lit.</p> <p>Locate handswitch EG HIS-71 on panel RL019. Verify red lens lit.</p> <p>Recognize that the green lens is lit for EG HIS-71.</p>	<p style="text-align: center;"><b>S    U</b></p> <p>Comments:</p>
<p>4. Step 5 RNO 1)</p> <p>*If any valve cannot be opened, then re-energize and open associated bypass valve.</p> <ul style="list-style-type: none"> <li>❖ EG HIS-126A and EG HIS-126 for EG HIS-71.</li> </ul>		<p>Locate handswitch EG HIS-126A on panel RL020. Depress the NON-ISO pushbutton.</p> <p>Locate handswitch EG HIS-126 on panel RL020. Depress the OPEN pushbutton. Observe the red lens is lit.</p>	<p style="text-align: center;"><b>S    U</b></p> <p>Comments:</p>

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>5. If any bypass valve is open, then assign an operator to close all bypass valves if Containment Isolation Phase B occurs.</p> <p>Step 5. c. RNO 2)</p>	<p><b>Acknowledge report.</b></p> <p><b>THE JPM IS COMPLETE.</b></p> <p><u>RECORD STOP TIME ON PAGE 1.</u></p>	<p>Recognize requirement to establish a dedicated operator.</p> <p>Inform the CRS of the requirement to establish a dedicated operator to close all bypass valves in case of a CISB.</p>	<p><b>S U</b></p> <p>Comments:</p>

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is stable in Mode 1. The crew has entered OFN BB-005 due to a loss of CCW to the Reactor Coolant Pumps.

**Initiating Cues:** The Control Room Supervisor directs you to perform Step 5 of OFN BB-005.

# Simulator

## JOB PERFORMANCE MEASURE

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JPM NO: 2007 NRC D	K/A NO: 003 A4.06
COMPLETION TIME:	K/A RATING: 2.9 2.9
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Start an RCP (ASP)	
DUTY:	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB  PLANT \_\_\_\_\_ CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED \_\_\_\_\_ PERFORMED

REFERENCES:

TOOLS/EQUIPMENT: NONE

PREPARER: \_\_\_\_\_ DATE: \_\_\_\_\_

**Init 4**  
**RUN**  
**Stop "C" RCP**  
**Insert malfunction mBB31C f:7 r:30 k:1**  
**Stabilize RCS pressure and temperature.**

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** You are the Reactor Operator, the plant is in Mode 4 at  $\approx 350$  psig and  $\approx 345^\circ\text{F}$ . GEN 00-002 is complete through step 6.28.

**Initiating Cues:** The Control Room Supervisor directs you to start RCP "C" using SYS BB-201, prerequisites are signed off.

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

**Notes:** Provide the copy of SYS BB-201 to the examinee.

THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930)**.

**Task Standard:** Upon completion of this JPM the operator will have performed actions to start an RCP per SYS BB-201.

**START TIME:** \_\_\_\_\_

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



TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Initiate seal water injection to the RCPs as follows:</p> <p>Open RCP seal water injection isolation valves.</p> <p>SYS BB-201, Step 6.1.1.1</p>		<p>Locate BB HIS-8351 C on RL021. Verify only the Red light is lit</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. Open RCP seal water return valves.</p> <p>SYS BB-201, Step 6.1.1.2</p>		<p>Locate BB HIS-8141C on RL001. Verify only the Red light is lit.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>3. Verify Seal Water Injection flow to RCPs is between 8 gpm and 13 gpm.</p> <p>SYS BB-201, Step 6.1.1.3</p>		<p>Locate recorder BB FR-156 on RL022. Verify the Blue pen indicates 8-13 gpm.</p>	<p><b>S U</b></p> <p>Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. Check RCP Seal dP greater than 200 psid</p> <p>SYS BB-201, Step 6.1.2</p>		<p>Locate BB PI-152A on RL021. Verify &gt; 200 psid.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>5. Check the following annunciators clear:</p> <p>73A, RCP #2 SEAL FLOW - HI, CLEAR</p> <p>42C, VCT PRESS HILO-CLEAR.</p> <p>71A, RCP #1 SEAL D/P LO-CLEAR</p> <p>73A, RCP #2 SEAL FLOW HI – CLEAR</p> <p>70C-73C, RCP (X) THRM BAR CCW FLOW-CLEAR</p> <p>70E-73E, RCP (X) STNDPIPE LEV LO-CLEAR</p> <p>74D, RCP OIL RSVS LEV HILO-CLEAR</p>		<p>Locate annunciators on RL022. Verify the alarms not lit.</p>	<p><b>S U</b></p> <p>Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
6. Check RCP #1 Seal Leakoff flow in acceptable region of FIGURE 1, RCP NUMBER 1 SEAL LEAKOFF VERSUS SEAL dP.  BG FR-155 for RCP C  Step 6.1.4		Locate BG FR-155 on RL022. Locate the Red and/or Green pen and determine from Fig. 1 that leakoff flow is normal.	S U  Comments:
7. Check RCP Seal Water Injection Temperature less than 135°F.  Step 6.1.5		Locate BG TI-216 on RL002. Verify the Temperature is < 135°F	S U  Comments:
8. Personnel are stationed to constantly monitor the Loose Parts Monitoring System for each RCP start and for 30 minutes following each RCP start.  Step 6.1.6	If asked " <b>the Loose Parts Monitoring System is operable and being monitored</b> ".	Locate annunciator 79F on RL022. Verify the alarm not lit or check the loose parts monitoring system panel.	S U  Comments:

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>9. Monitor RCP temperatures</p> <p>NPIS computer TOC-BB3, REACTOR COOLANT SYSTEM</p> <p>OR</p> <p>Trend recorder BB-TR-500</p> <p>Step 6.1.7</p>		<p>Call up RCP display on NPIS, TOC is BB3</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>10. *Start RCP oil lift pump for the RCP to be started.</p> <p>BB HIS-43 For RCP C - NORMAL-AFTER-RUN</p> <p>Step 6.1.8</p>		<p>Locate BB HIS-43 on RL021. Start the pump by turning the switch to RUN. Verify the Red light comes on and the Green light goes out.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>11. Allow the oil lift pump to run for at least 2 min.</p> <p>Step 6.1.9</p>		<p>Wait 2 minutes before starting RCP</p>	<p><b>S U</b></p> <p>Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>12. * Start the desired RCP</p> <p>Step 6.1.10</p>	<p><b>BOOTH OPERATOR:</b> When RCP is started, <b>ACTIVATE KEY 1</b></p>	<p>Locate BB HIS- 39 on RL021. Start the pump by turning the switch to RUN. Verify the Red light comes on and the Green light goes out.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>13. When the RCP has run for greater than 1 minute, THEN Stop the Lift Pump.</p>	<p><b>NOTE:</b> RCP VIB/SYS ALERT, Alarm window 70B, and RCP VIB DANGER, Alarm window 70A will come in shortly after pump is started. Examinee should refer to ALR.</p> <p>If notified as CRS that alarms are in <b>CUE:</b> <b>Perform the applicable Alarm response.</b></p>	<p>Turn BB HIS-43 to the STOP</p> <p>This step may not be performed if examinee goes directly to ALR.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>14. Check RCP Vibration Monitor OK LEDs = ALL LIT</p> <p>ALR 00-070A, Step 1.</p>		<p>Go to RCP Vibration Monitor simulator (behind control boards) and check RCP Vibration Monitor LEDs all lit.</p>	<p><b>S U</b></p> <p>Comments:</p>



TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>18. Check if Reactor Should be Tripped</p> <p>Check reactor critical – NO, Go to step B3</p>		<p>Recognize reactor is not critical, IF, THEN statement does not apply, Go to Step B3</p>	<p><b>S U</b></p> <p>Comments</p>
<p>19. Shutdown Affected RCP</p> <p>Check RCP A being stopped – No, Go to B.3.c</p> <p>Check RCP B being stopped – No, Go to B.3.e</p> <p>Defeat Tavg and T for RCS loop with affected RCP.</p> <p>BB TS-412T for Tavg</p> <p>BB TS-411F for T</p>		<p>Identify C RCP being shutdown, place BB TS-412T and BB TS-411F to Loop 3.</p>	<p><b>S U</b></p> <p>Comments</p>
<p>20. * Stop affected RCP</p> <p>OFN BB-005, Step B.3.f</p>	<p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>		<p><b>S U</b></p> <p>Comments</p>

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** You are the Reactor Operator, the plant is in Mode 4 at  $\approx$  350 psig and  $\approx$ 345°F. GEN 00-002 is complete through step 6.28.

**Initiating Cues:** The Control Room Supervisor directs you to start RCP "C" using SYS BB-201, prerequisites are signed off.



# Simulator

## WOLF CREEK JOB PERFORMANCE MEASURE

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JPM NO: E	K/A NO: 4.2.069AA1.01
COMPLETION TIME: 10 Minutes	K/A RATING: 3.5 / 3.7
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Manual CISA Isolation; Manual Containment Purge Isolation	
DUTY: Monitor the ESFAS System.	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB  PLANT \_\_\_\_\_ CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED \_\_\_\_\_ PERFORMED

REFERENCES: EMG E-0, Attachment F

TOOLS/EQUIPMENT: NONE

PREPARER:

Charles M Dunlop

DATE:

8/26/2007

**Initial Conditions**

- **IC30**, Go to run.
- Insert mSA18A and mSA18B and mSA23A and mSA23B to block auto CISA. Manual CISA available
- Insert mSA27BG03 and mSA27BG06 to Block auto close of Seal Water Return Iso Valves; manual operation available
- Initiate manual Reactor Trip
- Actuate SI, Train A and Train B.
- Allow simulator to run at least until sequencer has timed out.
- Go to **Frz.**

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant has experienced a reactor trip and safety injection from full power. The crew is performing EMG E-0.

**Initiating Cues:** The CRS has assigned you to perform Attachment F of EMG E-0.

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

**Notes:** Provide an information only copy of EMG E-0, Attachment F, to the Candidate.

THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. (PIR 2003-2930)

**Task Standard:** At the completion of this JPM, the Examinee will have manually initiated Phase A, closed all Phase A valves, and manually initiated CPIS.

START TIME: \_\_\_\_\_

STOP TIME: \_\_\_\_\_

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p><b>1. Verify Feedwater Isolation</b></p> <p>a. Main feedwater pumps – TRIPPED</p> <p>b. Main feedwater reg valves - CLOSED</p> <p>c. Main feedwater reg bypass valves – CLOSED</p> <p>d. Main feedwater isolation valves – CLOSED</p> <p>e. Main feedwater chemical injection valves – CLOSED</p> <p>f. Check ESFAS status panel SGBSIS section - ALL WHITE LIGHTS LIT</p> <p>o Red train o Yellow train</p>		<ul style="list-style-type: none"> <li>• Verifies each Feedwater pump tripped by pump indicating lights and flows</li> <li>• Step b – e Isolation valve – all closed by verifying switch light indications</li> <li>• Verify ESFAS status panel SGBSIS all lights lit</li> </ul>	<p><b>S U</b> Comments:</p>
STEP F1			

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>2. * <b>Verify Containment Isolation Phase A:</b></p> <ul style="list-style-type: none"> <li>• Check ESFAS status panel CISA section – all white</li> </ul> <p>STEP F2</p>		<p>Recognizes CISA section white lights are <b>not</b> lit and perform the RNO.</p> <p>Manually actuate CISA</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>3. *<b>Perform the following:</b></p> <ul style="list-style-type: none"> <li>• If containment isolation phase A has <u>NOT</u> actuated, then manually actuate containment isolation phase A.</li> <li>• IF any CISA valve NOT closed, THEN manually close valves. Refer to Attachment B.</li> </ul> <p>STEP F2 RNO</p>		<p>Locate Status Panels and realize that CISA is actuated for both red and yellow train.</p> <p>Locate Status Panels and realize that BG HV-8100 and BG HV-8112 are not closed. Locate handswitch BG HIS-8100 and BG HIS-8112 on RL001 and actuate the close pushbutton. Observe red light out and green light only illuminated.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p><b>4 Verify AFW Pumps Running</b></p> <ul style="list-style-type: none"> <li>• Check motor driven AFW pumps - BOTH RUNNING</li> <li>• Check turbine driven AFW pump – RUNNING</li> </ul> <p>STEP F3</p>		<p>Locate AL HIS-22A and AL HIS-23A. Note red light only illuminated</p> <p>Locate FC ZL-312 AA and note it is illuminated. Locate AL PI21A discharge pressure indicated</p>	<p><b>S U</b></p> <p>Comments:</p>
<p><b>5 Verify ECCS Pumps running</b></p> <ul style="list-style-type: none"> <li>• Check CCPs - BOTH RUNNING</li> <li>• Check SI Pumps – BOTH RUNNING</li> <li>• Check RHR Pumps – BOTH RUNNING</li> </ul> <p>STEP F4</p>		<p>Locate BG HIS-1A and BG HIS-2A and verify red lights only illuminated.</p> <p>Locate EM HIS-4 and EM HIS-5 and verify red lights only illuminated.</p> <p>Locate EJ HIS-1 and EJ HIS-2 and verify red lights only illuminated.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>6 <b>Verify CCW Alignment:</b></p> <ul style="list-style-type: none"> <li>• Check CCW pumps – ONE RUNNING IN EACH TRAIN</li>   <li>• Check one pair of CCW service loop supply and return valves for an operating CCW Pump – OPEN</li> </ul> <p>STEP F5</p>		<p>Check EG HIS-21 and EG HIS-22. Note red light only illuminated.</p> <p>Check EG ZL-16 and EG ZL-54. Note red lights only illuminated.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>7 <b>Check ESW Pumps – BOTH RUNNING</b></p> <p>STEP F6</p>		<p>Check EF HIS-55A and EF HIS-56A. Note red lights only illuminated.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p><b>8 Check Containment Fan Coolers - RUNNING IN SLOW SPEED</b></p> <p>STEP F7</p>		<p>Locate GN HIS-5, GN HIS-9, GN-HIS-13, and GN HIS-17. Verify slow speed indicated by red lamp.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p><b>9 Verify Containment Purge Isolation:</b></p> <ul style="list-style-type: none"> <li>• Check ESFAS status panel CPIS section – ALL WHITE LIGHTS LIT <ul style="list-style-type: none"> <li>○ Red Train</li> <li>○ Yellow Train</li> </ul> </li> </ul> <p>STEP F8</p>		<p>Determine Containment Purge Isolation section of ESFAS status panels - all lights are lit IF CISA was manually actuated.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p><b>10 Perform the following:</b></p> <ul style="list-style-type: none"> <li>• IF containment purge isolation has NOT actuated, THEN manually actuate containment purge isolation.</li> <li>• IF any CPIS component NOT properly aligned, the MANUALLY align component.</li> </ul> <p>STEP F8 RNO</p>		<p>Locate SA HS-11 and SA HS-15 and actuate Containment Purge manually IF MANUAL CISA was not previously performed</p> <p>Locate Status Panel and note all white lights lit</p>	<p><b>S U</b></p> <p>Comments:</p>
<p><b>11 Verify both trains of Control Room Ventilation Isolation</b></p> <ul style="list-style-type: none"> <li>• Check ESFAS status panel CRVIS section – ALL WHITE LIGHTS LIT <ul style="list-style-type: none"> <li>○ Red Train</li> <li>○ Yellow Train</li> </ul> </li> <li>• Ensure Control Room outer door – CLOSED</li> </ul> <p>STEP F9</p>		<p>Locate CRVIS section on the Status Panel and note all white lights lit</p> <p>Check door closed</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP



TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p><b>12 Verify Main Steamline Isolation not required</b></p> <ul style="list-style-type: none"> <li>• Check Containment pressure – HAS REMAINED LESS THAN 17 PSIG <ul style="list-style-type: none"> <li>○ GN PR-934</li> </ul> </li> <li>• Check either condition below – Satisfied <ul style="list-style-type: none"> <li>○ Low steam line pressure SI - NOT VALID</li> <li>○ Low steam line pressure SI – NOT VALID</li> </ul> </li> </ul> <p>STEP F10</p>		<p>Locate GN PR-934 and verify Verify pressure has remained less than 17 psig.</p> <p>Verify pressure has remained greater than 615 psig.</p> <p>Verify pressure decrease did not exceed 100 psi/50 second drop</p>	<p><b>S U</b></p> <p>Comments:</p>
<p><b>13 Verify Containment Spray Not Required:</b></p> <ul style="list-style-type: none"> <li>• Containment pressure – HAS REMAINED LESS THAN 27 PSIG <ul style="list-style-type: none"> <li>○ Ann 00-059A – NOT LIT</li> <li>○ Ann 00-059B – NOT LIT</li> <li>○ GN PR-934</li> </ul> </li> </ul> <p>STEP F11</p>		<p>Verify annunciator not lit</p> <p>Verify annunciator not lit</p> <p>Verify pressure has remained less than 27 psig.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p><b>14 Verify ECCS Flow</b></p> <ul style="list-style-type: none"> <li>• Check BIT flow meters – FLOW INDICATED</li> <li>• Check RCS pressure – LESS THAN 1700 PSIG</li> </ul> <p>STEP F12</p>		<p>Locate EM FI-917A and B – Note flow is indicated</p> <p>Check RCS pressure is greater than 1700 PSIG and perform the RNO</p>	<p><b>S U</b></p> <p>Comments:</p>
<p><b>15 Go to Step F13</b></p> <p>STEP F12 (b) RNO (b)</p>		<p>Go to Step F13</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p><b>16 Verify AFW Valves – PROPERLY ALIGNED</b></p> <ul style="list-style-type: none"> <li>• Check ESFAS status panel AFAS section</li>   <li>• Check white train ESFAS status panel AFAS section</li> </ul> <p>STEP F13</p>		<p>Note all white lights lit except AL HV-9, AL HV-11, AL HV-5, and AL HV-7</p> <p>Note all white lights lit</p>	<p><b>S U</b></p> <p>Comments:</p>
<p><b>17 Verify SI Valves – PROPERLY ALIGNED</b></p> <ul style="list-style-type: none"> <li>• Check ESFAS status panel SIS section <ul style="list-style-type: none"> <li>○ Red train</li> <li>○ Yellow train</li> </ul> </li> </ul> <p>STEP F14</p>		<p>Note System Level White Lights NOT lit due to expected system alignment (CCP RECIRCS)</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p><b>18 *Check if NCP Should Be Stopped</b></p> <ul style="list-style-type: none"> <li>• CCPs – ANY RUNNING</li> <li>• Stop NCP</li> </ul> <p>STEP F15</p>		<p>Note both CCPs are running</p> <p>Stop the NCP</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>19 Return to Procedure and Step in Effect.</p> <p>STEP F16</p>	<p><b>CUE: Acknowledge report</b></p> <p><b>THIS COMPLETES THE JPM</b></p> <p>Record the Stop time</p>	<p>Report the manual actuation that were required and completion of Attachment F</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The Plant has experienced a reactor trip and safety injection from full power. The crew is performing EMG E-0.

Initiating Cues: The CRS has assigned you to perform Attachment F of EMG E-0.

# Simulator

## JOB PERFORMANCE MEASURE

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JPM NO: F	K/A NO: E05 EA1.1
COMPLETION TIME: 10 Minutes	K/A RATING: 4.1/4.0
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Respond to a loss of Secondary Heat Sink.	
DUTY: Loss of Heat Sink	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB  PLANT \_\_\_\_\_ CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED \_\_\_\_\_ PERFORMED

REFERENCES: EMG FR-H1

TOOLS/EQUIPMENT: NONE

PREPARER: \_\_\_\_\_ Charles M. Dunbar \_\_\_\_\_ DATE: \_\_\_\_\_ 10/12/07 \_\_\_\_\_

**Initial Conditions:**

**IC 301**

**RUN**

Insert malfunction **mBB20A f:100** (final value 100%)

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** A Loss of Secondary Heat Sink occurred. The crew is performing actions of EMG FR-H1. Bleed and Feed was initiated. AFW has been recovered

**Initiating Cues:** The CRS directs you to recover from RCS Bleed and Feed beginning with EMG FR-H1, step 49.

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

Notes: Provide an information only copy of EMG FR-H1, to the examinee.

THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930)**

Task Standard: Upon completion of this JPM, the Operator will Isolate RCS Bleed Path and Stop SI Pumps in accordance with EMG FR-H1

START TIME: \_\_\_\_\_

STOP TIME: \_\_\_\_\_

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Check if SI Can Be Terminated:</p> <p>RCS subcooling – GREATER THAN 30°F [45°F ADVERSE CNMT].</p> <p>Check RVLIS natural circulation indication – GREATER THAN 69%.</p> <p>Go TO Step 51.</p> <p>Step 49</p>		<p>Determines subcooling is adequate and RVLIS is above 69%</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP



Rev

<b>TASK</b>			
<b>NUMBER - ELEMENT</b>	<b>CUE</b>	<b>STANDARD</b>	<b>SCORE</b>
<p>2. Stop ECCS Pumps and place in Standby.</p> <p>Both SI Pumps</p> <ul style="list-style-type: none"> <li>-EM HIS-4</li> <li>-EM HIS-5</li> </ul> <p>All but 1 CCP</p> <ul style="list-style-type: none"> <li>-BG HIS-1A</li> <li>-BG HIS-2A</li> </ul> <p>51.a and 51.b</p>		<p>Candidate stops ECCS Pumps except ONE Charging Pump.</p>	<p style="text-align: center;"><b>S    U</b></p> <p>Comments:</p>
<p>3. Check RCS Bleed Path Status</p> <p>PRZR PORVs AND associated block valves – ANY BLEED PATH OPEN</p> <p>52.a</p>		<p>Determines bleed path is open</p>	<p style="text-align: center;"><b>S    U</b></p> <p>Comments:</p>

\* CRITICAL STEP

Rev

<b>TASK NUMBER - ELEMENT</b>	<b>CUE</b>	<b>STANDARD</b>	<b>SCORE</b>
4. * Close all but ONE PORV.		Candidate closes all but ONE PORV. If attempting to close PORV 455A, PORV 455A will NOT close.	<b>S U</b> Comments:
52.b		Candidate closes associated block valves (8000A)	<b>S U</b> Comments:
52.b RNO			

\* CRITICAL STEP

Rev

<b>TASK</b>			
<b>NUMBER - ELEMENT</b>	<b>CUE</b>	<b>STANDARD</b>	<b>SCORE</b>
<p>6. Verify CCW to service loop.</p> <p>Ensure CCW Pumps at least 1 running.</p> <p>Ensure 1 pair of CCW service loop supply and return valves for an operating CCW Pump – OPEN</p> <p>EG ZL-15 and EG ZL-53</p> <p>OR</p> <p>EG ZL-16 and EG ZL-54</p> <p>Open CCW to Radwaste supply/return isolation valves</p> <p>EG HS-69</p> <p>EG HS-70</p> <p>53</p>		<p>Determines 2 CCW pumps running</p> <p>Determines valves open</p> <p>Opens Radwaste valves EG HV-69/70</p>	<p style="text-align: center;"><b>S    U</b></p> <p>Comments:</p>
<p>7. Verify CCW to containment.</p> <p>Ensure CCW to and from RCS isolation valves – OPEN</p> <ul style="list-style-type: none"> <li>• EG HIS-58</li> <li>• EG HIS-59</li> <li>• EG HIS-60</li> <li>• EG HIS-71</li> </ul> <p>54</p>		<p>Verifies EG HIS 58, 59, 60, 71 are open</p>	<p style="text-align: center;"><b>S    U</b></p> <p>Comments:</p>

\* CRITICAL STEP





Rev

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
			S U
10. Align Charging System			Comments:
Throttle CCP discharge flow control valve to 7% open		Throttles BG FK-121 to 7%	
BG FK-121			
Close charging header back pressure control valve		Closes BG HC-182	
BG HC-182			
Open charging pumps to regenerative heat exchanger containment isolation valves		Opens BG HIS-8105 and BG HIS-8106	
BG HIS-8105			
BG HIS-8106			
Align Regenerative heat exchanger to loop cold leg valves to establish only 1 open		Opens either BG HIS-8146 OR BG HIS-8147	
BG HIS-8146 for loop 1			
BG HIS-8147 for loop 4			
57			

\* CRITICAL STEP

Rev

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<b>S</b>	<b>U</b>
11. * Isolate the BIT				
Close all PORVs		Must isolate PORV 455A with block valve		
Close BIT Inlet valves				
EM HIS-8803A				
EM HIS-8803B		Places EM HIS-8803A and B to close		
Close BIT outlet valves				
EM HIS-8801A				
EM HIS-8801B		Places EM HIS-8801A and B to close		
58				

Comments:

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>12. Establish 60 GPM Charging flow</p> <p>Check CCPs – at least 1 running</p> <p>BG HIS-1A</p> <p>BG HIS-2A</p> <p>Adjust CCP discharge flow control valve as necessary to establish greater than 60 gpm charging flow</p> <p>BG FK-121</p> <p>Adjust charging header back pressure control as necessary to establish between 8 and 13 gpm seal injection flow to each RCP</p> <p>BG HC-182</p> <p>59</p>		<p>Verifies 1 CCP running</p> <p>Adjusts FK-121 until flow indicates 60 GPM</p> <p>Adjusts HC-182 until seal injection is 8-13 gpm each RCP</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP



TASK		STANDARD		SCORE	
NUMBER - ELEMENT	CUE			S	U
13. Check RCS Hot Leg Temperatures – STABLE OR DECREASING.	<p><b>THE JPM IS COMPLETE.</b></p> <p><u>RECORD STOP TIME ON PAGE 1.</u></p>	Candidate checks RCS Hot Leg Temperatures – STABLE OR DECREASING.			<p>Comments:</p>

\* CRITICAL STEP

JPM NO: F

Rev 0

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** A Loss of Secondary Heat Sink occurred. The crew is performing actions of FR-H1. Bleed and Feed was initiated. AFW has been recovered

**Initiating Cues:** The CRS directs you to recover from RCS Bleed and Feed beginning with FR-H1, step 49

# Simulator

## JOB PERFORMANCE MEASURE

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JPM NO: G	K/A NO: 016 A2.02
COMPLETION TIME:	K/A RATING: 2.9 / 3.2
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Respond to a loss of NN04.	
DUTY: Loss of 120 VAC Instrument Bus	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB  PLANT \_\_\_\_\_ CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED \_\_\_\_\_ PERFORMED

REFERENCES:

TOOLS/EQUIPMENT: NONE

PREPARER:

Charles M. Dunbar

DATE:

10/12/07

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**Init 30**

**RUN**

**Insert malfunction mNN04.**

**FRZ**

When examiner is ready, then go to **RUN**.

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is in Mode 1. A loss of NN04 has occurred.

**Initiating Cues:** The Control Room Supervisor directs you to respond to the loss of NN04 using OFN NN-021. Perform steps up to the step to restore power to the bus.

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

**Notes:** Provide a copy of OFN NN-021, LOSS OF VITAL 120 VAC INSTRUMENT BUS, Rev. 11

THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930)**.

**Task Standard:** Upon completion of this JPM, the Candidate will have responded to a loss of 120 VAC instrument bus NN04.

**START TIME:** \_\_\_\_\_

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

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Loss of NN01 or NN02 with control rods inserting.</p> <p>RNO: Go to Step 2.</p>   <p>OFN NN-021, Step 1</p>		<p>Recognize loss of NN04 and perform RNO, Go to Step 2.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. Ensure S/G control channels are using unaffected channels.</p>   <p>OFN NN-021, Step 2</p>		<p>Recognize no red/white train instruments are affected. All S/G channels are unaffected.</p> <p>Go to Step 3.</p>	<p><b>S U</b></p> <p>Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>3. Ensure PZR Control Signals are using unaffected channels.</p> <p>a. Check alternate channel selection required.</p> <p>b. .</p> <p>OFN NN-021, Step 3</p>		<p>Determine NN04 is affected bus. Selected channels not affected. Per Step 3a RNO, go to Step 4</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments: Examinee may determine that selected channel (457) is unaffected and say no to step 3a and go on to step 4.</p>
<p>4. *Check RWST switchover has occurred.</p> <p>a. Close letdown orifice isolation valves.</p> <p>BG HIS-8149AA</p> <p>BG HIS-8149BA</p> <p>BG HIS-8149CA</p> <p>OFN NN-021, Step 4a</p>		<p>Check RWST suction valves to CCP, determine that RWST switchover has occurred.</p> <p>Depress CLOSE pushbutton on letdown orifice isolation valves and verify valves close</p> <p>NOTE: Usually only ONE (1) valve will require repositioning.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>5. *Close Charging flow control valve.</p> <p>BG HC-182</p> <p>OFN NN-021, Step 4b</p>		<p>. Rotate pot on BG HC-182 clockwise to close valve.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>6. Ensure CCP A, CCP B, or NCP, AT LEAST ONE RUNNING.</p> <p>OFN NN-021, Step 4.c</p>		<p>Check status of charging pumps, verify at least one running by checking red light lit.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>7. *Establish 32 gpm seal injection flow.</p> <p>BG FCV-121</p> <p>BG FCV-462</p> <p>OFN NN-021, Step 4.d</p>		<p>Identify NCP as running pump and push "lower" pushbutton on BG FCV-462 to establish 30 to 35 gpm seal injection flow on BG FI-215A.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>8. Stabilize the plant.</p> <p>Stop any plant operation requiring rod motion</p> <p>Adjust turbine load as necessary to maintain Tavg within 3 degrees F of T-Ref.</p> <p>OFN NN-021, Step 5</p>		<p>Identify no operations in progress involving rod motion. Note continuous action to control turbine load to maintain Tavg.</p>	<p><b>S U</b></p> <p>Comments: When examinee has identified continuous action, <b>CUE: "The BOP will assume that continuous action"</b>.</p>

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>9. Dispatch operator to affected instrument bus with backup breaker interlock key</p> <p>OFN NN-021, Step 6</p>		<p>Use gaitronics to page turbine building watch. Send turbine building watch to bus NNO4 with backup breaker interlock key to await instructions.</p>	<p><b>S U</b></p> <p>Comments: Respond as turbine building watch that you will be at bus NN04 with interlock key.</p>
<p>10. Go to Appropriate attachment.</p> <p>OFN NN-021, Step 7</p>		<p>Recognize NN04 has failed, go to Attachment D.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>11. *Defeat RCS temperature control for loop 4.</p> <p>a. Position loop Tavg control signal to -T442</p> <p>BB TS-412T</p> <p>b. Position loop <math>\Delta T</math> control signal to T441</p> <p>BB TS-411F</p>		<p>Defeat loop Tavg and Delta T by selecting 442 on BB TS-412T</p> <p>AND</p> <p>441 on BB TS-411F.</p>	<p><b>S U</b></p> <p>Comments:</p>



TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
12. * Lock S/G D Atmospheric Relief Valve Manual Drive Lever in CLOSED position.  <ul style="list-style-type: none"> <li>• AB PIC-4A</li> </ul>		Place S/G D ARV manual drive lever all the way to the left and ensure lever latches (is held when released).	<p style="text-align: center;"><b>S    U</b></p> <p>Comments:</p>
13. Locally restore power to bus NN04	<p style="text-align: center;"><b>THE JPM IS COMPLETE</b></p> <p style="text-align: center;"><u>RECORD STOP TIME ON PAGE 1</u></p>	Recognize cue was to perform steps up to restoring power.	<p style="text-align: center;"><b>S    U</b></p> <p>Comments:</p>

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is in Mode 1. A loss of NN04 has occurred.

**Initiating Cues:** The Control Room Supervisor directs you to respond to the loss of NN04 using OFN NN-021. Perform steps up to the step to restore power to the bus.

# Simulator

## JOB PERFORMANCE MEASURE

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JPM NO: NRC H	K/A NO: 064 K1.01
COMPLETION TIME: 15 Minutes	K/A RATING: 4.1/4.4
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Manually Start, Synchronize, and Load Emergency Diesel Generator NE02	
DUTY: Monitor and Operate The Electrical System	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB X PLANT \_\_\_\_\_ CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED \_\_\_\_\_ PERFORMED X

REFERENCES: STS KJ-015B

TOOLS/EQUIPMENT:

PREPARER: Charles M. Dunbar DATE: 8/25/07  
\_\_\_\_\_  
\_\_\_\_\_

IC: 30  
Scn File: NA

**Read to Performer:**

**Initial Conditions:** You are the Reactor Operator, the plant is in Mode 1. The Turbine Building operator is standing by in the Emergency Diesel/Generator (ED/G) NE02 room. NE02 had a maintenance run performed 30 minutes ago

**Initiating Cues:** The Control Room Supervisor directs you to start ED/G NE02 and perform the monthly load test per STS KJ-015B, "Manual/Auto Fast Start, Sync & Loading of EDG NE02," complete Steps 8.1.6 through 8.2.12 to fully load the Emergency Diesel Generator. Prerequisites and test equipment sections have been verified and signed off. This procedure is not being performed for procedure STS IC-615B.

A strip chart recorder is NOT being used to monitor EDG voltage and frequency

<b>ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.</b>
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**Notes:** THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930).**

[Provide an information only copy of STN KJ-015B](#)

Ensure that NPIS computer point NEP0007, EMER DG NE02 POWER is selected.

**Task Standard:** Upon completion of this JPM the operator will have started and loaded "B" EDG per STS KJ-015B

START TIME: \_\_\_\_\_

STOP TIME: \_\_\_\_\_

**TASK**  
**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>1. Set up to check air start system operation as follows:</p> <ul style="list-style-type: none"> <li>a. On TV KJ-13, place STARTING AIR CMPSR C to OFF</li> <li>b. On TV KJ-14, place STARTING AIR CMPSR D to OFF</li> <li>c. Record Starting Air Tank pressures in Section B of ATTACHMENT A, TEST DATA. [3.2.2]</li> </ul> <p>STEP 8.1.6</p>	<p>When contacted, Cue: <b>C and D starting Air Compressor switches are in off and both starting air tank pressures are 635 psig</b></p>	<p>Contact Turbine Watch to turn air compressors off and report starting air tank pressures</p> <p>Record pressures on Attachment A</p>	<p style="text-align: center;">Comments:</p>
<p>2. IF a strip chart recorder is being used to monitor EDG voltage and frequency from the point of the start signal until steady state conditions are achieved, THEN start the strip chart recorder at a chart speed of 10 mm/min</p> <p>STEP 8.1.7</p>		<p style="text-align: center;">NA</p>	<p style="text-align: center;">Comments:</p>

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<b>S U</b>
<p>3. * Simultaneously TIME and START EDG NE02 using:</p> <p>a. KJ HS-108A, DG NE02 START-RESET pushbutton</p> <p>OR</p> <p>b. STS IC-615B, SLAVE RELAY TEST K615 TRAIN B SAFETY INJECTION</p> <p>STEP 8.1.8</p>		<p>Locate handswitch KJ HS-108A on panel RL015. Depress the Start/Reset pushbutton. Start the stopwatch.</p> <p>NA</p>	<p>Comments:</p>
<p>4. Update APF 23E-001-01, EDG START LOG FORM</p> <p>STEP 8.1.9</p>		<p>Update the EDG Start Log by checking Diesel Generator B. Fill in the procedure used as STS KJ-015B. Fill in the blanks for start time and date</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

<p>5. Record the time to reach frequency of 58.8 to 61.2 Hz and voltage of 3.74 to 4.32 KV on Attachment A, Section A.</p> <p>a. Verify required indication by circling SAT or UNSAT</p>		<p>Locate frequency meter NE SI-3 on panel RL015. Stop the stopwatch when frequency reaches 58.8 to 61.2 Hz. Locate voltage meter NE EI-2 on panel RL015. Verify generator voltage is between 3.74 and 4.32 KV. Record the time to reach required frequency and voltage</p>	
<p>STEP 8.1.10</p>			<p style="text-align: center;"><b>S U</b></p> <p>Comments:</p>
<p>6. Record steady state frequency and voltage in Section A of ATTACHMENT A, TEST DATA:</p> <p>a. FREQUENCY – RECORDED</p> <p>b. VOLTAGE – RECORDED</p>		<p>Locate frequency meter NE SI-3 and voltage meter NE EI-2 on panel RL015. Record the readings from the two meters on Attachment A, Section A</p>	
<p>STEP 8.1.11</p>			

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p><b>S    U</b></p>
<p>7. IF a strip chart recorder was used to monitor EDG voltage and frequency, THEN perform the following:</p> <p>STEP 8.1.12</p>		<p>NA</p>	<p>Comments:</p>
<p>8. IF NPIS was used to monitor EDG voltage and frequency, THEN perform the following:</p> <p>    a. Print out the trace and record <i>STS KJ-015B section 8.1</i> and <i>Signature/Date</i></p> <p>STEP 8.1.13</p>	<p>When the Examinee takes action to perform this step, Cue: <b>The rest of the crew will perform this</b></p>	<p>Print and annotate</p>	<p><b>S    U</b></p> <p>Comments:</p>
<p>9. Complete air start valve testing as follows and record data in Section B of ATTACHMENT A, TEST DATA: [3.2.2]</p> <p>STEP 8.1.14</p>		<p>Perform the step</p>	<p><b>S    U</b></p> <p>Comments:</p>

\* CRITICAL STEP



**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. Record Starting Air Tank Pressures</p> <p>a. KJ PI-103A - PRESSURE RECORDED</p> <p>b. KJ PI-103B - PRESSURE RECORDED</p> <p>STEP 8.1.14.1</p>	<p><b>When contacted, acknowledge request and report that starting air pressures are 560 psig</b></p>	<p>Communicate with the Operator at NE02 to obtain the starting air tank pressures for CKJ01C and CKJ01D.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>11. Calculate pressure drop for valve KJ PV-101A</p> <p>a. Verify required indication by circling SAT or UNSAT</p> <p>STEP 8.1.14.2</p>		<p>Once the pressures are obtained calculate the differential pressures and record Sat or Unsat on Attachment A, Section B</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>12. Calculate pressure drop for valve KJ PV-101B</p> <p>a. Verify required indication by circling SAT or UNSAT</p> <p>STEP 8.1.14.3</p>		<p>Once the pressures are obtained calculate the differential pressures and record Sat or Unsat on Attachment A, Section B</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>13. On TV KJ-13, place STARTING AIR CMPSR C to AUTO</p> <p style="padding-left: 40px;">a. KJ HIS-102A – AUTO</p> <p>STEP 8.1.14.4</p>	<p>Acknowledge request and Cue: Switch KJ HIS-102A is in auto</p> <p>Examinee may state the switch needs independent verified, Cue: <b>I will send a relief NSO to verify this step</b></p>	<p>Communicate with the Operator at NE02 to place the starting air compressor switch KJ HIS-102A in Auto</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>14. On TV KJ-14, place STARTING AIR CMPSR D to AUTO</p> <p style="padding-left: 40px;">a. KJ HIS-102B – AUTO</p> <p>STEP 8.1.14.5</p>	<p>Acknowledge request and Cue: <b>Switch KJ HIS-102B is in auto</b></p> <p>Examinee may state the switch needs independent verified, Cue: <b>I will send a relief NSO to verify this step</b></p>	<p>Communicate with the Operator at NE02 to place the starting air compressor switch KJ HIS-102B in Auto</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>15. Verify the compressors operate to restore pressure in the starting air receivers</p> <p>STEP 8.1.14.6</p>	<p>Acknowledge request and Cue: <b>Understand verify the starting air compressors operate to restore pressure in the air receivers. Air compressors have started.</b></p>	<p>Communicate with the Operator at NE02 to verify the starting air compressors operate to restore pressure in the air receivers</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

<p>16. WHEN the starting air compressors stop, THEN verify Starting Air Tank pressure is:</p> <p>a. <math>\geq 435</math> psig in both air receivers</p> <p>OR</p> <p>b. <math>\geq 610</math> psig in at least one air receivers</p> <p>STEP 8.1.14.7</p>	<p>When, then, Cue: <b>Compressors have shut down and pressure in both receivers is 615 psig</b></p>	<p>Communicate with NSO at EDG to report tank pressures when the compressor shut down</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>17. IF STS IC-615B, SLAVE RELAY TEST K615 TRAIN B SAFETY INJECTION was used to start EDG NE02, THEN STS IC-615B must be completed through Section 8.2, Testing and Acceptance, before continuing</p> <p>STEP 8.1.15</p>		<p>NA</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>18. Section 8.1, EDG NE02 MANUAL START complete</p>		<p>Sign off step</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			S U
<p>19. * Place DG NE02 UNIT PARALLEL switch to the RESET then PARALLEL position AND hold the switch in PARALLEL until the PARALLEL OPERATION white light is ON at panel NE106</p> <p>a. NE HS-6 - TO RESET THEN PARALLEL</p> <p>b. NE106 PARALLEL OPERATION - WHITE LIGHT LIT</p> <p>c. NE HS-6 - OFF AFTER PARALLEL</p> <p>STEP 8.2.1</p>	<p><b>BOOTH OPERATOR:</b> When contacted to verify white light lit, select local EDG panel from <b>PANEL OVERVIEW</b> and determine status of white light.</p>	<p>Select NE HS-6 to RESET then to PARALLEL</p> <p>Note PARALLEL OPERATION WHITE LIGHT LIT</p> <p>Select NE HS-6 to OFF</p>	<p>Comments:</p>
<p>20. IF NE ZL-31, DG NE02 AT FREQ is NOT LIT, THEN adjust EDG NE02 frequency (nominally 60.0 Hz) by operating DG NE02 GOV switch</p> <p>a. NE ZL-31 – LIT</p> <p>b. KJ HS-107A – ADJUSTED</p> <p>STEP 8.2.2</p>		<p>Adjust KJ HS-107A as necessary to obtain NE ZL-31 - LIT</p>	<p>S U</p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<b>S U</b>
<p>21. IF NE ZL-30, DG NE02 AT VOLT is not LIT, THEN adjust EDG NE02 voltage (nominally 4.16 KV) by operating DG NE02 AUTO VOLT REG switch</p> <p>a. NE ZL-30 – LIT</p> <p>b. NE HS-14A – ADJUSTED</p> <p>STEP 8.2.3</p>		<p>Adjust NE HS-14A as necessary to obtain NE ZL-30 - LIT</p>	<p>Comments:</p>
<p>22. * Place NB02 EMERG SPLY SYNC TRANSFER switch to ON</p> <p>a. NE HS-28 – ON</p> <p>STEP 8.2.4</p>		<p>Locate NE HS-28 and rotate to the ON position</p>	<p>Comments:</p>
<p>23. * Place 4.16 KV BUS NB01 SYNC-SCOPE SEL switch to the D/G FEEDER BREAKER position</p> <p>a. NB HS-11 - D/G FEEDER BREAKER POSITION</p> <p>STEP 8.2.5</p>		<p>Locate NB HS-11 and rotate to the D/G FEEDER BREAKER position</p>	<p>Comments:</p>

\* CRITICAL STEP

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>24. Adjust DG NE02 GOV switch to adjust the frequency so synchroscope NB EI-4 rotates in the FAST direction, with one rotation every 10 to 30 seconds. [3.2.3] (3.1.14)</p> <p style="padding-left: 40px;">a. KJ HS-107A – ADJUSTED</p> <p style="padding-left: 40px;">b. NB EI-4 - FAST DIRECTION, ROTATION 10 TO 30 SEC</p> <p style="padding-left: 40px;">c. NE ZL-31 – LIT</p> <p>STEP 8.2.6</p>		<p>Locate KJ HS-107A and adjust as necessary to obtain necessary rotation and NE ZL-31 LIT indication</p>	<p style="text-align: center;">Comments:</p>
<p>25. * Adjust DG NE02 AUTO VOLT REG switch, so NB EI-29, BUS NB02 VOLTAGE INCOMING SOURCE is approximately equal to NB EI-2, 4.16 KV BUS NB02 VOLT (within ± 50 volts)</p> <p style="padding-left: 40px;">a. NE HS-14A – ADJUSTED</p> <p style="padding-left: 40px;">b. NB EI-29 = NB EI-2 ± 50 volts</p> <p style="padding-left: 40px;">c. NE ZL-26A – LIT</p> <p>STEP 8.2.7</p>		<p>Locate NE HS-14A and adjust as necessary to obtain required values on NB EI-29 and NB EI-2 with NE ZL-26A - LIT</p>	<p style="text-align: center;">Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<b>S    U</b>
<p>26. Verify proper operation of NB ZL-10, 4.16 KV BUS NB02 SYNC LIGHT</p> <p>    a. NB ZL-10 - DIM AT 12 O'CLOCK POSITION</p> <p>    b. NB ZL-10 - BRIGHT AT 6 O'CLOCK POSITION</p> <p>STEP 8.2.8</p>		<p>Locate NB ZL-10 and verify desired indication</p>	<p><b>S    U</b></p> <p>Comments:</p>
<p>27. Parallel NE02 with the grid as follows</p> <p>STEP 8.2.9</p>		<p>Perform STEP 8.2.9</p>	<p><b>S    U</b></p> <p>Comments:</p>
<p>28. *WHEN the synchroscope NB EI-4 pointer reaches the 11 o'clock position, THEN close NB02 EMERG SPLY BKR NB0211</p> <p>    a. NE HIS-26 - NORMAL-AFTER-CLOSE</p> <p>STEP 8.2.9.1</p>		<p>Locate NE HIS-26 and close when NB EI-4 passes 11 O'clock position</p>	<p><b>S    U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

<p>29. * Immediately operate DG NE02 GOV switch, to RAISE to load the diesel generator to greater than 0.5 MW. [3.2.3 &amp; 3.2.4]</p> <p>a. KJ HS-107A - RAISE TO GREATER THAN 0.5 MW</p> <p>STEP 8.2.9.2</p>		<p>Immediately actuate KJ HS-107A to raise to greater than 0.5 MW to prevent reverse power trip</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>30. Adjust the DG NE02 AUTO VOLT REG switch for a lagging power factor of 0.8 to 1.0 as indicated on NE106 (local indicator) or computer point NEU0002, EDG POWER FACTOR FOR NE02</p> <p>a. NE HS-14A - ADJUSTED, 0.8 TO 1.0 LAGGING PF</p> <p>STEP 8.2.9.3</p>		<p>Actuate NE HS-14A as necessary to obtain 0.8 to 1.0 lagging power factor</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP



JPM NO: H

Rev 0

**TASK**  
**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

<b>TASK NUMBER - ELEMENT</b>	<b>CUE</b>	<b>STANDARD</b>	<b>SCORE</b>
31. Place 4.16 KV BUS NB02 SYNC-SCOPE SEL switch to OFF  a. NB HS-11 – OFF  STEP 8.2.9.4		Actuate NB HS-11 to OFF	<b>S U</b>  Comments:
32. Place NB02 EMERG SPLY SYNC TRANSFER switch to OFF  a. NE HS-28 – OFF  STEP 8.2.9.5		Actuate NE HS-28 to OFF	<b>S U</b>  Comments:
33. Update EDG START LOG FORM with the time of breaker closure  a. APF 23E-001-01 - TIME BREAKER CLOSED LOGGED  STEP 8.2.9.6		Log time	<b>S U</b>  Comments:

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

<p>34. If a strip chart recorder is being used, then start the recorder</p> <p>STEP 8.2.10</p>		<p>NA</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>35. Record the Voltage reading from NG02 Load Center</p> <p>STEP 8.2.11.1</p>	<p>When Turbine building is contacted, <b>CUE: "NG02 bus voltage is 485 volts"</b>.</p>	<p>Call Turbine Building watch to obtain voltage indication. Records voltage</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>36. If voltage on NG02 Load Center indicates greater than 506 VAC, then perform the following:</p> <p>Request System Ops decrease switchyard voltage until voltage on NG02 Load Center is less than 505 VAC</p> <p>Increase loading on NG02</p>		<p>Determines that voltage is less than 506 VAC</p> <p>No action required</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

<p>37. Slowly increase EDG load over a 10 – 15 minute period to an indicated 5.58 to 6.201 MW as follows:</p> <p>STEP 8.2.12</p>		<p>Perform STEP 8.2.12</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>38. *Operate KJ HS-107A, GOVERNOR SPEED CONTROL switch, to raise load as needed</p> <p>STEP 8.2.12.1</p>		<p>Locate handswitch KJ HS-107A and kilowatt meter NE JI-3 on panel RL015. Rotate the handle to the right to Raise. Monitor the kilowatt meter to obtain the required 5.58 to 6.201 MW</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>39. Adjust the voltage regulator switch as necessary to maintain lagging power factor of 0.8 to 1.0</p> <p>STEP 8.2.12.2</p>		<p>Locate NE HS-14A and adjust to maintain lagging PF of 0.8 to 1.0</p> <p>Use computer point NEU0002, EDG Power Factor for NE02 or contact the local Operator to read meter NE-106.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

<p>40. When diesel load is greater than or equal to 5.58 MW then perform the following:</p> <p>STEP 8.2.12.3</p>		<p>Perform STEP 8.2.11.3</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>41. Adjust the voltage regulator switch as necessary to achieve a lagging power factor of 0.8 to 0.9.</p> <p>STEP 8.2.12.3.a</p>		<p>Locate NE HS-14A and adjust to maintain lagging PF of 0.8 to 0.9</p> <p>Use computer point NEU0002, EDG Power Factor for NE02 or contact the local Operator to read meter NE-106.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>42. Update EDG Start Log Form</p> <p>STEP 8.2.12.3.b</p>		<p>On APF 23E-001-01, note the time that full load was reached</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

43. Record Time and MW when fully loaded on ATTACHMENT A, Section A		Record time and megawatt when fully loaded on Attachment A, Section A	<b>S U</b>
STEP 8.2.12.4			Comments:
44. Commence taking data on APF 23E-001-04, B DIESEL GENERATOR LOCAL LOGS	Acknowledge request and Cue: <b>Understand commence taking the Diesel Generator Local Log</b>	Communicate with the operator at NE02 to notify him to commence taking the Diesel Generator Local Log	<b>S U</b>
STEP 8.2.12.5			Comments:

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>45. Adjust DG NE02 AUTO VOLT REG switch, as needed, to maintain lagging power factor between 0.8 and 0.9</p> <p style="margin-left: 40px;">a. NE HS-14A - ADJUSTED, 0.8 TO 0.9 LAGGING PF</p> <p>STEP 8.2.13</p>		<p>Locate handswitch NE HS-14A and VAR meter NE JI-4 on panel RL015. Communicate with the operator at NE02 to monitor power factor indicator NE-106 or locate a NPIS computer terminal. Type DPVS for a turn-on code and then enter NEU0002 to monitor the power factor. Monitor the VAR meter to ensure the power factor is lagging.</p>	<p style="text-align: center;">Comments:</p>
<p>46. Adjust DG NE02 GOV switch, as needed, to maintain EDG load greater than or equal to 5.58 MW and less than or equal to 6.201 MW</p> <p style="margin-left: 40px;">a. KJ HS-107A – ADJUSTED</p> <p>STEP 8.2.14</p>	<p style="text-align: center;"><b>THE JPM IS COMPLETE</b></p> <p style="text-align: center;"><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Adjust KJ HS-107A as needed</p>	<p style="text-align: center;"><b>S      U</b></p> <p style="text-align: center;">Comments:</p>

\* CRITICAL STEP

**Initial Conditions:** You are the Reactor Operator, the plant is in Mode 1. The Turbine Building operator is standing by in the Emergency Diesel/Generator (ED/G) NE02 room. NE02 had a maintenance run performed 30 minutes ago

**Initiating Cues:** The Control Room Supervisor directs you to start ED/G NE02 and perform the monthly load test per STS KJ-015B, "Manual/Auto Fast Start, Sync & Loading of EDG NE02," complete Steps 8.1.6 through 8.2.14 to fully load the Emergency Diesel Generator. Prerequisites and test equipment sections have been verified and signed off. This procedure is not being performed for procedure STS IC-615B.

A strip chart recorder is NOT being used to monitor EDG voltage and frequency

Plant

## JOB PERFORMANCE MEASURE

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JPM NO: P 503	K/A NO: 011 EK3.06
COMPLETION TIME: 10 Minutes	K/A RATING: 4.3/4.3
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Locally close all valves which receive a CISB.	
DUTY: Operate Containment Isolation System	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB \_\_\_\_\_ PLANT X CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED X PERFORMED \_\_\_\_\_

REFERENCES: EMG C-0

TOOLS/EQUIPMENT: NONE

PREPARER:

*Ralph S. Ewy*

DATE:

9/6/06

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**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The plant was operating at 100% power when a complete loss of AC power occurred.

**Initiating Cues:** The Control Room Supervisor informs you that a Containment Spray Actuation Signal has been manually actuated and directs you to locally close the outside Containment isolation valves which receive a CISB signal using Step 35 RNO 2. of EMG C-0.

**Do Not Operate Any Equipment In The Plant.**

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

**Notes:** Provide an information only copy of EMG C-0, Step 35.

THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930)**.

**Task Standard:** Upon completion of this JPM, the operator will have locally isolated outside Containment CISB valves.

**START TIME:** \_\_\_\_\_

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

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<b>S      U</b>
<p>1. Locally ensure containment isolation phase B valves - Closed</p> <ul style="list-style-type: none"> <li>o *Close EG HV-58, CCW Return from RCS Outside Ctmt Iso.</li>   <li>o *Close EG HV-59, CCW Return from RCS Outside Ctmt Iso.</li> </ul>	<p><b>Clutch is engaged.</b></p> <p><b>Handwheel will no longer turn in the clockwise direction.</b></p> <p><b>Threads are visible on the stem.</b></p> <p><b>Clutch is engaged.</b></p> <p><b>Handwheel will no longer turn in the clockwise direction.</b></p> <p><b>Threads are visible on the stem.</b></p>	<p>Locate valve on the 2000' level of the Aux. Bldg., north Pipe Pen. room. Check threads showing on the valve stem. Pull down on the clutch lever and turn the handwheel several turns until the clutch key is engaged. Turn the handwheel in the clockwise direction until the handwheel stops.</p> <p>Locate valve on the 2000' level of the Aux. Bldg., north Pipe Pen. Room. Check if the valve stem has all threads showing. Pull down on the declutch lever and turn the handwheel several turns to engage the clutch key. Turn the handwheel in the clockwise direction until the handwheel stops.</p>	<p>Comments:</p>
<p>Step 35., RNO 2.</p>			

\*CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<ul style="list-style-type: none"> <li>o *Close EG HV-61, CCW Return from RCS Outside Ctmt Iso.</li> </ul>	<p><b>Clutch is engaged.</b></p> <p><b>Handwheel will no longer turn in the clockwise direction.</b></p> <p><b>Position indicator is down and threads are visible on the stem.</b></p>	<p>Locate valve on the 2000' level of the Aux. Bldg., north Pipe Pen. room. Check threads showing on the valve stem. Pull down on the clutch lever and turn the handwheel several turns until the clutch key is engaged. Turn the handwheel in the clockwise direction until the handwheel stops turning.</p>	<p><b>S U</b></p> <p>Comments:</p>
<ul style="list-style-type: none"> <li>o *Close EG HV-71, CCW Return from RCS Outside Ctmt Iso.</li> </ul>	<p><b>Clutch is engaged.</b></p> <p><b>Handwheel will no longer turn in the clockwise direction.</b></p> <p><b>Threads are visible on the stem.</b></p>	<p>Locate valve on the 2000' level of the Aux. Bldg., north Pipe Pen. room. Check threads showing on the valve stem. Pull down on the clutch lever and turn the handwheel several turns until the clutch key is engaged. Turn the handwheel in the clockwise direction until the handwheel stops turning.</p>	
<p>STEP 35, RNO 2.(Cont.)</p>	<p><b>Acknowledge report.</b></p> <p><b>THE JPM IS COMPLETE.</b></p> <p><u>RECORD STOP TIME ON PAGE 1.</u></p>	<p>Report actions complete to the Control Room.</p>	

\*CRITICAL STEP

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The plant was operating at 100% power when a complete loss of AC power occurred.

**Initiating Cues:** The Control Room Supervisor informs you that a Containment Spray Actuation Signal has been manually actuated and directs you to locally close the outside Containment isolation valves which receive a CISB signal using Step 35 RNO 2. of EMG C-0.

**Do Not Operate Any Equipment In The Plant.**

Plant

## JOB PERFORMANCE MEASURE

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JPM NO: P 801 (ASP)	K/A NO: 078 K3.02
COMPLETION TIME: 20 Minute	K/A RATING: 3.4/3.6
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Shift Lead Air Dryer Trains.	ASP
DUTY: Operate the Station Air System	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB \_\_\_\_\_ PLANT X CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED X PERFORMED \_\_\_\_\_

REFERENCES: SYS KA-201, ALR 00-092B

TOOLS/EQUIPMENT: Hard hat, safety glasses, hearing protection.

PREPARER: \_\_\_\_\_ Charles M. Dunbar \_\_\_\_\_ DATE: \_\_\_\_\_ 10/12/07 \_\_\_\_\_

**Read to Performer:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is in Mode 1, at 100% power.

**Initiating Cues:** The Control Room Supervisor directs you to place train B instrument air dryer in lead per section 6.1.2 of SYS KA-201, "Instrument Air Dryer Operation." The prerequisites have been signed off.

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

Notes: Provide an information only copy of SYS KA-201 to the examinee. When provided with the location of ALR 00-092B during the JPM, provide the Operator with an information only copy of the ALR.

THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930)**

Task Standard: Upon completion of this JPM, the Operator will have placed train B instrument air dryer in lead per SYS KA-201 and swapped back to A dryer due to a system malfunction.

START TIME: \_\_\_\_\_

STOP TIME: \_\_\_\_\_

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Ensure both train B dryer towers are at KA System pressure:</p> <ul style="list-style-type: none"> <li>○ Dryer 4A pressure               <ul style="list-style-type: none"> <li>○ KA PI-305 – At System Pressure</li> </ul> </li> <li style="text-align: center;"><u>AND</u></li> <li>○ Dryer 4B pressure               <ul style="list-style-type: none"> <li>○ KA PI-306 – At System Pressure</li> </ul> </li> </ul> <p>STEP 6.1.2.1</p>	<p><b>KA PI-305 matches indication on KA PI-6 (KA PI-7) (KA PI-8).</b></p> <p><b>KA PI-306 matches indication on KA PI-6 (KA PI-7) (KA PI-8).</b></p>	<p>Locate KA PI-305 on the west side, south tower and compare to KA PI-6, KA PI-7, or KA PI-8.</p> <p>Locate KA PI-306 on the west side, north tower and compare to KA PI-6, KA PI-7, or KA PI-8.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. * Place B train mode selector switch in manual.</p> <ul style="list-style-type: none"> <li>○ KA HS-295 – In Manual</li> </ul> <p>STEP 6.1.2.2</p>	<p><b>Handswitch indicates manual position.</b></p>	<p>Locate handswitch KA HS-295 on the right side of Panel KA 146. Rotate the handswitch counter clockwise to the MAN position.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

<b>TASK</b>		<b>CUE</b>	<b>STANDARD</b>	<b>SCORE</b>
<b>NUMBER - ELEMENT</b>				
3.	Observe instrument air dryers for proper operation through one complete cycle. (10 minutes)	<p><b>L.T. Drying amber lens is lit.</b></p> <p><b>R.T. Regenerating white lens is lit.</b></p> <p><b>The process has repeated itself successfully on the second tower.</b></p>	<p>Locate indicating lamps labeled L.T. Drying, R.T. Drying, L.T. Regenerating, and R.T. Regenerating on the right side of control panel KA 146. Verify either L.T. Drying or R.T. Drying amber lens is lit.</p> <p>Verify the opposite L.T. Regenerating or R.T. Regenerating white lens illuminates.</p> <p>Verify the process shifts to the second tower.</p>	<p><b>S U</b></p> <p>Comments:</p>
STEP 6.1.2.3				
4.	<p><b>*</b> Place Instrument Air Dryer A Train Mode Selector switch in manual.</p> <ul style="list-style-type: none"> <li>○ KA HS-294 – In Manual</li> </ul>	<p><b>Handswitch indicates manual position.</b></p>	<p>Locate KA HS-294 on panel KA 146, left side. Rotate the switch counter clockwise until the pointer is pointing to MAN.</p>	<p><b>S U</b></p> <p>Comments:</p>
STEP 6.1.2.4				

\* CRITICAL STEP





TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. <b>*</b> Place the Instrument Air Dryer B Train Mode Selector Switch to auto.</p> <ul style="list-style-type: none"> <li>○ KA HS-295 – Selected to Auto</li> </ul> <p>STEP 6.1.2.7</p>	<p><b>Switch is pointing to AUTO.</b></p> <p><b>Control Room has just called to report that they have received the Instrument Air Pre Filter B Delta P High alarm and directs you to perform steps 1 and 2 of ALR 00-092B.</b></p>	<p>Locate handswitch KA HS-295 on panel KA 146, right side. Rotate the switch clockwise to AUTO.</p> <p>Alarm Responses are located in a red binder on top of KA 146. <b>When the Operator opens the binder, provide them with an information only copy of the ALR.</b></p>	<p><b>S U</b></p> <p>Comments:</p>
<p>8. Locally verify differential pressure high.</p> <ul style="list-style-type: none"> <li>○ Check Prefilter 1B Delta - GREATER THAN 4 PSI.</li> <li>○ KA PDI-12B</li> <li>○ Check train B Prefilter High D.P. amber light – LIT.</li> </ul> <p>ALR 00-092B STEP 1.</p>	<p><b>Instrument indicates 6.5 psi.</b></p> <p><b>Amber lens is lit.</b></p>	<p>Locate KA PDI-12B on the south end of the dryer skid. Observe the reading on the pressure DP indicator.</p> <p>Locate train B Prefilter High D.P. amber lens on the right side of panel KA 146, train B section. Verify the amber lens is lit.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>9. Shift lead air dryer trains.</p> <p>a. * Place A train of air dryers in manual.</p> <ul style="list-style-type: none"> <li>o KA HS-294 for Train A</li> </ul> <p>b. Secure B air dryer train using SYS KA-201.</p>	<p><b>Handswitch indicates MAN.</b></p> <p><b>THE JPM IS COMPLETE.</b></p> <p><u>RECORD STOP TIME ON PAGE 1.</u></p>	<p>Locate KA HS-294 on panel KA 146, left side. Rotate the handswitch counterclockwise until the pointer is pointing to MAN.</p> <p>Return to SYS KA-201, Section 6.2.2.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>ALR 00-092B STEP 2.</p>			

\* CRITICAL STEP

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:** The Plant is in Mode 1, at 100% power.

**Initiating Cues:** The Control Room Supervisor directs you to place train B instrument air dryer in lead per section 6.1.2 of SYS KA-201, "Instrument Air Dryer Operation." The prerequisites have been signed off.

# In Plant

## JOB PERFORMANCE MEASURE

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JPM NO: P-310	K/A NO: 026 AK3.03
COMPLETION TIME: 20	K/A RATING: 4.0/4.2
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Align Alternate Cooling to CCP/SIP	
DUTY: Monitor ECCS System	

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The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY       UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TASK PERFORMER: \_\_\_\_\_

LOCATION OF PERFORMANCE:

CONTROL ROOM \_\_\_\_\_ SIMULATOR/LAB \_\_\_\_\_ PLANT   X   CLASSROOM \_\_\_\_\_

METHOD OF PERFORMANCE: SIMULATED   X   PERFORMED \_\_\_\_\_

REFERENCES:

TOOLS/EQUIPMENT:

PREPARER: Charles M. Dunbar DATE: 8/22/07  
\_\_\_\_\_

**Read to Performer:**

**Initial Conditions:** You are the Aux Building Operator, the plant is in Mode 3. A Loss of CCW to Safety Train "B" has occurred and cannot be restored.

**Initiating Cues:** The Control Room Supervisor directs you align alternate cooling water to "B" CCP and "B" SIP per Attachment A of OFN EG-004 using the CVCS Chiller Unit Service Water Return Drain

**Do not operate any equipment in the Plant**

**ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.**

**Notes:** THE EVALUATOR OR EXAM GROUP SHALL VERIFY THAT THE PROCEDURE REVISION FOR THIS JPM IS CURRENT AND THAT ANY CHANGE AGAINST THE REFERENCED PROCEDURE DOES NOT INVALIDATE THIS JPM. **(PIR 2003-2930).**

Provide an information only copy of OFN EG-004, Attachment A

**Task Standard:** Upon Completion of this JPM, the operator will have aligned alternate cooling to one CCP and SI Pump.

START TIME: \_\_\_\_\_

STOP TIME: \_\_\_\_\_



**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>3. *Run 1 hose from selected Water Supply to SI Pump and Connect "Y" fitting to the hose</p> <p>STEP A3</p>	<p>After examinee describes running the hose and connecting the "Y", Cue: <b>The hose is in B SIP Room and the "Y" fitting is attached.</b></p>	<p>Describe running hose to "B" SIP Room and connecting the "Y".</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>4. *Remove cap and connect Chicago fitting to selected CCP CCW Supply Vents.</p> <p>BG-V266, CCP B CCW SUPPLY PP ISO</p> <p>STEP A4</p>	<p>After examinee describes removing cap on BG-V266 and installing the fitting, Cue: <b>Cap is removed and Chicago fitting is installed.</b></p>	<p>Locate BG-V266 in B CCP Pump Room. Describe removing cap on BG-V266 and installing the Chicago fitting</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>5. *Remove cap and connect Chicago fitting to selected CCP CCW Return PP Iso</p> <p>BG-V267, CCP B CCW RETURN PP ISO</p> <p>STEP A5</p>	<p>After examinee describes removing cap on BG-V267 and installing the fitting, Cue: <b>Cap is removed and Chicago fitting is installed.</b></p>	<p>Remove cap and connect Chicago fitting to selected CCP CCW Return PP Iso.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>

\* CRITICAL STEP



**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>6.    <b>* Unlock And Close CCW to CCP Oil Cooler Iso.</b></p> <p>EG-V064, CCW to CCP OIL COOLER 5B ISO</p> <p>STEP A6</p>	<p>After examinee describes unlocking and opening valve, CUE: <b>Valve is unlocked and closed.</b></p>		<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>7.    <b>* Unlock And Close CCP CCW Return Iso From Selected CCP</b></p> <p>BG-V268, CCW B CCW RETURN ISO</p> <p>STEP A7</p>	<p>After examinee describes unlocking and opening valve, CUE: <b>Valve is unlocked and closed.</b></p>		<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>8.    <b>* Connect Hose To Chicago Fitting On Selected CCP CCW Return PP Iso And route Hose To Drain.</b></p> <p>BG-V267, CCP B CCW RETURN PP ISO</p> <p>STEP A8</p>	<p>After the examinee locates and describes attaching hose and routing to drain, CUE: <b>Hose is connected and run to floor drain.</b></p>	<p>Locate hose, describe connecting hose to CCW drain and routing hose to floor drain.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>

**\* CRITICAL STEP**

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>9. *Run One 1 Inch Hose From "Y" Fitting To Selected CCP CCW Supply PP Iso And Connect To Chicago Fitting</p> <p>BG-V266</p> <p>STEP A9</p>	<p>After examinee describes routing hose, CUE: <b>Hose is connected.</b></p>		<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>10. *Remove Cap And Connect Chicago Fitting To Selected SI Pump CCW Inlet PP Iso.</p> <p>EM-V114</p> <p>STEP A10</p>	<p>After the examinee locates and describes removing cap and connecting Chicago fitting, Cue: <b>Cap is removed, Chicago fitting is installed.</b></p>	<p>Locate EM-V114 and describe removing cap and installing Chicago fitting.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>11. *Remove Cap And Connect Chicago Fitting To Selected SI Pump CCW Outlet PP Iso.</p> <p>EM-V104</p> <p>STEP A11</p>	<p>After the examinee locates and describes removing cap and connecting Chicago fitting, Cue: <b>Cap is removed, Chicago fitting is installed.</b></p>	<p>Locate EM-V104 and describe removing cap and installing Chicago fitting.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>12. * Unlock and Close CCW To SI Pump Oil Cooler Iso To Selected SI Pump.</p> <p>EG-V065</p> <p>STEP A12</p>	<p>After the examinee locates and describes unlocking and closing EG-V065, Cue: <b>Valve is unlocked and closed.</b></p>	<p>Locate EG-V065. Describe unlocking and closing EG-V065.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>13. * Unlock And Close SI Pump Cooler CCW outlet Iso From Selected SI Pump</p> <p>EM -V103</p> <p>STEP A13</p>	<p>After the examinee locates and describes unlocking and closing EM-V103, Cue: <b>Valve is unlocked and closed</b></p>	<p>Located EM-V103. Describe removing locking device and closing valve.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>14. * Connect hoses to Chicago fitting on selected SIP CCW Outlet PP Iso And Rout Hose To Drain.</p> <p>EM -V104</p> <p>STEP A14</p>	<p>After the examinee describes connecting and routing the hoses, Cue: <b>Hoses are connected and routed to drain</b></p>	<p>Describe connecting the hose to the Chicago fittings and routing the hoses to the drain</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>15. * Run One 1 Inch Hose From "Y" Fitting To Selected Si Pump CCW inlet PP Iso And Connect To Chicago Fitting.</p> <p>EM-V114</p> <p>STEP A15</p>	<p>After examinee describes running hose, Cue: <b>Hose has been run.</b></p>	<p>Run hose from Y fitting and connect to EM-V114.</p>	<p>Comments:</p>
<p>16. * Open Valve To Hose From Selected Source:</p> <p>BG-V412</p> <p>STEP A16</p>	<p>As examinee describes opening valve, Cue: <b>Valve is opening, hose is stiffening.</b></p>	<p>Locate BG-V412 and demonstrate opening valve.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>17. * Open CCP CCW Supply PP Iso To Selected CCP</p> <p>BG-V266</p> <p>STEP A17</p>	<p>After the examinee locates and describes opening BG-V266, Cue: <b>Valve is open.</b></p>	<p>Locate BG-V266 and describe opening valve.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>18. * Open SI Pump CCW Inlet PP Iso To Selected SI Pump</p> <p>EM-V114</p> <p>STEP A18</p>	<p>After the examinee locates and describes opening EM-V114, Cue: <b>Valve is open.</b></p>	<p>Locate EM-V114 and describe opening valve.</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>19. * Inform Control Room that the cooler drains are ready to be opened.</p> <p>STEP A19</p>	<p>Acknowledge operator, Cue: <b>Open Cooler Drains per step A20 and A21 of OFN EG-004.</b></p>	<p>Using Gaitronics or any other means of communication, contact the Control Room</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
<p>20. * Open CCP CCW Return PP Iso</p> <p>BG-V267, CCP B CCW RETURN PP ISO</p> <p>STEP A20</p>	<p>As examinee describes opening valve, Cue: <b>Flow sounds heard, water flowing from drain valve, Valve is open.</b></p>	<p>Open BG-V267</p>	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK  
NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

<p>21. * Open SI Pump CCW Outlet PP Iso</p> <p>EM-V104, SU PUMP B CCW OUTLET PP ISO</p> <p>STEP A21</p>	<p>As examinee describes opening valve, Cue: <b>Flow sounds heard, water flowing from drain valve, Valve is open.</b></p>	<p>Open EM-V104</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>22. Start CCP or SI Pump(s)</p> <p>STEP A22</p>	<p>Acknowledge operator and Cue: <b>Continue Rounds.</b></p> <p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Notify Control Room that they can start "B" CCP or "B" SIP.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**Initial Conditions:** You are the Aux Building Operator, the plant is in Mode 3. A Loss of CCW to Safety Train "B" has occurred and cannot be restored.

**Initiating Cues:** The Control Room Supervisor directs you align alternate cooling water to "B" CCP and "B" SIP per Attachment A of OFN EG-004 using the CVCS Chiller Unit Service Water Return Drain

**Do not operate any equipment in the Plant**

Facility:	Wolf Creek	Scenario No.:	1	Op Test No.:	NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
Initial Conditions: _____					
65% power, load reduction in progress to remove "B" Main Feed Pump from service					
"A" MDAFW Pump OOS. Return to service expected in 1 day.					
1 PORV inoperable due to control circuitry failure. (Either) Block Valve closed with power removed.					
Turnover:					
"B" MFP has high vibration. Reduce power and remove from service					
<b>Simulator setup: IC 33, RUN, Push CLOSE on BB HIS-8000A (PORV Block Valve), Run Scenario file: 2007NRC01.scn. Place "A" MDAFP in P-T-L and hang DNO tag. Hang DNO tag on BB HIS-8000A.</b>					
Event No.	Malf. No.	Event Type*	Event Description		
1 T=0	N/A	R-ATC N-BOP, SRO	Reduce power from 65% to 60%		
2 T+20	N/A	N-BOP	Stop "B" MFP		
3 T+32		I-ATC, SRO TS-SRO	Controlling PZR level instrument fails low. Letdown isolates; manual restoration required.		
4 T+52		I-BOP, SRO TS-SRO	"B" SG Level Instrument fails low, manual control of SG level required.		
5 T+60		C-ATC C-BOP TS-SRO	Component Cooling Water System (CCW) Leak in the "B" Train Safety Loop. Requires removing "B" Train CCW and ECCS pumps from service. <b>(PRA)</b>		
6 T+75		M	Loss of Off-Site Power. Reactor Trip.		
7		C	"B" Train 1E bus lockout.		
8		M	Steam Line Break in "B" SG.		
9		C	MSIV failure. Manual closure required <b>(CT)</b>		
10		C	TDAFW Pump fails to auto start. Manual start required <b>(CT)</b>		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					



### Scenario #1 Summary

The crew will assume the shift at 65% power with instructions to reduce power in accordance with GEN-004 or OFN-MA-038. After reducing power, the crew will stop "B" Main Feed Pump in accordance with SYS-AE-320.

When the Main Feed Pump is secured, the controlling PZR level instrument fails low. The crew will respond in accordance with OFN-SB-008. Letdown must be restored manually after responding to the initial failure. The SRO will enter and comply with technical specification 3.3.1, function 9, condition M.

When Tech Specs have been addressed, "B" SG level instrument fails low, requiring action to control SG level in accordance with OFN-SB-008. The SRO will enter and comply with technical specification 3.3.1, function 14, condition E, and technical specification 3.3.2, function 6, conditions D and I.

A CCW leak will develop in the "B" Train Safety loop. The crew will respond in accordance with OFN EG-004. The leak must be isolated, Train B ECCS removed from service, and Train "B" CCW removed from service. The SRO will enter and comply with technical specifications 3.5.2 and 3.7.7.

When "B" Train CCW is removed from service, a reactor trip and loss of off-site power will occur. "B" Train 1E Bus (NB02) will lock out, the TDAFW pump will fail to automatically start, and a Main Steam Line break will develop coincident with a failure of MSIVs to close.

Target Critical Tasks for this scenario are to close MSIVs prior to receiving an Orange path on the Integrity CSF Status Tree and start the TDAFW pump prior to requiring Bleed and Feed of the RCS.

EOP usage for this scenario is EMG E-0 to EMG E-2 to EMG ES-03 for SI Termination.

Op Test No.: NRC Scenario # 1 Event # 1 Page 3 of 46

Event Description: Reduce Power

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor:****No action required for event 1****Indications available:****None Applicable**

	BOP	Decrease Turbine load as desired while continuing with this procedure. BOP will use load limit in accordance with Step 6.2.2.b
	CRS	Ensure Chemistry is promptly notified of each power change that is greater than or equal to 15% RTP within a 1 hour period so that RCS DEI can be verified to satisfy SR 3.4.16.2.
	BOP	WHEN Shift Manager or Control Room Supervisor desires to stop one Heater Drain Pump, THEN stop one Heater Drain Pump using SYS AF-121, HEATER DRAIN PUMP OPERATION.  Heater Drain Pump A - STOPPED Heater Drain Pump B – STOPPED
<b>NOTE</b>		
<b>A licensed operator shall peer check reactivity manipulations.</b>		

Op Test No.:   NRC   Scenario #   1   Event #   1   Page   4   of   46  

Event Description: Reduce Power

Time	Position	Applicant's Actions or Behavior
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	RO	Setup to borate the RCS: <ul style="list-style-type: none"> <li>• Turn on PZR HTR B/U GROUP A &amp; B, as directed by CRS, to mix Reactor Coolant System with Pressurizer water.</li> <li>• BB HIS-51A for group A - ON</li> <li>• BB HIS-52A for group B – ON</li> <li>• BG HS-26 to Normal-After-Stop</li> <li>• BG HS-25 to Borate</li> <li>• BG FK-110 in Auto at desired rate</li> <li>• BG FY-110B, BA COUNTER, set to desired gallons</li> </ul>
	RO	Commence boration: <ul style="list-style-type: none"> <li>• BG HS-26 to Normal-After-Run</li> </ul> Verify: <ul style="list-style-type: none"> <li>• One BORIC ACID TRANSFER PUMP running</li> <li>• BG HIS-110B open</li> <li>• BG HIS-110A throttles open</li> <li>• BG FR-110 red pen at proper flowrate</li> </ul>
	RO	Ensure boration stops at BG FY-110B setpoint.
<b>Note</b> <b>Pressurizer Backups Heaters are normally placed in AUTO</b>		
	RO	As directed by CRS, place PZR HTR B/U GROUP A & B in desired position after sufficient time for mixing has elapsed. <ul style="list-style-type: none"> <li>• BB HIS-51A for group A</li> </ul>

Op Test No.:   NRC   Scenario #   1   Event #   1   Page   5   of   46  

Event Description: Reduce Power

Time	Position	Applicant's Actions or Behavior
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		<ul style="list-style-type: none"> <li>• BB HIS-52A for group B</li> </ul>
	RO	Realign for auto operation: <ul style="list-style-type: none"> <li>• BG HS-26 to Normal-After-Stop</li> <li>• BG HS-25 to Auto</li> <li>• BG FK-110 set for Auto makeup</li> <li>• BG HS-26 to Normal-After-Run</li> </ul>
	RO	IF desired, THEN perform Attachment C, Boric Acid Potentiometer Adjustment
	BOP	Shutdown unnecessary secondary equipment as directed by SM/CRS as follows: <ul style="list-style-type: none"> <li>• IF two Main Feedwater Pumps are running, THEN secure one using SYS AE-320, TURBINE DRIVEN MAIN FEEDWATER PUMP SHUTDOWN.</li> </ul>
<b>Lead Examiner may direct initiation of the next event at his discretion</b>		

Op Test No.:   NRC   Scenario #   1   Event #   2   Page   6   of   46  

Event Description: Stop "B" MFP

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor:****When directed, initiate event 2 (no booth action required)**

## CAUTION

If a secondary cooldown is in progress, ensure a flowpath for feed to the S/Gs can be maintained.

## NOTE

At 62% power, two Main Feed Pumps at 4400 rpm will equate to one Main Feed Pump at 5400 rpm.

BOP

Place MFP TURB B SPEED CTRL in manual.  
 ° FC SK-509C-MANUAL

## CAUTION

Monitor feedwater flow and Steam Generator levels during performance of the following steps.

BOP

Place MFP B RECIRC CTRL valve in manual and open.  
 ° AE FIC-1B –MANUAL  
 AND  
 ° AE FIC-1B-OPEN

BOP

Slowly decrease MFP TURB B SPEED CTRL to 3800 rpm.  
 ° FC SK-509C - OUTPUT DECREASED

Op Test No.: NRC Scenario # 1 Event # 2 Page 7 of 46

Event Description: Stop "B" MFP

Time	Position	Applicant's Actions or Behavior
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		° FC SI-133 – 3800 RPM
	BOP	Adjust MFP TURB B MAN SPEED CTRL potentiometer to achieve a zero indication on MFP TURB B MAN/AUTO SIG MATCH indicator.  ° FC HK-188 – SETTING ADJUSTED ° FC EI – 188 – ZERO
	BOP	Depress MFP TURB B SPEED CTRL TRANSFER Switch manual pushbutton.  ° FC HIS – 188 - MANUAL  Slowly decrease MFP TURB B MAN SPEED CTRL potentiometer to 1100 rpm.  ° FC HK – 188 SETTING DECREASED ° FC SI – 133- 1100 RPM
<p style="text-align: center;">NOTE</p> <p>ESFAS should NOT be blocked unless both Main Feedwater Pumps are being secured.</p> <p>To prevent a spurious Aux Feedwater System Actuation, ensure one of the following conditions is met.</p> <ul style="list-style-type: none"> <li>• MFP TURB A TRIP/RESET switch is reset <ul style="list-style-type: none"> <li>° FC HIS – 18 – RESET</li> </ul> </li> </ul> <p style="text-align: center;">OR</p> <p>Ensure AFP ESFAS BLOCK TRAIN A and B Switches are in the block position.</p> <ul style="list-style-type: none"> <li>° FC HS-25 – BLOCK</li> <li>° FC HS-26 – BLOCK</li> </ul>		

Op Test No.: NRC Scenario # 1 Event # 2 Page 8 of 46

Event Description: Stop "B" MFP

Time	Position	Applicant's Actions or Behavior
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	BOP	Depress MFP TURB B TRIP/TEST trip pushbutton. ° FC HIS – 118 – TRIPPED
	BOP	Ensure MFP B DISCH VLV closes. ° AE HIS – 15 – CLOSED
	BOP	Close MFP B RECIRC CTRL Valve. • AE FIC -1B – CLOSED
	BOP	WHEN MFP B coasts down to zero speed, THEN ensure MFP TURB B TURN GR ENGAGE light illuminates. • FC ZL-182A – LIT
	BOP	Open the following MFP TURBINE B drains: 1. MFP TURB B 1 <sup>ST</sup> STG S/U DRN VLV. • FC HIS – 171 – OPEN 2. MFP TURB B HPSV ABOVE SEAT DRN valve. • FC HIS – 104 – OPEN 3. MFP TURB B HPSV BELOW SEAT DRN valve. • FC HIS – 107 – OPEN
	BOP	Open MFP B DISCH VLV. (3.1.3, 3.1.4)

Op Test No.: <u>  NRC  </u> Scenario # <u>  1  </u> Event # <u>  2  </u> Page <u>  9  </u> of <u>  46  </u>		
Event Description: Stop "B" MFP		
Time	Position	Applicant's Actions or Behavior

		<ul style="list-style-type: none"> <li>• AE HIS – 15 – OPEN</li> </ul>
	BOP	<p>IF MFP B will be shutdown for a prolonged period, THEN close the following valves to prevent weal water flow from overflowing the Misc. Condensate Drain Tank:</p> <ol style="list-style-type: none"> <li>1. SG FWP B SEAL WATER SUPPLY REG VLV PDV-52 INLET ISO VLV. <ul style="list-style-type: none"> <li>• AE-V982 – CLOSED</li> </ul> </li> <li>2. SG FWP B SEAL WATER SUPPLY REG VLV PDV-52 BYPASS VLV. <ul style="list-style-type: none"> <li>• AE-V981 – CLOSED</li> </ul> </li> </ol>
	BOP	IF it is desired to secure MFP B Lube Oil System, THEN perform Section 6.4, Shutdown Of MFP B Lube Oil System.
<b>When the B Feed Pump is tripped or at discretion of the Lead Examiner, proceed to the next event</b>		



Op Test No.:   NRC   Scenario #   1   Event #   3   Page   10   of   46  

Event Description: PZR level channel failure

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor:****When directed, initiate event 3 by activating KEY 1.****Indications available:****32C, PZR LO LEV DEV****32B, PZR 17% HTRS OFF LTDN ISO****32E, PZR HTR CTRL TROUBLE****42A, CHG LINE FLOW HI LO****LT-459 indication failing**

	CREW	Respond to MCB alarms
	CREW	Check If Secondary System Instrument Channel Is Malfunctioning: <ul style="list-style-type: none"> <li>• Determine appropriate attachment for malfunctioning channel from table below:</li> </ul> IF secondary system channel is NOT malfunctioning, THEN go to Step 2.
	CREW	Check If Reactor Coolant System Instrument Channel OR Controller Is Malfunctioning: <ul style="list-style-type: none"> <li>• Determine appropriate attachment for malfunctioning channel or controller from table below:               <ul style="list-style-type: none"> <li>○ PZR Level (BB) L-459, L-460, L-461, Attachment J</li> </ul> </li> </ul>
	RO	Identify Failed Instrument Channel:  Compare pressurizer level indications to confirm a pressurizer level channel failure:  BB LI-459A

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>3</u>	Page	<u>11</u>	of	<u>46</u>
Event Description: PZR level channel failure									
Time	Position	Applicant's Actions or Behavior							

	RO	<p>Check Failed Pressurizer Level Channel Selected ON PZR Level Control Selector Switch</p> <p>BB LS-459D</p>
	RO	<p>Select Alternate Pressurizer Level Channel for Control</p> <p>BB LS-459D Selects 461/460</p>
	RO	<p>Check Letdown Flow ESTABLISHED. Re-establish letdown flow as follows:</p> <ol style="list-style-type: none"> <li>a. Open Letdown System Containment Isolation Valves. <ul style="list-style-type: none"> <li>• BG HV-8152</li> <li>• BG HV- 8160</li> </ul> </li> <li>b. Open RCS Letdown To Regenerative Heat Exchanger Valves. <ul style="list-style-type: none"> <li>• BG HID-459</li> <li>• BG HIS-460</li> </ul> </li> <li>c. Place letdown heat exchanger outlet pressure controller in Manual and full open. <ul style="list-style-type: none"> <li>• BG PK-131</li> </ul> </li> <li>d. Open Orifice Isolation Valves as necessary to establish desired letdown flow. <ul style="list-style-type: none"> <li>• BG HIS-8149AA</li> <li>• BG HIS-8149BA</li> <li>• BG HIS-8149CA</li> </ul> </li> </ol>

Op Test No.:   NRC   Scenario #   1   Event #   3   Page   12   of   46  

Event Description: PZR level channel failure

Time	Position	Applicant's Actions or Behavior
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		<p>e. Adjust letdown heat exchanger outlet pressure controller to maintain between 300 psig and 350 psig and place in automatic.</p> <ul style="list-style-type: none"> <li>• BG PK-131</li> </ul>
<p>NOTE</p> <p>Refer to FIGURE 3 for PZR level control band</p>		
	RO	Manually control Charging And Letdown To Stabilize Pressurizer Level At Level Appropriate for Plant Power
	RO	Ensure Pressurizer Control Heaters – ON
	RO	Place Charging/Letdown Flow Control In AUTOMATIC
	RO	Monitor Pressurizer Level Response To Ensure Proper Control
	RO	<p>Check Failed PZR Level Channel- Not USED FOR RECORDER.</p> <p>Select alternate pressurizer level channel as input recorder.</p>

Op Test No.:   NRC   Scenario #   1   Event #   3   Page   13   of   46  

Event Description: PZR level channel failure

Time	Position	Applicant's Actions or Behavior
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	CRS	<p>Monitor The following Technical Specification LCOs And Comply With Action Statements As Appropriate:</p> <ul style="list-style-type: none"> <li>• <b>3.3.1, REACTOR TRIP SYSTEM INSTRUMENTATION</b> <ul style="list-style-type: none"> <li>○ <b>Function 9, 72 hours</b></li> </ul> </li> <li>• 3.3.4, REMOTE SHUTDOWN INSTRUMENTATION, Table 3.3.4-1, Function 12 (<b>Does not apply</b>)</li> <li>• 3.3.3, ACCIDENT MONITORING INSTRUMENTATION, Table 3.3.3-1, Function 11 (<b>Does not apply</b>)</li> </ul>
<p>NOTES</p> <ul style="list-style-type: none"> <li>• When the bistable for the effected instrument is tripped, the output to that control board indication will drop to zero.</li> <li>• If time permits prior to tripping bistables, INC should troubleshoot and obtain as found information including a determination of which SSPS train is affected. M-767-00310, Tables 6-3 and 6-4 may be used to aid INC is SSPS train determination.</li> </ul>		
	RO	<p>Place Appropriate Reactor Trip/Safeguards Bistables For Failed Level Channel In TRIPPED Mode.</p> <ul style="list-style-type: none"> <li>• L-459 LB-459A LS-459A C1 08 47 BS1</li> </ul>
	CRS	Request I&C To Repair Failed Channel
	CRS	Review Attachment S for post accident and remote shutdown instrumentation requirements
	CRS	Return To Procedure And Step In Effect
<p><b>When Technical Specifications have been addressed or at Lead Examiner's discretion, proceed to the next event</b></p>		

Op Test No.:   NRC   Scenario #   1   Event #   4   Page   14   of   46  

Event Description: SG Level channel failure

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor:****When directed, initiate Event 4 by activating KEY 2****Indications available:****109A, SG B LEV LO****109B, SG B LEV DEV****109C, SG B FLOW MISMATCH****Possibly 83C, RX PARTIAL TRIP, if level gets low enough**

	CREW	Respond to MCB Alarms
	BOP	Check Steam Generator B Controlling Level Channel - LESS THAN 30%  * AE LI-529 * AE LI-552
	BOP	Check For Instrument Failure:  Check steam generator B controlling level channel – within 7% of remaining channels  <ul style="list-style-type: none"> <li>• AE LI-529</li> <li>• AE LI-552</li> <li>• AE LI-527</li> <li>• AE LI-528</li> </ul>
	BOP	Place Feedwater Reg valve or Feedwater Reg Bypass control valve in MANUAL

Op Test No.: NRC Scenario # 1 Event # 4 Page 15 of 46

Event Description: SG Level channel failure

Time	Position	Applicant's Actions or Behavior
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		<ul style="list-style-type: none"> <li>FK AE-520</li> <li>FK AE-560</li> </ul>
	BOP	Adjust feedwater reg valve or feedwater reg bypass control valve as necessary to establish steam generator level at program value. <ul style="list-style-type: none"> <li>AE FK-520</li> <li>AE LK-560</li> </ul>
	BOP	Select alternate channel for control. <ul style="list-style-type: none"> <li>AE LS-529C</li> </ul>
	BOP	Return feedwater reg valve or feedwater reg bypass control valve to automatic. <ul style="list-style-type: none"> <li>AE FK-520</li> <li>AE LK-560</li> </ul>
	CRS	Go to OFN SB-008, INSTRUMENT MALFUNCTIONS, Step 1.
	BOP	Check If Secondary System Instrument Channel Is Malfunctioning: <ul style="list-style-type: none"> <li>Determine appropriate attachment for malfunctioning channel from table below:</li> </ul>

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Event Description: SG Level channel failure

Time	Position	Applicant's Actions or Behavior
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		<ul style="list-style-type: none"> <li>○ S/G Level (AE) L-529</li> </ul>
		Go to appropriate attachment for malfunctioning secondary system channel
	BOP	Identify Failed Narrow Range S/G Level Instrument Channel: <ul style="list-style-type: none"> <li>a. compare narrow range S/G level indications to confirm a narrow range S/G level channel failure:               <ul style="list-style-type: none"> <li>○ AE LI-529</li> </ul> </li> </ul>
	BOP	Check Failed S/G level Channel Selected On S/G Level Selector Switch <ul style="list-style-type: none"> <li>• AE LS-519C</li> <li>• AE LS-529C</li> <li>• AE LS-539C</li> <li>• AE LS-549C</li> </ul>
	BOP	Place Affected S/G Feed Reg control Valve IN MANUAL <ul style="list-style-type: none"> <li>• AE FK-510</li> <li>• AE FK-520</li> <li>• AE FK-530</li> <li>• AE FK-540</li> </ul>

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Event Description: SG Level channel failure

Time	Position	Applicant's Actions or Behavior
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	BOP	Adjust Affected Feed Water Reg Valve As Necessary To Establish steam Generator Level At Program <ul style="list-style-type: none"> <li>• AE FK-510</li> <li>• AE FK-520</li> <li>• AE FK-530</li> <li>• AE FK-540</li> </ul>
	BOP	Select Alternate S/G level Channel for Feedwater control <ul style="list-style-type: none"> <li>• AE LS 519C</li> <li>• AE LS 529C</li> <li>• AE LS 539C</li> <li>• AE LS 549C</li> </ul>
	BOP	Restore Affected S/G Feed Reg Valve Controller To – AUTO
	CRS	Monitor The Following Technical Specifications for LCOs And Comply With Action Statements As Appropriate: <ul style="list-style-type: none"> <li>• <b>3.3.1, REACTOR TRIP SYSTEM INSTRUMENTATION</b></li> <li>• <b>3.3.2, ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION</b></li> <li>• 3.3.4, REMOTE SHUTDOWN INSTRUMENTATION, Table 3.3.4, REMOTE SHUTDOWN INSTRUMENTATION, Table 3.3.4-1, function 8 (Not Applicable)</li> <li>• 3.3.3, ACCIDENT MONITORING INSTRUMENTATION, Table 3.3.3-1, function 13 (Not Applicable)</li> </ul>



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Event Description: SG Level channel failure

Time	Position	Applicant's Actions or Behavior
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<p><b>NOTES</b></p> <ul style="list-style-type: none"> <li>• When the last Bistable for the affected instrument is tripped, the output to that control board indication will drop to zero.</li> <li>• If time permits prior to tripping bistables, I&amp;C should troubleshoot and obtain as found information including a determination of which SSPS train is affected. M-767-00310, Tables 6-3 and 6-4 may be used to aid I&amp;C in SSPS Train determination.</li> <li>• Function HI-HI stands for the High Level Override circuitry. Function LO-LO stands for the Low Level Reactor Trip</li> </ul>		
	CRS	Place Appropriate S/G level Bistables For Failed Channel In TRIPPED Mode <ul style="list-style-type: none"> <li>• L-529</li> </ul>
	BOP	Check Any AMSAC S/G Level Channels Failed:  Go to Step F11
	CRS	Request I&C To Repair Failed Channel
	CRS	Review Attachment S for post accident and remote shutdown instrumentation requirements.
		Return To Procedure And Step In Effect
<p><b>On Lead Examiner's cue, proceed to the next event</b></p>		

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>5</u>	Page	<u>19</u>	of	<u>46</u>
Event Description: CCW system leak									
Time	Position	Applicant's Actions or Behavior							

<b>Booth Instructor:</b>		
<b>When directed, initiate Event 5 by activating KEY 3.</b>		
<b>Indications available:</b>		
<b>CCW Surge Tank level lowering</b>		
<b>53D, CCW SRG TK B LEV HI LO after a period of time CCW M/U valve OPENS</b>		
	CREW	Respond to indications and/or alarms
	CRS	Direct entry to OFN EG-004, CCW System Malfunctions
<b>NOTE</b>		
If a leak has occurred on the non-running train, it may not be desirable to start the pump in that train.		
		Check CCW Pumps- ONE RUNNING IN EACH TRAIN
	CREW	Start CCW pump(s), as necessary, to establish one running in each train.

Op Test No.: NRC Scenario # 1 Event # 5 Page 20 of 46

Event Description: CCW system leak

Time	Position	Applicant's Actions or Behavior
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	CREW	<p>IF a CCW pump in the train aligned to the service loop can NOT be started AND alternate CCW train pump is operating, THEN shift service loop to alternate CCW train:</p> <ul style="list-style-type: none"> <li>• Open service loop CCW supply and return valves for train not supplying service loop. <ul style="list-style-type: none"> <li>○ EG ZL-15 AND EG ZL-53 for train A <ul style="list-style-type: none"> <li>▪ EG HS-15</li> </ul> </li> </ul> </li> </ul>
	RO/BOP	<p>Close service loop CCW supply and return valves for train previously supplying service loop.</p> <p>EG ZL-16 AND EG ZL-54 for train B</p> <ul style="list-style-type: none"> <li>○ EG HS-16</li> </ul>
	RO/BOP	<p>Ensure CCW aligned to the following:</p> <ul style="list-style-type: none"> <li>• RCP thermal barriers</li> <li>• RHR, if required</li> <li>• Spent Fuel Pool Cooling</li> </ul>
	RO/BOP	<p>Check Service Loop- ALIGNED TO RUNNING CCW PUMP</p>
<p><b>NOTE</b></p> <p>CCW surge tank M/U valve will automatically close upon high CCW system radiation or surge tank level of 61%.</p>		

Op Test No.: NRC Scenario # 1 Event # 5 Page 21 of 46

Event Description: CCW system leak

Time	Position	Applicant's Actions or Behavior
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	RO/BOP	Check CCW System Inventory: Check CCW surge tank levels- STABLE OR DECREASING IN AN UNCONTROLLED MANNER
	RO/BOP	Check CCW surge tank levels – GREATER THAN 44% WITH NO MAKEUP IN PROGRESS OR REQUIRED.
	RO/BOP	Restore CCW surge Tk levels - GREATER THAN 44% level WITH NO MAKEUP IN PROGRESS OR REQUIRED Close Rad Waste Supply and return valves. <ul style="list-style-type: none"> <li>• EG HS-69</li> <li>• EG HS-70</li> </ul>
	RO/BOP	Ensure DI Water to affected CCW surge tank valve(s) - OPEN EG HIS-2 Surge Tk B
	RO/BOP	Ensure AN pumps – BOTH RUNNING

Op Test No.: NRC Scenario # 1 Event # 5 Page 22 of 46

Event Description: CCW system leak

Time	Position	Applicant's Actions or Behavior
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	RO/BOP	<p>IF CCW surge Tk level can NOT be restored using normal M/U, THEN perform the following:</p> <p>Open ESW M/U valves to affected train</p> <ul style="list-style-type: none"> <li>• EG HIS-12 AND EG HIS-14 for B</li> </ul>
	RO/BOP	Operate ESW M/U valves to control surge Tk level between 40% and 60%.
	RO/BOP	Check CCW surge tank levels – LESS THAN 61%
	RO/BOP	Check CCW Surge Tank Levels- STABLE WITH NO MAKEUP IN PROGRESS. Go to Step 4
	CREW	<p>Identify CCW Leak:</p> <ul style="list-style-type: none"> <li>• CCW flow indicator (s) –ABNORMALLY HIGH OR</li> <li>• CCW flow indicators –ABNORMALLY LOW OR</li> <li>• CTMT sump levels INCREASING OR</li> <li>• Aux Building sump levels INCREASING OR</li> <li>• CCW Load temperature ABNORMALLY HIGH OR</li> <li>• CCW LOAD TEMPERATURES ABNORMALLY LOW OR</li> <li>• Local visual confirmation</li> </ul>
<p><b>Booth instructor:</b> When dispatched to look for leaks in the Aux Building, report back that there is a leak on the inlet flange for EG FE-064 on “B” RHR heat exchanger.</p>		

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>5</u>	Page	<u>23</u>	of	<u>46</u>
Event Description: CCW system leak									
Time	Position	Applicant's Actions or Behavior							

	CREW	<p>Check location of leak- Identified as one the following:</p> <ul style="list-style-type: none"> <li>• Safety loop Train A</li> <li>• Safety loop Train B <b>(YES)</b></li> <li>• Service Loop Inside CTMT</li> <li>• Service Loop Outside CTMT</li> </ul>
	RO/BOP	<p>Check Leak On Service Loop INSIDE CONTAINMENT</p> <p>Go to step 12</p>
	RO/BOP	<p>Check Leak on Service Loop – OUTSIDE CONTAINMENT</p> <p>Go to Step 19</p>
	RO/BOP	<p>Check Leak Identified on – SAFETY LOOP</p>
	RO/BOP	<p>Ensure a CCW pump in intact CCW train – RUNNING</p>
	RO/BOP	<p>Ensure intact CCW train aligned to supply service loop:</p>

Op Test No.: NRC Scenario # 1 Event # 5 Page 24 of 46

Event Description: CCW system leak

Time	Position	Applicant's Actions or Behavior
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	RO/BOP	<p>Open service loop CCW supply and return valves on intact CCW train.</p> <p>EG ZL-15 AND EG ZL-53 for train A</p> <ul style="list-style-type: none"> <li>• EG HS -15</li> </ul>
	RO/BOP	<p>Close service loop CCW supply and return valves on affected CCW train.</p> <p>EG ZL-16 AND EG ZL -54 for train B</p> <ul style="list-style-type: none"> <li>• EG HS-16</li> </ul>
	CREW	<p>Isolate Leaking CCW train:</p> <ol style="list-style-type: none"> <li>a. Check charging flow- SUPPLIED FROM NCP OR CCP ON INTACT CCW TRAIN</li> <li>b. Stop CCW pumps on leakng CCW train AND place in PTL</li> <li>c. Close isolation valves immediately upstream and downstream of leak</li> <li>d. Place supported equipment in PTL or Normal After Stop</li> </ol> <ul style="list-style-type: none"> <li>• CCP-PTL</li> <li>• SI Pump- PTL</li> <li>• RHR Pump – PTL</li> <li>• SFP Cooling Pump –NAS</li> </ul>





Op Test No.: NRC Scenario # 1 Event # 6, 7, 8, 9, 10 Page 26 of 46

Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor:****When directed, initiate event 6 by activating KEY 4**

**Indications available: Main Control Room lighting goes out, some restores when the available EDG picks up the bus. Multiple UV alarms on Safeguards busses. Reactor trip alarms.**

**CAUTION**

Accident conditions can cause higher than normal radiation levels. Health Physics monitoring may be required while performing local operator actions.

**NOTES**

Steps 1 thru 4 are immediate action steps  
Foldout page shall be monitored throughout this procedure.

	RO	<p>Verify Reactor Trip:</p> <p>Check all rod bottom lights-LIT</p> <p>Ensure reactor trip breakers and bypass breakers – OPEN</p> <ul style="list-style-type: none"> <li>• SB ZL-1</li> <li>• SB ZL-2</li> <li>• SB ZL-3</li> <li>• SB ZL-4</li> </ul> <p>Check intermediate range neutron flux – DECREASING</p> <ul style="list-style-type: none"> <li>• SE NI-35B GAMMA METRICS</li> <li>• SE NI-36B GAMMA METRICS</li> </ul>

Op Test No.: NRC Scenario # 1 Event # 6, 7, 8, 9, 10 Page 27 of 46

Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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	BOP	Verify Turbine Trip: <ol style="list-style-type: none"> <li>a. Check the following:               <p>Main Stop Valves- ALL CLOSED OR Turbine Auto Stop bistable lights – AT LEAST TWO LIT</p> </li> <li>b. Check main generator breakers and exciter breaker-OPEN               <ul style="list-style-type: none"> <li>• MA ZL-3A</li> <li>• MA ZL-4A</li> <li>• MA ZL-2</li> </ul> </li> </ol>
	RO	Check AC Emergency Busses- AT LEAST ONE ENERGIZED <ul style="list-style-type: none"> <li>• NB01 Voltage NORMAL</li> <li>• NB02 voltage NORMAL – (NB02 Bus Lock Out)</li> </ul>
	RO	Check any indication SI is actuated- LIT <ul style="list-style-type: none"> <li>• Annunciator 00-30A, NF039A LOCA SEQ ACTUATED LIT OR</li> <li>• Annunciator 00-031A, NF039B LOCA SEQ ACTUATED – LIT OR</li> <li>• ESFAS status panel SIS section – ANY WHITE LIGHTS LIT OR</li> <li>• Partial Trip Status Permissive/block status panel- SI RED LIGHT LIT</li> <li>• Ensure both trains of SI actuated               <ul style="list-style-type: none"> <li>○ SB HS-27</li> <li>○ SB HS-28</li> </ul> </li> </ul>

Op Test No.: NRC Scenario # 1 Event # 6, 7, 8, 9, 10 Page 28 of 46

Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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Time	Position	Applicant's Actions or Behavior
<b>CAUTION</b>		
If offsite power is lost after SI reset, manual action may be required to restore safeguards equipment to the required configuration.		
NOTE: SI may not immediately be required, but as S/G pressures decrease, PZR level will also decrease with RCS temperature. SI will be required.		
	RO	Check if SI is required: <ul style="list-style-type: none"> <li>• SI was manually actuated AND was required OR</li> <li>• RCS pressure LESS THAN OR EQUAL TO 1830 PSIG</li> </ul> OR <ul style="list-style-type: none"> <li>• Any S/G pressure LESS THAN OR EQUAL TO 615 PSIG</li> </ul> OR <ul style="list-style-type: none"> <li>• Containment pressure GREATER THAN OR EQUAL TO 3.5 PSIG</li> </ul> OR <ul style="list-style-type: none"> <li>• RCS subcooling- LESS THAN 30 DEGREES F.</li> </ul> OR <ul style="list-style-type: none"> <li>• PZR LEVEL – LESS THAN 6% (33%)</li> </ul>
	RO	Verify Automatic actions using Attachment F, AUTOMATIC SIGNAL VERIFICATION  (No power on NB02) Critical tasks from Att. F: <b>Start TDAFP and close MSIV's.</b> <b>NOTE: MSIV closure may also be performed based on EMG E-0 Fold-out page criteria.</b>
	BOP	Check Total AFW Flow- GREATER THAN 270,000

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Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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		<p>LBM.HR</p> <p>Perform the following:</p> <p>IF S/G narrow range level in at least one S/G is greater than 6% (29%), THEN control feed flow to maintain narrow range level and go to Step 8.</p> <p>Manually start pumps and align valves as necessary to establish greater than 270,00 lbm/hr AFW flow.</p> <p><b>(Start TDAFW)</b></p>
	BOP	<p>Check RCS Cold Leg Temperatures</p> <ul style="list-style-type: none"> <li>• Stable at or trending to 557 degrees F for condenser steam dumps</li> <li>• Stable at or trending to 561°F for S/G ARVs</li> </ul>
	BOP	<p>Perform the following:</p> <p>If temperature is less than setpoint and decreasing, THEN perform the following:</p> <ul style="list-style-type: none"> <li>• Stop dumping steam.</li> <li>• Close Main Turbine Stop and control valves startup drains.</li> <li>• -AC HIS-134 - MSIV's open</li> </ul>
	BOP	<p>IF cooldown continues, THEN control total feed flow to limit RCS cooldown. Maintain total feed flow greater than 270,000 lbm/hr until narrow range level greater than 6% (29%) in at least one S/G/</p>
	BOP	<p>If cooldown continues due to excessive steam flow, then</p>

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Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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		close main steamline isolation valves, bypass valves, and drain valves. <b>(Close MSIV's)</b>
	BOP	Establish S/G Pressure Control: a. Check condenser AVAILABLE. <ul style="list-style-type: none"> <li>• C-9 LIT</li> <li>• MSIV – OPEN NO</li> <li>• Circulating Water pumps-RUNNING NO</li> </ul> Perform the following: <ul style="list-style-type: none"> <li>• Use S/G ARVs</li> <li>• Got to Step 10</li> </ul>
	BOP	Check PZR PORV's CLOSED <ul style="list-style-type: none"> <li>• BB HIS-455A</li> <li>• BB HIS-456 A</li> </ul>
	BOP	Power to block valves – AVAILABLE <ul style="list-style-type: none"> <li>• BB HIS-8000A</li> <li>• BB HIS-8000B</li> </ul>
	BOP	RCS pressure – LESS THAN 2185 PSIG
	BOP	Check Normal PZR spray Valves-CLOSED <ul style="list-style-type: none"> <li>• BB ZL-455B</li> <li>• BB ZL-455C</li> </ul>
	BOP	Check PZR Safety Valves-CLOSED <ul style="list-style-type: none"> <li>• BB ZL-8010A</li> <li>• BB ZL-8010B</li> </ul>

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>6, 7, 8, 9, 10</u>	Page	<u>31</u>	of	<u>46</u>
Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> <li>BB ZL-8010C</li> </ul>
NOTE		
Seal injection flow shall be maintained to all RCPs		
	BOP	Check if RCPs should be stopped: <ol style="list-style-type: none"> <li>Check RCPs- ANY RUNNING</li> <li>Check RCS pressure-LESS THAN 1400 PSIG</li> </ol> GO TO STEP 14
	CRS	Direct Operator To Monitor Critical Safety Functions Using EMG F-0, CRITICAL SAFETY FUNCTION STATUS TREES (CSFST).
	BOP	Check if S/Gs Are Not Faulted <ol style="list-style-type: none"> <li>Check all pressures in all S/Gs</li> <li>NO S/G PRESSURE DECREASING IN AN UNCONTROLLED MANNER</li> <li>NO S/G COMPLETELY DEPRESSURIZED.</li> </ol>
	CREW	PERFORM THE FOLLOWING: Ensure BIT Inlet And Outlet Valves are open <ul style="list-style-type: none"> <li>EM HIS-8803A</li> <li>EM HIS-8803B</li> <li>EM HIS-8801A</li> </ul>

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Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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		<ul style="list-style-type: none"> <li>EM HIS-8801B</li> </ul>
		Go to EMG E-2, FAULTED STEAM GENERATOR ISOLATION, step 1
CAUTIONS		
		<ul style="list-style-type: none"> <li>AT least one S/G shall be maintained available for RCS cooldown</li> <li>If any faulted S/G or secondary break is not needed for RCS cooldown, it shall remain isolated during subsequent recovery actions.</li> </ul>
NOTE		
		Foldout page shall be monitored throughout this procedure.
	BOP	Check Steamlines On All S/Gs –ISOLATED
	BOP	Ensure main steamline isolation valve(s)-CLOSED <ul style="list-style-type: none"> <li>AB HIS-14 for S/G A</li> <li>AB HIS-17 for S/G B</li> <li>AB HIS-20 for S/G C</li> <li>AB HIS-11 for S/G D</li> </ul>
	BOP	Ensure main steamline isolation bypass valves-CLOSED <ul style="list-style-type: none"> <li>AB ZL-15A for S/G A</li> <li>AB ZL-18A for S/G B</li> </ul>

Op Test No.: <u>  NRC  </u> Scenario # <u>  1  </u> Event # <u>  6, 7, 8, 9, 10  </u> Page <u>  33  </u> of <u>  46  </u>		
Event Description:      Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure		
Time	Position	Applicant's Actions or Behavior

		<ul style="list-style-type: none"> <li>• AB ZL-21A FOR S/G C</li> <li>• AB ZL-21 A FOR S/G D</li> </ul>



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Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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	BOP	<p>Ensure main steamline low point drain valves (s) – CLOSED</p> <ul style="list-style-type: none"> <li>• AB HIS-9 for S/G A</li> <li>• AB HIS-8 for S/G B</li> <li>• AB HIS-7 for S/G C</li> <li>• AB HIS-10 for S/G D</li> </ul>
	BOP	<p>-Check if Limitations For Fault In Area 5 Are required:</p> <p>-Check if steam is issuing from vent openings at 2000 foot elevation on south end of Turbine Building</p> <p>-Warn local operators of adverse conditions in main steam enclosure</p> <p>-Use S/G ARV pressure indicating controllers on RL-06 for S/G pressure indication during subsequent recovery actions.</p> <p>-Use pressure and flow indications to determine valve position for valves located in the main steam enclosure</p> <p>-DO NOT RESET AFAS-TD until turbine driven AFW pump shutdown is required.</p> <p>-Use manual initiation of AFAS-TD as necessary to restart turbine driven AFW pump.</p>
	BOP	<p>Check If Any S/G Is Not Faulted:</p> <p>-Check pressure in all S/Gs Any S/G PRESSURE STABLE OR ANY S/G PRESSURE INCREASING</p>

Op Test No.:   NRC   Scenario #   1   Event #   6, 7, 8, 9, 10   Page   35   of   46  

Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDADF failure

Time	Position	Applicant's Actions or Behavior
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	BOP	Identify Faulted S/Gs:  -Check pressure in all S/Gs: Any S/G PRESSURE DECREASING IN AN UNCONTROLLED MANNER OR ANY S/G COMPLETELY DEPRESSURIZED
<b>CAUTION</b>  If the turbine driven AFW pump is the only available source of feed flow, steam supply to the turbine driven afw pump must be maintained from at least one S/G.		
	BOP	Isolated Faulted S/Gs:  Close AFW flow control valves to faulted S/Gs -AL HK-10A and AL HK-9A for S/G B
	BOP	Locally close steam supply to turbine driven AFW pump from faulted S/G(s) <ul style="list-style-type: none"> <li>• AB-V085 for S/G B</li> </ul>
<b>Booth instructor:</b> When called to close AB-V085, actuate <b>KEY 5</b> . When valve indicates closed on summary page, report action complete.		
	BOP	Ensure S/G ARV on faulted S/G(s) – CLOSED  -AB PIC-2A for S/G B

Op Test No.:   NRC   Scenario #   1   Event #   6, 7, 8, 9, 10   Page   36   of   46  

Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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	BOP	Verify Feedline Isolated On Faulted S/G(s) -Main feedwater reg valve- CLOSED AE ZL-520 for S/G B
	BOP	Main feedwater reg bypass valve-CLOSED <ul style="list-style-type: none"><li>• AE ZL-560</li></ul>
	BOP	Main feedwater isolation valve-CLOSED <ul style="list-style-type: none"><li>• AE HIS-40 for SGB</li></ul>
	BOP	Main feedwater chemical injection valve-CLOSED <ul style="list-style-type: none"><li>• AE HIS-44 for SG B</li></ul>
	BOP	Verify Blowdown and Sampling Isolated On Faulted SG(s) -SG upper Sample Isolation valves-CLOSED <ul style="list-style-type: none"><li>• BM HIS-20 for SG B</li></ul>
CAUTION		
If any PZR PORV opens because of high PZR pressure, the PORV shall be monitored to ensure it recloses after pressure decreases to less than 2335 psig.		

Op Test No.:   NRC   Scenario #   1   Event #   6, 7, 8, 9, 10   Page   37   of   46  

Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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	RO	Check PZR PORVs And Block Valves: <ol style="list-style-type: none"> <li>a. Power to block valves-AVAILABLE               <ul style="list-style-type: none"> <li>-BB HIS-8000A</li> <li>-BB-HIS-8000B</li> </ul> </li> <li>b. PZR PORVs – CLOSED               <ul style="list-style-type: none"> <li>-BB HIS-455A</li> <li>-BB HIS -456A</li> </ul> </li> <li>c. RCS pressure- LESS THAN2185 PSIG</li> </ol>
	RO	Check If Uncontrolled Cooldown Has Stopped. <ul style="list-style-type: none"> <li>-Check RCS hot leg temps-STABLE OR INCREASING</li> <li>-Control steam flow and feed flow as necessary to maintain stable RCS hot leg temps</li> </ul>
<b>CAUTIONS</b> <p>If steamline in Area 5 of AUX BLDG are not intact, extreme caution will be necessary when performing local surveys.</p> <p>If offsite power is lost after SI reset, manual action may be required to restore safeguards equipment to the required configuration.</p>		
	BOP	Determine Secondary Radiation Levels: <ul style="list-style-type: none"> <li>-Direct Health Physics to survey steamlines in Area 5 of Aux Bldg.</li> <li>-Check S/G sampling-ISOLATED</li> </ul>

Op Test No.: NRC Scenario # 1 Event # 6, 7, 8, 9, 10 Page 38 of 46

Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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		-Ensure SI-RESET. Reset SI.
	BOP	Check Instrument Air header pressure – GREATER THAN 105 PSIG.  KA PI-40  Perform the following:  -Ensure ESW To Air Compressor Valves-OPEN <ul style="list-style-type: none"> <li>• EF HIS-43</li> <li>• EF HIS-44</li> </ul>
	BOP	-Reset and close Air Compressor Breaker Reset Switches <ul style="list-style-type: none"> <li>• KA HIS-2C</li> <li>• KA HIS-3C</li> </ul>
	RO	Open CCW To Radwaste System Isolation Valves <ul style="list-style-type: none"> <li>• EG HS-69</li> <li>• EG HS-70</li> </ul>

Op Test No.: NRC Scenario # 1 Event # 6, 7, 8, 9, 10 Page 39 of 46

Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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	BOP	<p>Open all S/G sample isolation valves</p> <ul style="list-style-type: none"> <li>• BM HIS-65 for S/G A</li> <li>• BM HIS-35 for S/G A</li> <li>• BM HIS-66 for S/G B</li> <li>• BM HIS-36 for S/G B</li> <li>• BM HIS-67 for S/G C</li> <li>• BM HIS-37 for S/G C</li> <li>• BM HIS-68 for S/G D</li> <li>• BM HIS-38 for S/G D</li> </ul>
	CRS	Direct Chemistry to sample all S/Gs for activity
	BOP	<p>Check IF S/G Tubes Are Intact:</p> <p>-Condenser air discharge radiation-NORMAL BEFORE ISOLATION GEG 925</p> <p>-SG blowdown and sample radiation-NORMAL BML 256 SJL 026 Sample result</p> <p>-Turbine driven aux. Feedwater pump exhaust radiation-NORMAL FCT 381</p> <p>-SG Steamline radiation-NORMAL ABS 114 FOR SG A ABS 113 FOR SG B ABS 112 FOR SG C ABS 111 FOR SG D Local surveys</p> <p>-SG narrow range levels-NO LEVEL INCREASING IN AN UNCONTROLLED MANNER</p>

Op Test No.:   NRC   Scenario #   1   Event #   6, 7, 8, 9, 10   Page   40   of   46  

Event Description: Loss of power, bus failure, steam line break, MSIV failure, TDAFW failure

Time	Position	Applicant's Actions or Behavior
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NOTE: As steam generator pressure drops, TDAFP flow will become inadequate for maintenance of secondary heat sink. This will result in a RED PATH on heat sink requiring transition to EMG FR-H1. No actions are available to restore heat sink, and S/G inventory will be slowly increasing. If this transition is made, the simulator scenario should be stopped.

	RO	Check If ECCS Flow Should Be Reduced: -RCS subcooling – GREATER THAN 30°F (45°F) -Secondary heat sink: Total feed flow to intact S/Gs-GREATER THAN 270,000 LBM/HR OR Narrow range level in at least one intact SG-GREATER THAN 6% (29%) -RCS pressure – STABLE OR INCREASING -PZR level-GREATER THAN 6% (33%) -Go to EMG ES-03, SI TERMINATION, STEP 1
<b>Scenario may be terminated when crew enters EMG ES-03 or EMG FR-H1.</b>		

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>NA</u>	Page	<u>41</u>	of	<u>46</u>
Event Description: Automatic Signal Verification									
Time	Position	Applicant's Actions or Behavior							

<b>AUTOMATIC SIGNAL VERIFICATION</b>		
	RO	<p>Verify Feedwater Isolation:</p> <ul style="list-style-type: none"> <li>a. Main Feedwater Pumps-TRIPPED                             <ul style="list-style-type: none"> <li>-annunciator 00-120A, MFP A TRIP-LIT</li> <li>-annunciator 00-123A, MFP B TRIP-LIT</li> </ul> </li> <li>b. Main feedwater reg valves – CLOSED                             <ul style="list-style-type: none"> <li>-AE ZL-510 FOR SG A</li> <li>-AE ZL-520 FOR SG B</li> <li>-AE ZL-530 FOR SG C</li> <li>-AE ZL-540 FOR SG D</li> </ul> </li> <li>c. Main Feedwater reg bypass valves-CLOSED                             <ul style="list-style-type: none"> <li>-AE ZL-550 FOR SG A</li> <li>-AE ZL-560 FOR SG B</li> <li>AE ZL-570 FOR SG C</li> <li>-AE ZL-580 FOR SG D</li> </ul> </li> <li>d. Main Feedwater isolation valves-CLOSED                             <ul style="list-style-type: none"> <li>-AE HIS-39 FOR SG A</li> <li>-AE HIS-40 FOR SG B</li> <li>-AE HIS-41 FOR SG C</li> <li>-AE HIS-42 FOR SG D</li> </ul> </li> <li>e. Main Feedwater chemical Injection valves-CLOSED                             <ul style="list-style-type: none"> <li>-AE HIS-43 FOR SG A</li> <li>-AE HIS-44 FOR SG B</li> <li>-AE HIS-45 FOR SG C</li> <li>-AE HIS-46 FOR SG D</li> </ul> </li> </ul>



Op Test No.:   NRC   Scenario #   1   Event #   NA   Page   42   of   46    
 Event Description: Automatic Signal Verification

Time	Position	Applicant's Actions or Behavior
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		f. Check ESFAS status panel SGBSIS section-ALL WHITE LIGHTS LIT  -Red Train -Yellow train
	RO	Verify Containment isolation Phase A:  a. Check ESFAS status panel CISA section-ALL WHITE LIGHTS LIT  -Red Train -Yellow Train  <b>ONLY RED TRAIN IS ACTUATED</b>
<b>Critical Task</b>	RO	Verify AFW Pumps Running:  a. Check motor driven AFW pumps-BOTH RUNNING b. Check turbine driven AFW pump-RUNNING <b>a. MUST START TDAFW (CT)</b>
	RO	Verify CCW Alignment:  a. Check CCW pumps-ONE RUNNING IN EACH TRAIN b. Check one pair of CCW service loop Supply And Return Valves for an operating CCW pump-OPEN  -EG ZL-15 AND EG ZL-53 OR -EG ZL-16 AND EG ZL-54

Op Test No.:   NRC   Scenario #   1   Event #   NA   Page   43   of   46    
 Event Description: Automatic Signal Verification

Time	Position	Applicant's Actions or Behavior
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	RO	Check ESW Pumps –BOTH RUNNING
	RO	Check Containment Fan Coolers –RUNNING IN SLOW SPEED
	RO	Verify Containment Purge Isolation: a. Check ESFAS status panel CPIS section-ALL WHITE LIGHTS LIT -Red Train -Yellow Train
	RO	Verify Both Trains Of Control Room Ventilation Isolation: a. Check ESFAS status panel CRVIS section – ALL WHITE LIGHTS LIT -RED Train -YELLOW Train b. Ensure Control Room outer door-CLOSED

Op Test No.:   NRC   Scenario #   1   Event #   NA   Page   44   of   46    
 Event Description: Automatic Signal Verification

Time	Position	Applicant's Actions or Behavior
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<p><b>Critical Task</b></p>	<p>RO</p>	<p>Verify Main Steamline Isolation Not Required:</p> <p>a. Check containment pressure-HAS REMAINED LESS THAN 17 PSIG</p> <p>-GN PR-934</p> <p>b. Check either condition below-SATISFIED:  <span style="color: red;">Low Steamline pressure SI Not Blocked &amp; S/G Pressure has remained &gt; 615 psig</span>  <span style="color: red;">Or</span>  <span style="color: red;">Low Steam Line pressure SI Blocked and steamline pressure rate has remained &lt; 100 psi/50 sec</span></p> <p>Verify Steamline Isolation:</p> <p>If any main steamline isolation valve is NOT closed, THEN <b>fast close main steamline isolation valves. (CT)</b></p> <p>-AB HS-79        -AB HS-80</p> <p>Check ESFAS status panel SLIS section-ALL WHITE LIGHTS EXCEPT MAIN STEAM ISOLATION VALVES LIT</p> <p>-RED Train        -Yellow Train</p>
	<p>RO</p>	<p>Verify Containment Spray Not Required:</p> <p>a. Containment pressure – HAS REMAINED LESS THAN 27 PSIG:</p> <ul style="list-style-type: none"> <li>• Annunciator 00-059A, CSAS-NOT LIT</li> <li>• Annunciator 00-059b, CISB-NOT LIT</li> <li>• GN PR-934</li> </ul>

Op Test No.:   NRC   Scenario #   1   Event #   NA   Page   45   of   46    
 Event Description: Automatic Signal Verification

Time	Position	Applicant's Actions or Behavior
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	RO	<p>Verify ECCS Flow:</p> <ul style="list-style-type: none"> <li>a. Check Centrifugal Charging Pumps To Boron Injection Tank Flow meters – FLOW INDICATED                             <ul style="list-style-type: none"> <li>• EM FI-917A</li> <li>• EM FI-917B</li> </ul> </li> <li>b. Check RCS pressure – LESS THAN 1700 PSIG</li> <li>c. Check SI Pump Discharge Flow meters –FLOW INDICATED                             <ul style="list-style-type: none"> <li>-EM FI-918</li> <li>-EM FI-922</li> </ul> </li> <li>d. Check RCS pressure-LESS THAN 325 PSIG</li> <li>e. Check RHR To Accumulator Injection Loop Flow meters- FLOW INDICATED                             <ul style="list-style-type: none"> <li>-EJ FI-618</li> <li>-EJ FI-619</li> </ul> </li> </ul>
	RO	<p>Verify AFW Valves-PROPERLY ALIGNED:</p> <ul style="list-style-type: none"> <li>a. Check ESFAS status panel AFAS section- ALL WHITE LIGHTS EXCEPT THE FOLLOWING LIT                             <ul style="list-style-type: none"> <li>-AL HV-9 FOR RED TRAIN</li> <li>-AL HV-11 FOR RED TRAIN</li> <li>-AL HV-5 FOR YELLOW TRAIN</li> <li>-AL HV-7 FOR YELLOW TRAIN</li> </ul> </li> <li>b. Check white train ESFAS status panel AFAS section – ALL WHITE LIGHTS LIT</li> </ul>

Op Test No.:   NRC   Scenario #   1   Event #   NA   Page   46   of   46    
 Event Description: Automatic Signal Verification

Time	Position	Applicant's Actions or Behavior
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	RO	Verify SI Valves- PROPERLY ALIGNED: a. Check ESFAS status panel SIS section –SYSTEM LEVEL WHITE LIGHTS ALL LIT -Red Train -Yellow Train
	RO	Check If NCP Should Be Stopped: a. CCPs- ANY RUNNING b. Stop NCP -BG HIS-3
	RO	Return To Procedure And Step In Effect

Facility:	Wolf Creek	Scenario No.:	2	Op Test No.:	NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
Initial Conditions: _____					
100% power. Maintain current conditions					
"B" MDAFW Pump OOS. Return to service expected in 1 day.					
"A" PORV control circuit failure. "A" PORV Block Valve closed with power removed.					
Turnover:					
Maintain current conditions					
<b>Simulator setup: IC 29, Push CLOSE on BB HIS-8000A (PORV Block Valve), Run Scenario file: 2007NRC02.scn, Place DNO tags on BB HIS-8000A and "B" MDAFP (in PTL)</b>					
Event No.	Malf. No.	Event Type*	Event Description		
1 T=0		I-ATC, SRO TS-SRO	Pressurizer Pressure input to Master Controller fails high		
2 T+15		C-BOP, SRO	Feed Pump Speed Control failure. Manual control required		
3 T+22		I-ALL TS-SRO	First Stage Pressure transmitter failure. (Rods to manual, reset C-7, Steam Dumps to pressure mode)		
4 T+48		C-ATC, SRO TS-SRO	RCS Leak		
5 T+78		I-BOP, SRO	SG Steam Flow transmitter failure		
6 T+87		M	Leak degrades to SBLOCA		
7		C	Reactor Trip breakers fail to open – ATWS		
8		C	Rod Control Failure requires manual rod insertion <b>(CT)</b>		
9		C	"A" SI Pump trips "B" SI Pump fails to auto start. Manual start required <b>(CT)</b>		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

### Scenario #2 Summary

The crew will assume the shift at 100% power with instructions to maintain stable plant conditions.

The pressure input to the Pressurizer Pressure Master controller fails high. The crew will respond in accordance with OFN SB-008. The SRO will enter and comply with technical specification 3.3.1, function 8, conditions M and E, and technical specification 3.3.2, function 1, condition D, and function 8, condition L.

Subsequently, a Feed Pump speed control failure will develop. The crew will respond in accordance with applicable annunciator response procedures. Feed Pump speed control must be placed in Manual.

When the unit is stable, a first stage pressure transmitter will fail low, requiring the crew to respond in accordance with OFN SB-008. The SRO will enter and comply with technical specification 3.3.1, function 18, condition T.

An RCS leak will develop, requiring action in accordance with OFN-BB-007. The ATC will adjust Charging flow to maintain PZR level and the SRO will enter and comply with technical specification 3.4.13.

A SG Steam Flow transmitter will fail, requiring the crew to respond in accordance with OFN SB-008. The BOP will place the affected SG FRV in manual to restore level.

The RCS leak degrades to a small break LOCA, requiring a reactor trip. The reactor will fail to trip, requiring entry to EMG FR-S1. Rod Control will fail in AUTO, requiring manual rod insertion. One SI pump fails, the other SI pump will fail to start automatically, requiring manual start.

Intended EMG usage for this scenario is EMG E-0, EMG FR-S1, and EMG E-1.

Target Critical Tasks for this scenario are performance of manual rod insertion in EMG FR-S1 prior to initiation of RCS boration, and manual start of the available SI pump in accordance with procedural requirements.

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>1</u>	Page	<u>3</u>	of	<u>39</u>
Event Description: PZR pressure input failure									
Time	Position	Applicant's Actions or Behavior							

<b>Booth Instructor:</b>		
<b>When directed, insert KEY 1</b>		
<b>Indications available:</b>		
<b>ALR 33B, PZR HI PRESS DEV</b>		
<b>ALR 33C, PZR PRESS LO HTRS ON</b>		
	Crew	Responds to MCB alarms
	CRS	Direct entry to OFN SB-008
	BOP	<b>Check If Secondary System Instrument Channel Is Malfunctioning: (NO)</b> If not, go to Step 2
	RO	<b>Check If Reactor Coolant System Instrument Channel OR Controller Is Malfunctioning:</b> PZR Pressure Go to Attachment K
	RO	<b>Identify Failed Instrument Channel</b> Compare pressurizer pressure indications to confirm a pressurizer pressure channel failure: <ul style="list-style-type: none"> <li>o BB PI-455A</li> <li>o BB PI-456</li> <li>o BB PI-457</li> <li>o BB PI-458</li> </ul> NOTE: RO should take manual control of spray valves and/or pressurizer master controller and close spray valves (failed automatic function).



Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>1</u>	Page	<u>4</u>	of	<u>39</u>
Event Description: PZR pressure input failure									
Time	Position	Applicant's Actions or Behavior							

		<b>Check Failed Pressurizer Pressure Channel Selected On PZR Pressure Control Selector Switch</b> o BB PS-455F
	RO	<b>Place Pressurizer Pressure Master Controller In Manual And Control Pressure</b> o BB PK-455A
	RO	<b>Select Alternate Pressurizer Pressure Channel For Pressure Control</b> o BB PS-455F
	RO	<b>Take Following Actions As Appropriate To Stop Pressure Control Transient:</b>  Check pressurizer spray valves - RESPONDING CORRECTLY  Check PZR Control Heaters OPERABLE  Ensure PZR PORV - CLOSED  BB HIS-455A BB HIS-456A
	RO	<b>Return Pressurizer Pressure Control To AUTOMATIC</b>  Spray valves Control heaters Backup heaters Open PORV block valves Pressurizer Pressure Control
	RO	<b>Monitor Pressurizer Pressure Response To Ensure Proper Control</b>

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>1</u>	Page	<u>5</u>	of	<u>39</u>
Event Description: PZR pressure input failure									
Time	Position	Applicant's Actions or Behavior							

	BOP	<p><b>Check Failed Pressure Channel Not Used For Pressurizer Pressure Recorder</b></p> <ul style="list-style-type: none"> <li>o BB PS-455G</li> </ul>
<b>NOTE</b>		
<p><b>Pressurizer pressure channels PT-455 and PT-457 are input to subcooling margin monitor Train A.</b></p> <p><b>Pressurizer pressure channels PT-456 and PT-458 are inputs to subcooling margin monitor Train B. Selecting alternate pressure control channels does not alter inputs to the subcooling monitors.</b></p>		
	BOP	<p><b>Check Failed Pressure Channel Not Used For OPΔT/OTΔT Temperature Recorder</b></p> <ul style="list-style-type: none"> <li>o SC TS-411E</li> </ul>
	CRS	<p><b>Monitor The Following Technical Specification LCOs And Comply With Action Statements As Appropriate:</b></p> <ul style="list-style-type: none"> <li>• <b>3.3.1, REACTOR TRIP SYSTEM INSTRUMENTATION</b></li> <li>• <b>3.3.2, ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION</b></li> <li>• <b>3.3.4, REMOTE SHUTDOWN INSTRUMENTATION, Table (not required)</b></li> <li>• <b>3.3.4-1, Function 3 (not required)</b></li> <li>• <b>3.3.6, CONTAINMENT PURGE ISOLATION INSTRUMENTATION (not required)</b></li> <li>• <b>3.3.7, CONTROL ROOM EMERGENCY VENTILATION</b></li> <li>• <b>SYSTEM ACTUATION INSTRUMENTATION</b></li> </ul>
<b>CAUTIONS</b>		
<p><b>Avoid introduction of 2/4 low pressurizer pressure signals, which can initiate a reactor trip and SI.</b></p>		

Op Test No.:   NRC   Scenario #   2   Event #   1   Page   6   of   39  

Event Description: PZR pressure input failure

Time	Position	Applicant's Actions or Behavior
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**Avoid introduction of 2/4 OTAT reactor trip by insuring other channels are not tripped TB-411C, TB-421C, TB-431C or TB-441C.**

**NOTES**

**When the last bistable for the effected instrument is tripped, the output to that control board indication will drop to zero.**

**If time permits prior to tripping bistables, I&C should trouble shoot and obtain as found information including a determination of which SSPS train is affected. M-767-00310, Tables 6-3 and 6-4 may be used to aid I&C in SSPS train determination.**

	CRS	<b>Place Appropriate Reactor Trip/Safeguards Bistables For Failed Pressure Channel In TRIPPED Mode</b>  P-457
	CRS	<b>Request I&amp;C To Repair Failed Channel</b>
	CRS	<b>Review Attachment S for post accident and remote shutdown instrumentation requirements</b>
	CREW	<b>Return To Procedure And Step In Effect</b>
<b>Lead Examiner may direct initiation of the next event at his discretion</b>		

Op Test No.:   NRC   Scenario #   2   Event #   2   Page   7   of   39  

Event Description:      Feed Pump Speed Control failure

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor:****When directed, initiate KEY 2****Indications available:****Feed Pump Speed Increasing****ALR 108B – 111B SG A, B, C, D LEV DEV**

	Crew	Respond to MCB alarms
	BOP	Place Feed Pump Master Speed Controller in MANUAL and reduce speed
	BOP	Ensure proper Feedwater reg valve response

**When Feed Pump speed is in manual or at discretion of the Lead Examiner, proceed to the next event**

Op Test No.:   NRC   Scenario #   2   Event #   3   Page   8   of   39  

Event Description: AC PT-505 failure (Turbine Impulse)

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor:****When directed, initiate KEY 3****Indications available:****PT-505 indication fails low****Rods insert rapidly****ALR 65E, TREF/TAUCT LO****Later, ALR 83F, ATWS PANEL TROUBLE, is received**

	CREW	<b>Identify Failed Instrument Channel :</b> Compare turbine impulse pressure indications to confirm a pressure channel failure:  <ul style="list-style-type: none"> <li>o AC PI-505</li> <li>o AC PI-506</li> </ul>
		Determine which channel is failed by comparing actual indications with expected indications using table below:  100% 721 psig
	RO	<b>Place Rod Control In MANUAL</b>  <ul style="list-style-type: none"> <li>o SE HS-9</li> </ul>
<b>CAUTION</b> <b>If PT-505 has failed low, a continuous (Tref-Tavg) mismatch will exist. If steam dumps arm, the mismatch signal may cause the dump valves to open. If this happens, the dump valves will have to be switched to OFF to stop the steam release.</b>		
	BOP	<b>Check Failed Turbine Impulse Pressure Channel Selected</b>

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>3</u>	Page	<u>9</u>	of	<u>39</u>
Event Description: AC PT-505 failure (Turbine Impulse)									
Time	Position	Applicant's Actions or Behavior							

		<b>On Impulse Pressure Selector Switch</b> o AC PS-505Z
<b>NOTES</b>		
Tref indication will not be available if the failed impulse pressure channel is being used to develop Tref. This will be corrected by switching the impulse pressure selector to the alternate channel.		
The steam dump demand signal is derived from AC PT-505 and cannot be changed.		
	BOP	<b>Select Alternate Impulse Pressure Channel Using Impulse Pressure Selector Switch</b> o AC PS-505Z
	RO	<b>Adjust Rods To Return Tav<sub>g</sub> Equal To Programmed Tref For Existing Plant Power</b>  100% 586.5 degrees F
	CREW	<b>Check Tav<sub>g</sub> - WITHIN 1 degree F OF TREF</b>
	RO	<b>Place Rod Control In AUTO</b> o SE HS-9
	BOP	<b>Place Steam Dump Actuation Interlock to - OFF</b> o AB HS-63 o AB HS-64
	RO	Monitor Rod Control Response To Ensure Proper Control
	BOP	Check C-7 Loss Of Load Interlock - NOT LIT
	BOP	Select Steam Pressure Mode

Op Test No.: NRC Scenario # 2 Event # 3 Page 10 of 39

Event Description: AC PT-505 failure (Turbine Impulse)

Time	Position	Applicant's Actions or Behavior
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		Set condenser steam dump controller to 7.28 AB PK-507 Place steam dumps in steam pressure mode o AB US-500Z
	BOP	Place Steam Dump Interlock Selector Switches To ON o AB HS-63 o AB HS-64
	CRS	<b>Monitor The Following Technical Specification For LCOs And Comply With Action Statements As Appropriate</b> o 3.3.1, REACTOR TRIP SYSTEM INSTRUMENTATION
<b>NOTES</b>		
When the bistable for the affected instrument is tripped, the output to that control board indication will drop to zero.		
If time permits prior to tripping bistables, I&C should trouble shoot and obtain as found information including a determination of which SSPS train is affected. M-767-00310, Tables 6-3 and 6-4 may be used to aid INC in SSPS train determination.		
	CRS	<b>Place The Trip/Safeguards Bistables For Failed Channel In TRIPPED Mode</b> PT-505
	BOP	<b>Check C-16 (Lo Tavg) Turb Load Defeat - NOT LIT</b>
	BOP	<b>On EHC Panel Check Turb Hold light - NOT LIT</b>

Op Test No.: <u>  NRC  </u> Scenario # <u>  2  </u> Event # <u>  3  </u> Page <u>  11  </u> of <u>  39  </u>		
Event Description: AC PT-505 failure (Turbine Impulse)		
Time	Position	Applicant's Actions or Behavior

<b>NOTE</b>		
<p><b>For AMSAC to be armed, the LOGIC TEST INPUT switch associated with the OPERATING BYPASS switch must be placed in the LOGIC 1 position. The LOGIC 0 position may be used to disable AMSAC.</b></p>		
	CREW	<p><b>At AMSAC TEST/BYPASS Panel, Place Turbine Impulse Pressure Channel In Proper Condition For AMSAC:</b>            Select OPERATING BYPASS SWITCH to position associated with failed pressure channel from table below:</p> <p style="margin-left: 40px;">PT-506      PT11</p>
<p><b>Booth operator:</b> When called to perform action for AMSAC, select AMSAC panel from PANEL OVERVIEW. Select PT11 and actuate.</p>		
	CREW	Check Reactor Power -GREATER THAN OR EQUAL TO 35%
	(Booth operator)	Place the OPERATING BYPASS toggle switch to the right hand position
	CRS	<b>Request I&amp;C To Repair Failed Channel</b>
	CREW	<b>Return To Procedure And Step In Effect</b>
<p><b>When SG levels are controlled with Master Speed Controller in manual or at Lead Examiner's discretion, proceed to the next event</b></p>		



Op Test No.:   NRC   Scenario #   2   Event #   4   Page   12   of   39  

Event Description: RCS leak

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor:****When directed, initiate KEY 4****Indications available:****VCT makeup increased****PZR level decrease****CTMT humidity increase****CTMT normal sump level increase**

	Crew	Respond to MCB alarms and indications
	CRS	Direct entry to OFN BB-007

**CAUTIONS**

If safety injection actuates during this procedure, go to EMG E-0, REACTOR TRIP OR SAFETY INJECTION Step 1.

If the reactor is tripped manually or automatically, stabilize the plant using EMGs while continuing with this procedure.

	CREW	Check Plant In Mode 1, 2 Or 3 With Accumulator Outlet Valves Open
	RO	Check PZR Level - GREATER THAN 6%
	RO	Check PZR Level - GREATER THAN 17%
	RO	Check PZR Level - STABLE OR INCREASING

Op Test No.: NRC Scenario # 2 Event # 4 Page 13 of 39

Event Description: RCS leak

Time	Position	Applicant's Actions or Behavior
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	RO	IF PZR level is less than program level, THEN perform the following  Establish maximum charging flow from one pump.
	RO	Check Charging Pump Suction - ALIGNED TO VCT
	RO	Check PZR Pressure: a. PZR pressure - STABLE AT OR TRENDING TO 2235 PSIG
	BOP	Check SG Tubes - INTACT:  SG steam flow/feed flow trends - CONSISTENT WITH PRE-EVENT VALUES  b. Condenser air discharge radiation - NORMAL  GE RE-92
	BOP	In-service SG blowdown and sample radiation monitors - NORMAL BM RE-25 SJ RE-2
	BOP	SG steamline radiation monitors - NORMAL  AB RIC-111B-114B
	BOP	Main steam lines - RADIATION NORMAL  o Dispatch HP with hand-held monitors ( $\mu$ roentgen/hr)

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>4</u>	Page	<u>14</u>	of	<u>39</u>
Event Description:		RCS leak							
Time	Position	Applicant's Actions or Behavior							

	BOP	Steam Generator Activity Indicated By Lab Analysis NORMAL
	BOP	Check Containment Conditions - NORMAL Containment process radiation monitors - NORMAL Containment pressure - NORMAL Containment normal sump level - NORMAL
	RO	Perform the following:  1. IF normal letdown is in service, THEN perform the following:  Close Letdown Orifice Isolation Valves.  Close RCS Letdown To Regen Hx isolation valves.
	RO	IF leakage continues, THEN perform the following: a) Close CHG HDR BACK PRESS CTRL Valve and adjust CCP or NCP Flow Control valve as necessary to secure charging.
	RO	Maintain RCP seal inj flow to each RCP between 8 and 13 gpm.
	RO	IF leakage continues, THEN perform the following: 1) Restore normal charging. 2) IF leakage can be maintained within the capacity of one pump when letdown is established, THEN restore normal LTDN.

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Event Description: RCS leak

Time	Position	Applicant's Actions or Behavior
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	CREW	WHEN CTMT conditions permit, THEN dispatch an operator into CTMT to identify leakage source.
	CRS	Refer To Following Technical Specifications: o 3.4.13, RCS Operational Leakage o 3.4.14, RCS Pressure Isolation Valve Leakage
	N/A (not in operation)	Shutdown BTRS Using SYS BG-205, BORON THERMAL REGENERATION SYSTEM OPERATION.
	BOP	Check For Leakage To PRT:
	RO	Check Excess Letdown Line - INTACT
	BOP	Check Reactor Vessel Flange - INTACT
	BOP	Check Auxiliary Building Conditions - NORMAL
	BOP	Check CCW System - INTACT:
	CREW	Check Recycle Holdup Tank Levels - NORMAL
	CREW	Check Nuclear Sampling System - INTACT
	CREW	Check RCS Leakage Location - IDENTIFIED Return to step 7
<b>On Lead Examiner's cue, proceed to the next event</b>		

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Event Description: SG flow channel failure

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor:****When directed, initiate KEY 5****Indications available:****ALR 108C, SG A FLOW MISMATCH****ALR 108B, SG A LEV DEV**

	CREW	Respond to MCB alarms
	BOP	C h e c k Difference Between Steam Generator Steam Flow And Feed F l o w - GREATER THAN 0.7 MPPH o AB FI-512A for steam flow o AB FI-513A for steam flow o AE FI-510A for feed flow o AE FI-511A for feed flow
	BOP	C h e c k For I n s t r u m e n t Failure: Steam generator A controlling steam pressure channel - WITHIN 100 PSIG OF REMAINING CHANNELS AB PI-514A AB PI-515A
	BOP	Steam generator A controlling feedwater flow channel - WITHIN 0.2 MPPH OF OTHER CHANNEL
	BOP	Steam generator A controlling steam flow channel - WITHIN 0.2 MPPH OF OTHER CHANNEL
	BOP	Place feedwater reg valve or feedwater reg bypass control valve in manual.

Op Test No.: NRC Scenario # 2 Event # 5 Page 17 of 39

Event Description: SG flow channel failure

Time	Position	Applicant's Actions or Behavior
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	BOP	Adjust feedwater reg valve or feedwater reg bypass control valve as necessary to establish steam generator level at program value
	BOP	Select alternate channel for control. * AE FS-510C for feed flow * AB FS-512C for steam flow
	BOP	Return feedwater reg valve or feedwater reg bypass control valve to automatic.
	CREW	Go to OFN SB-008, INSTRUMENT MALFUNCTIONS, Step 1.
	BOP	Check If Secondary System Instrument Channel Is Malfunctioning: a. Determine appropriate channel malfunctioning, from table below:  Steam Flow Ch 512
<p><b>CAUTION</b></p> <p>Steam flow is an input to the thermal power program. A failed steam flow channel could cause the thermal power program to be inaccurate.</p>		
<p><b>NOTE</b></p> <p>The pressure compensation channel supplying the steam flow channel may be the reason for a failed steam flow indication. This attachment should still be used to ensure proper feedwater control.</p>		
	BOP	Identify Failed Steam Flow Channel :

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Event Description: SG flow channel failure

Time	Position	Applicant's Actions or Behavior
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	BOP	Compare steam flow indications to confirm a steam flow channel failure: <ul style="list-style-type: none"> <li>o AB FI-512A</li> <li>o AB FI-513A</li> <li>o AB FI-522A</li> <li>o AB FI-523A</li> <li>o AB FI-532A</li> <li>o AB FI-533A</li> <li>o AB FI-542A</li> <li>o AB FI-543A</li> </ul>
	BOP	Check If Failed Steam Flow Channel Selected On Steam Flow Selector Switch  AB FS-512C  Go to Step A5.
	BOP	Place Affected S/G Feed Reg Control Valve - IN MANUAL * AE FK-510
	BOP	Select Alternate Steam Flow Channel For Feedwater Control * AB FS-512C
	BOP	Check S/G Pressure Channels - OPERATION NORMAL
	CRS	Request I&C To Repair Failed Channel
	BOP	Check Steam Flow Channel Failure - REPAIRED OR ALTERNATE CHANNEL SELECTED
	BOP	Restore Affected S/G Feed Reg Valve Controller To - AUTO

Op Test No.: <u>  NRC  </u> Scenario # <u>  2  </u> Event # <u>  5  </u> Page <u>  19  </u> of <u>  39  </u>		
Event Description:      SG flow channel failure		
Time	Position	Applicant's Actions or Behavior

	CRS	Return To Procedure And Step In Effect
<b>When the feedwater reg valve is in auto or at discretion of the Lead Examiner, proceed to the next event</b>		



Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>6, 7, 8, 9</u>	Page	<u>20</u>	of	<u>39</u>
Event Description: LOCA, ATWS, Rod Control failure, SI pump failure									
Time	Position	Applicant's Actions or Behavior							

<b>Booth Instructor:</b>		
<b>When directed, initiate KEY 6</b>		
<b>Indications available: PZR level decreasing. PZR Pressure decreasing. ALR-32C, ALR 34C</b>		
NOTES		
Steps 1 thru 4 are immediate action steps Foldout page shall be monitored throughout this procedure.		
	RO	Verify Reactor Trip:  Check all rod bottom lights-LIT  Ensure reactor trip breakers an bypass breakers – OPEN <ul style="list-style-type: none"> <li>• SB ZL-1</li> <li>• SB ZL-2</li> <li>• SB ZL-3</li> <li>• SB ZL-4</li> </ul> Check intermediate range neutron flux – DECREASING <ul style="list-style-type: none"> <li>• SE NI-35B GAMMA METRICS</li> <li>• SE NI-36B GAMMA METRICS</li> </ul> NO-GO TO EMG FR-S1
	CRS	Direct entry to FR-S1, Response to Nuclear Power Generation/ATWS

Op Test No.:   NRC   Scenario #   2   Event #   6, 7, 8, 9   Page   21   of   39  Event Description:   LOCA, ATWS, Rod Control failure, SI pump failure  

Time	Position	Applicant's Actions or Behavior
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## NOTES

- o Steps 1 and 2 are immediate action steps.
- o Foldout page shall be monitored throughout this procedure.

	RO	Verify Reactor Trip: a. Check all rod bottom lights - LIT
	RO	Ensure reactor trip breakers and bypass breakers - OPEN
<b>Critical Task</b>	RO  BOP	Manually trip reactor. 2. IF reactor will NOT trip, THEN perform the following: a) <b>Insert control rods</b> in automatic or <b>manual. (CT)</b> b) Manually deenergize rod drive motor generators: 1) Open the following breakers: PG HIS-16 PG HIS-18  2) IF load center PG20 does NOT deenergize, THEN open 13.8 KV Bus To XPG14 BKR PA0207.  PG HIS-3
<b>Booth operator:</b> When dispatched to locally open reactor trip breakers, use <b>KEY 7</b> to open reactor trip breakers locally.		
		Dispatch operator to locally open reactor trip breakers and bypass breakers. 4) WHEN reactor trip breakers and bypass breakers have been opened, OR all rod bottom lights are lit, THEN close the following breakers:  PG HIS-16 PG HIS-18

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>6, 7, 8, 9</u>	Page	<u>22</u>	of	<u>39</u>
Event Description: LOCA, ATWS, Rod Control failure, SI pump failure									
Time	Position	Applicant's Actions or Behavior							

	BOP	Verify Turbine Trip : a. Check the following: * Main Stop Valves - ALL CLOSED OR * Turbine Auto Stop bistable lights - AT LEAST TWO LIT
	BOP	Check main generator breakers and exciter breaker - OPEN
	BOP	Verify AFW Pumps Running: a. Check motor driven AFW pumps - BOTH RUNNING b. Check turbine driven AFW pump - RUNNING
	RO	Check SI - NOT IN PROGRESS  IF total ECCS flow from RWST to RCS is greater than 90 gpm, THEN go to Step 8.
	RO	C h e c k PZR Pressure - LESS THAN 2335 PSIG
	BOP	Verify Containment Purge Isolation: a. Check ESFAS status panel CPIS section - ALL WHITE LIGHTS LIT o Red train o Yellow train
	BOP	Check Safety Injection NOT Actuated :  Perform steps 1 - 6 of EMG E-0, REACTOR TRIP OR SAFETY INJECTION, while continuing with this procedure.

Op Test No.: NRC Scenario # 2 Event # 6, 7, 8, 9 Page 23 of 39

Event Description: LOCA, ATWS, Rod Control failure, SI pump failure

Time	Position	Applicant's Actions or Behavior
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	RO	Check If The Following Trips Have Occurred a. Reactor trip b. Turbine trip
	RO	Verify Reactor Subcritical: a. Power range channels [GAMMA METRICS] – LESS THAN 5% b. Intermediate range channels – NEGATIVE STARTUP RATE [GAMMA METRICS - STABLE OR DECREASING] c. Go to Step 24
	RO	Check Reactor Trip Breakers - OPEN
	RO	Continue Boration Until Adequate Shutdown Margin Is Obtained
	RO	Check CRDM Fans – All available running Start CRDM Fan C
		Return to procedure and step in effect
	CRS	Direct return to E-0
	BOP	Verify Turbine Trip:  a. Check the following:  Main Stop Valves- ALL CLOSED OR Turbine Auto Stop bistable lights – AT LEAST TWO LIT  b. Check main generator breakers and exciter breaker-OPEN

Op Test No.: NRC Scenario # 2 Event # 6, 7, 8, 9 Page 24 of 39

Event Description: LOCA, ATWS, Rod Control failure, SI pump failure

Time	Position	Applicant's Actions or Behavior
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		<ul style="list-style-type: none"> <li>• MA ZL-3A</li> <li>• MA ZL-4A</li> <li>• MA ZL-2</li> </ul>
	RO	Check AC Emergency Busses- AT LEAST ONE ENERGIZED <ul style="list-style-type: none"> <li>• NB01 Voltage NORMAL</li> <li>• NB02 voltage NORMAL</li> </ul>
<b>CRITICAL TASK</b>	RO	Check any indication SI is actuated- LIT <ul style="list-style-type: none"> <li>• Annunciator 00-30A, NF039A LOCA SEQ ACTUATED LIT OR</li> <li>• Annunciator 00-031A, NF039B LOCA SEQ ACTUATED – LIT OR</li> <li>• ESFAS status panel SIS section – ANY WHITE LIGHTS LIT OR</li> <li>• Partial Trip Status Permissive/block status panel- SI RED LIGHT LIT</li> <li>• <b>Ensure both trains of SI actuated</b> <ul style="list-style-type: none"> <li>○ <b>SB HS-27</b></li> <li>○ <b>SB HS-28</b></li> </ul> </li> </ul> <b>(Must start "B" Train SI)</b>
<b>CAUTION</b>		
If offsite power is lost after SI reset, manual action may be required to restore safeguards equipment to the required configuration.		

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Event Description: LOCA, ATWS, Rod Control failure, SI pump failure

Time	Position	Applicant's Actions or Behavior
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	RO	<p>Check if SI is required:</p> <ul style="list-style-type: none"> <li>• SI was manually actuated AND was required OR</li> <li>• RCS pressure LESS THAN OR EQUAL TO 1830 PSIG</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Any S/G pressure LESS THAN OR EQUAL TO 615 PSIG</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Containment pressure GREATER THAN OR EQUAL TO 3.5 PSIG</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• RCS subcooling- LESS THAN 30 DEGREES F.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• PZR LEVEL – LESS THAN 6% (33%)</li> </ul>
	RO	Verify Automatic actions using Attachment F, AUTOMATIC SIGNAL VERIFICATION
	BOP	<p>Check Total AFW Flow- GREATER THAN 270,000 LBM.HR</p> <p>Perform the following:</p> <p>IF S/G narrow range level in at least one S/G is greater than 6% (29%), THEN control feed flow to maintain narrow range level and go to Step 8.</p> <p>Manually start pumps and align valves as necessary to establish greater than 270,00 lbm/hr AFW flow.</p>

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Event Description: LOCA, ATWS, Rod Control failure, SI pump failure

Time	Position	Applicant's Actions or Behavior
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	BOP	<p>Check RCS Cold Leg Temperatures</p> <ul style="list-style-type: none"> <li>• Stable at or trending to 557 degrees F for condenser steam dumps</li> <li>• Stable at or trending to 561°F for S/G ARVs</li> </ul>
	BOP	<p>Perform the following:</p> <p>If temperature is less than setpoint and decreasing, THEN perform the following:</p> <ul style="list-style-type: none"> <li>• Stop dumping steam.</li> <li>• Close Main Turbine Stop and control valves startup drains.</li> <li>• -AC HIS-134</li> </ul>
	BOP	<p>IF cooldown continues, THEN control total feed flow to limit RCS cooldown. Maintain total feed flow greater than 270,000 lbm/hr until narrow range level greater than 6% (29%) in at least one S/G/</p>
	BOP	<p>If cooldown continues due to excessive steam flow, then close main steamline isolation valves, bypass valves, and drain valves.</p>

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>6, 7, 8, 9</u>	Page	<u>27</u>	of	<u>39</u>
Event Description: LOCA, ATWS, Rod Control failure, SI pump failure									
Time	Position	Applicant's Actions or Behavior							

	BOP	<p>Establish S/G Pressure Control:</p> <p>a. Check condenser AVAILABLE.</p> <ul style="list-style-type: none"> <li>• C-9 LIT</li> <li>• MSIV – OPEN</li> <li>• Circulating Water pumps-RUNNING</li> </ul> <p>Perform the following:</p> <ul style="list-style-type: none"> <li>• Use S/G ARVs</li> <li>• Got to Step 10</li> </ul>
	BOP	<p>Check PZR PORV's CLOSED</p> <ul style="list-style-type: none"> <li>• BB HIS-455A</li> <li>• BB HIS-456A</li> </ul>
	BOP	<p>Power to block valves – AVAILABLE</p> <ul style="list-style-type: none"> <li>• BB HIS-8000A</li> <li>• BB HIS-8000B</li> </ul>
	RO	RCS pressure – LESS THAN 2185 PSIG
	RO	<p>Check Normal PZR spray Valves-CLOSED</p> <ul style="list-style-type: none"> <li>• BB ZL-455B</li> <li>• BB ZL-455C</li> </ul>
	RO	<p>Check PZR Safety Valves-CLOSED</p> <ul style="list-style-type: none"> <li>• BB ZL-8010A</li> <li>• BB ZL-8010B</li> <li>• BB ZL-8010C</li> </ul>



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Event Description: LOCA, ATWS, Rod Control failure, SI pump failure									
Time	Position	Applicant's Actions or Behavior							

## NOTE

Seal injection flow shall be maintained to all RCPs

	CREW	<p>Check if RCPs should be stopped:</p> <ul style="list-style-type: none"> <li>a. Check RCPs- ANY RUNNING</li> <li>b. Check RCS pressure-LESS THAN 1400 PSIG</li> </ul> <p>GO TO STEP 14</p>
	CRS	<p>Direct Operator To Monitor Critical Safety Functions Using EMG F-0, CRITICAL SAFETY FUNCTION STATUS TREES (CSFST).</p>
	BOP	<p>Check if S/Gs Are Not Faulted</p> <ul style="list-style-type: none"> <li>a. Check all pressures in all S/Gs</li> <li>b. NO S/G PRESSURE DECREASING IN AN UNCONTROLLED MANNER</li> <li>c. NO S/G COMPLETELY DEPRESSURIZED.</li> </ul>
	BOP	<p>Check If S/G Tubes Are Intact: Direct HP to survey steamlines in Area 5 of the Auxiliary Building</p>
	BOP	<p>Condenser air discharge radiation – NORMAL BEFORE ISOLATION</p> <ul style="list-style-type: none"> <li>o GEG 925</li> </ul>
	BOP	<p>S/G blowdown and sample radiation – NORMAL BEFORE ISOLATION</p> <ul style="list-style-type: none"> <li>o BML 256</li> <li>o SJL 026</li> </ul>

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>6, 7, 8, 9</u>	Page	<u>29</u>	of	<u>39</u>
Event Description: LOCA, ATWS, Rod Control failure, SI pump failure									
Time	Position	Applicant's Actions or Behavior							

	BOP	Turbine driven auxiliary feedwater pump exhaust radiation – NORMAL ○ FCT 381
	BOP	S/G steamline radiation – NORMAL ○ ABS 114 for S/G A ○ ABS 113 for S/G B ○ ABS 112 for S/G C ○ ABS 111 for S/G D
	BOP	Check S/G Levels – INCREASING IN A CONTROLLED MANNER ○ Narrow range ○ Wide range
	CREW	Check if RCS Is Intact In Containment Containment radiation - NORMAL BEFORE ISOLATION ○ GTP 311 ○ GTI 312 ○ GTG 313 ○ GTP 321 ○ GTI 322 ○ GTG 323 ○ GTA 591 ○ GTA 601
	RO/BOP	Perform the following: Ensure BIT Inlet AND Outlet Valves are open ○ EM HIS-8803A ○ EM HIS-8803B ○ EM HIS-8801A ○ EM HIS-8801B
	CREW	Go to EMG E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.
NOTES		
○ Foldout page shall be monitored throughout this procedure		
○ Seal injection flow shall be maintained to all RCPs.		

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>6, 7, 8, 9</u>	Page	<u>30</u>	of	<u>39</u>
Event Description: LOCA, ATWS, Rod Control failure, SI pump failure									
Time	Position	Applicant's Actions or Behavior							

	RO	<p>Check if RCPs Should be Stopped</p> <p>Check RCPs – ANY RUNNING</p> <p>Check RCS pressure – LESS THAN 1400 PSIG</p> <p>Check ECCS pumps – AT LEAST ONE RUNNING</p>
	BOP	<p>Check If S/Gs Are Not Faulted;</p> <p>Check pressure in all S/Gs NO S/G PRESSURE DECREASING IN AN UNCONTROLLED MANNER</p> <p>NO S/G COMPLETELY DEPRESSURIZED</p>
		<p>Check Intact S/G levels</p> <p>Check narrow range level in at least one S/G – GREATER THAN 6% [29%]</p> <p>Control feed flow to maintain narrow range level in all S/Gs between 6%[29%] and 50%.</p>
<p><b>CAUTION</b></p> <p>If offsite power is lost after SI reset, manual action may be required to restore safeguards equipment to the required configuration.</p>		
		<p>Reset SI</p> <ul style="list-style-type: none"> <li>○ SB HS-42A</li> <li>○ SB HS-43A</li> </ul>
		<p>Reset Containment Isolation Phase A And Phase B</p> <ul style="list-style-type: none"> <li>○ SB HS-56 for phase A</li> <li>○ SB HS-53 for phase A</li> <li>○ SB HS-55 for phase B</li> <li>○ SB HS-52 for phase B</li> </ul>

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Event Description: LOCA, ATWS, Rod Control failure, SI pump failure

Time	Position	Applicant's Actions or Behavior
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		Determine Secondary Radiation Levels Direct HP to survey steamlines in Area 5 of Aux Bldg
		Check S/G sampling – ISOLATED
		Direct Chemistry to sample all S/Gs for activity
		Check Secondary Radiation – NORMAL
		Condenser air discharge radiation – NORMAL BEFORE ISOLATION <ul style="list-style-type: none"> <li>o GEG 925</li> </ul>
		S/G blowdown and sample radiation – NORMAL BEFORE ISOLATION <ul style="list-style-type: none"> <li>o BML 256</li> <li>o SJL 026</li> </ul>
	BOP	Turbine driven auxiliary feedwater pump exhaust radiation – NORMAL <ul style="list-style-type: none"> <li>o FCT 381</li> </ul>
	BOP	S/G steamline radiation – NORMAL <ul style="list-style-type: none"> <li>o ABS 114 for S/G A</li> <li>o ABS 113 for S/G B</li> <li>o ABS 112 for S/G C</li> <li>o ABS 111 for S/G D</li> </ul>
CAUTION		
If any PZR PORV opens because of high PZR pressure, the PORV shall be monitored to ensure it recloses after pressure decreases to less than 2335 psig.		
		Check PZR PORVs And Block Valves
		Power to block valves – AVAILABLE <ul style="list-style-type: none"> <li>o BB HIS 8000A</li> <li>o BB HIS-8000B</li> </ul>
		PZR PORVs – CLOSED <ul style="list-style-type: none"> <li>o BB HIS-455A</li> <li>o BB HIS-456A</li> </ul>
		RCS pressure – LESS THAN 2185 PSIG

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>6, 7, 8, 9</u>	Page	<u>32</u>	of	<u>39</u>
Event Description: LOCA, ATWS, Rod Control failure, SI pump failure									
Time	Position	Applicant's Actions or Behavior							

		Establish Instrument Air To Containment
		Open Instrument Air Supply Containment Isolation valve o KA HIS-29
		Check if ECCS Flow Should Be Reduced;
		RCS subcooling – GREATER THAN 30°F [45°F]
		Secondary heat sink; Total feed flow to intact S/Gs – GREATER THAN 270,000 LBM/HR OR Narrow range level in at least one intact S/G – GREATER THAN 6% [29%]
		RCS pressure – STABLE OR INCREASING
		PZR level – GREATER THAN 6% [33%]
		Go to EMG ES-03, SI TERMINATION, Step 1.
<b>Scenario may be terminated when crew transitions to EMG ES-03, SI TERMINATION at the discretion of the Lead Examiner.</b>		

Op Test No.:	<u>NRC</u>	Scenario #	<u>2</u>	Event #	<u>NA</u>	Page	<u>33</u>	of	<u>39</u>
Event Description: Automatic Signal Verification									
Time	Position	Applicant's Actions or Behavior							

<b>AUTOMATIC SIGNAL VERIFICATION</b>		
	BOP	<p>Verify Feedwater Isolation:</p> <ul style="list-style-type: none"> <li>a. Main Feedwater Pumps-TRIPPED                             <ul style="list-style-type: none"> <li>-annunciator 00-120A, MFP A TRIP-LIT</li> <li>-annunciator 00-123A, MFP B TRIP-LIT</li> </ul> </li> <li>b. Main feedwater reg valves – CLOSED                             <ul style="list-style-type: none"> <li>-AE ZL-510 FOR SG A</li> <li>-AE ZL-520 FOR SG B</li> <li>-AE ZL-530 FOR SG C</li> <li>-AE ZL-540 FOR SG D</li> </ul> </li> <li>c. Main Feedwater reg bypass valves-CLOSED                             <ul style="list-style-type: none"> <li>-AE ZL-550 FOR SG A</li> <li>-AE ZL-560 FOR SG B</li> <li>-AE ZL-570 FOR SG C</li> <li>-AE ZL-580 FOR SG D</li> </ul> </li> <li>d. Main Feedwater isolation valves-CLOSED                             <ul style="list-style-type: none"> <li>-AE HIS-39 FOR SG A</li> <li>-AE HIS-40 FOR SG B</li> <li>-AE HIS-41 FOR SG C</li> <li>-AE HIS-42 FOR SG D</li> </ul> </li> <li>e. Main Feedwater chemical Injection valves-CLOSED                             <ul style="list-style-type: none"> <li>-AE HIS-43 FOR SG A</li> <li>-AE HIS-44 FOR SG B</li> <li>-AE HIS-45 FOR SG C</li> <li>-AE HIS-46 FOR SG D</li> </ul> </li> </ul>

Op Test No.:   NRC   Scenario #   2   Event #   NA   Page   34   of   39    
 Event Description: Automatic Signal Verification

Time	Position	Applicant's Actions or Behavior
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		f. Check ESFAS status panel SGBSIS section-ALL WHITE LIGHTS LIT  -Red Train -Yellow train
	BOP	Verify Containment isolation Phase A:  a. Check ESFAS status panel CISA section-ALL WHITE LIGHTS LIT  -Red Train -Yellow Train  ONLY RED TRAIN IS ACTUATED
	BOP	Verify AFW Pumps Running:  a. Check motor driven AFW pumps-BOTH RUNNING b. Check turbine driven AFW pump-RUNNING

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<b>CRITICAL TASK</b>	BOP	Verify ECCS Pumps Running  Check CCPs- BOTH RUNNING  Check SI Pumps – BOTH RUNNING RNO – Manually start pumps <b>Start “B” SI Pump (CT)</b> Check RHR pumps – BOTH RUNNING
	BOP	Verify CCW Alignment:  a. Check CCW pumps-ONE RUNNING IN EACH TRAIN b. Check one pair of CCW service loop Supply And Return Valves for an operating CCW pump-OPEN  -EG ZL-15 AND EG ZL-53 OR -EG ZL-16 AND EG ZL-54
	BOP	Check ESW Pumps –BOTH RUNNING
	BOP	Check Containment Fan Coolers –RUNNING IN SLOW SPEED



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	BOP	Verify Containment Purge Isolation:  a. Check ESFAS status panel CPIS section-ALL WHITE LIGHTS LIT  -Red Train -Yellow Train
	BOP	Verify Both Trains Of Control Room Ventilation Isolation:  a. Check ESFAS status panel CRVIS section – ALL WHITE LIGHTS LIT  -RED Train -YELLOW Train  b. Ensure Control Room outer door-CLOSED
	BOP	Verify Main Steamline Isolation Not Required:  a. Check containment pressure-HAS REMAINED LESS THAN 17 PSIG  -GN PR-934  b. Check either condition below-SATISFIED:  Verify Steamline Isolation:  If any main steamline isolation valve is NOT closed, THEN fast close main steamline isolation valves.

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		<p>-AB HS-79 -AB HS-80</p> <p>Check ESFAS status panel SLIS section-ALL WHITE LIGHTS EXCEPT MAIN STEAM ISOLATION VALVES LIT</p> <p>-RED Train -Yellow Train</p>
	BOP	<p>Verify Containment Spray Not Required:</p> <p>a. Containment pressure – HAS REMAINED LESS THAN 27 PSIG:</p> <ul style="list-style-type: none"> <li>• Annunciator 00-059A, CSAS-NOT LIT</li> <li>• Annunciator 00-059b, CISB-NOT LIT</li> <li>• GN PR-934</li> </ul>

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	BOP	<p>Verify ECCS Flow:</p> <ul style="list-style-type: none"> <li>a. Check Centrifugal Charging Pumps To Boron Injection Tank Flow meters – FLOW INDICATED               <ul style="list-style-type: none"> <li>• EM FI-917A</li> <li>• EM FI-917B</li> </ul> </li> <li>b. Check RCS pressure – LESS THAN 1700 PSIG</li> <li>c. Check SI Pump Discharge Flow meters –FLOW INDICATED               <ul style="list-style-type: none"> <li>-EM FI-918</li> <li>-EM FI-922</li> </ul> </li> <li>d. Check RCS pressure-LESS THAN 325 PSIG</li> <li>e. Check RHR To Accumulator Injection Loop Flow meters- FLOW INDICATED               <ul style="list-style-type: none"> <li>-EJ FI-618</li> <li>-EJ FI-619</li> </ul> </li> </ul>
	BOP	<p>Verify AFW Valves-PROPERLY ALIGNED:</p> <ul style="list-style-type: none"> <li>a. Check ESFAS status panel AFAS section- ALL WHITE LIGHTS EXCEPT THE FOLLOWING LIT               <ul style="list-style-type: none"> <li>-AL HV-9 FOR RED TRAIN</li> <li>-AL HV-11 FOR RED TRAIN</li> <li>-AL HV-5 FOR YELLOW TRAIN</li> <li>-AL HV-7 FOR YELLOW TRAIN</li> </ul> </li> <li>b. Check white train ESFAS status panel AFAS</li> </ul>

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		section – ALL WHITE LIGHTS LIT
	BOP	Verify SI Valves- PROPERLY ALIGNED:  a. Check ESFAS status panel SIS section –SYSTEM LEVEL WHITE LIGHTS ALL LIT  -Red Train -Yellow Train
	BOP	Check If NCP Should Be Stopped:  a. CCPs- ANY RUNNING b. Stop NCP  -BG HIS-3
	BOP	Return To Procedure And Step In Effect