



**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 been stable at 100%. The AFD Monitor Alarm is inoperable.

Initiating Cues: The Control Room Supervisor has directed you to perform STS SF-002 and Determine T/S compliance.

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

**Notes:** Provide the candidate with an information only copy of STS SF-002.

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)

THE FOLLOWING DATA IS PROVIDED ON THE CUE SHEET

	N41	N42	N43	N44
<b>% Power</b>	100	100	100	100
<b>% Flux Difference</b>	-13	-16	-16	-14

**Task Standard:** Upon completion of this JPM, the operator will have determined that the Plant is in Technical Specification 3.2.3, Action A.

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

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

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Record data as required on Attachment A</p> <ul style="list-style-type: none"> <li>• * Compare % flux <math>\Delta</math> for each channel to COLR limits</li>   <li>• * If the indicated FLUX DIFF is outside the acceptable limits of COLR on two or more operable PR channels, then perform the actions required by Tech Specs</li> </ul> <p>STEP 8.1</p>	<p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Go to Attachment A and enter the data provide on the cue sheet</p> <p>Determine that N41 and N44 are in the acceptable region, determine that N42 and N43 are in the unacceptable region, and annotate the attachment accordingly</p> <p>Determine that the Plant is in TS 3.2.3 and report to the Control Room Supervisor.</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 been stable at 100%. The AFD Monitor Alarm is inoperable.

Initiating Cues: The Control Room Supervisor has directed you to perform STS SF-002 and Determine T/S compliance.

THE FOLLOWING DATA IS PRESENT ON PLANT INSTRUMENTATION

	N41	N42	N43	N44
<b>% Power</b>	100	100	100	100
<b>% Flux Difference</b>	-13	-16	-16	-14

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 002-A	K/A NO: 2.1.7
COMPLETION TIME:	K/A RATING: 3.7
JOB TITLE: Reactor Operator	REVISION: 0
TASK TITLE: Given Data, complete a 1/M plot and determine estimated critical rod position	
DUTY: Conduct of Operations	ASP

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:

MAY BE PERFORMED IN ANY LOCATION WHERE PROPER REFERENCE MATERIAL IS AVAILABLE.

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

REFERENCES: GEN 00-002, Hot standby to Minimum Load  
STS RE-002, Estimated Critical Position  
SOER 88-2, Premature Criticality Events During Reactor Startup

TOOLS/EQUIPMENT: NONE

PREPARER:  Ralph S. Ewy  DATE:  2/24/04

**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 hot standby recovering from a short forced outage at middle of core life. The crew is performing a reactor startup in accordance with GEN 00-003, Hot Standby To Minimum Load. Initial data has been entered on Figure 1, 1/M Plot which is provided.

**Initiating Cues:** With the data supplied, complete the 1/M Plot. Estimate the critical rod position per steps 6.21.5.2 and identify any required actions.

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

**Notes:** Provide the Candidate with an information only copy of GEN 00-003, thru Step 6..21.5

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 completed a 1/M Plot that indicates criticality will occur at a rod position higher than the maximum rod height calculated by Reactor Engineering and have notified the CRS that Reactor Engineering must be informed.

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

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

Rev 0

TASK		CUE	STANDARD	SCORE
NUMBER - ELEMENT				S U
1. * Enter the supplied data on Figure 1 (Cf section)			Enter the final rod position and final count rate for each pull in the appropriate section.  (See attached key)	Comments:
STEP 6.21.5.2				
2. * Calculate 1/M for each rod withdrawal sequence			Calculate a resultant from the data entered and annotate it in 1/M section.  (See attached key)	
STEP 6.21.5.2				

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>3. * Determine estimated critical position for each rod withdrawal sequence</p> <p>STEP 6.21.5.2</p>		<p>For each calculated 1/M place a point on the graph. Use a straight edge to locate the estimated critical position for each pull by taking the line from the last two plots out to the edge of the graph and comparing that position to the ECP</p>	
<p>4. * Inform Reactor Engineering and maintain stable reactor conditions per step 6.21.5.3</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>Realize that when rods are withdrawn to Bank B at 185 steps that flux is more than double its initial value.</p> <p>Note that the ECP is outside the estimated band from the cue sheet.</p> <p>Note the requirement to maintain the reactor stable and notify reactor engineering</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 hot standby recovering from a short forced outage at middle of core life. The crew is performing a reactor startup in accordance with GEN 00-003, Hot Standby To Minimum Load. Initial data has been entered on Figure 1, 1/M Plot which is provided.

**Initiating Cues:** With the data supplied, complete the 1/M Plot. Estimate the critical rod position per steps 6.21.5.2 and identify any required actions.

**THE FOLLOWING DATA IS PROVIDED**

Initial count rate  
520 cps

**Source Range NI response to rod withdrawals**

Rod Position	A50	A100	B35	B85	B135	B185	C95	C145		
Channel	SR	SR	SR	SR	SR	SR	SR	SR	SR	SR
Cf	553	634	732	881	1019	1300	1575	2166		



**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: STS AB-201D, Atmospheric Relief Valve Inservice Valve Test, is being performed in Mode 1 for AB PV-4 only.

Initiating Cues: Some of the steps of the procedure are annotated as complete or NA. Go through the appropriate steps of the procedure for AB PV-4 only performing the steps which have not been marked as performed or NA. The JPM will be complete when you have completed Attachment A and made any necessary entries on the Surveillance Test Routing Sheet based on Attachment A entries only.

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

**Notes:** Provide the Candidate with a copy of STS AB-201D. The readings to be annotated are included on the instruction sheet for this JPM.

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:** This JPM will be complete when Attachment A is complete and Part 3 of the APF 29B-03-01 is completed noting that :

- Action 2 is required for step 8.4.6, AB PIC-4A Output Indication
- Action 1 is required for step 8.4.9. The valve is inoperable.
- Action 2 is required for step 8.4.17.4.

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

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

Rev 0

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

**CUE**

**STANDARD**

**SCORE**

			<b>S U</b>
<p>1. * Check and record open indications for AB PV-4 per Attachment A</p> <p>STEP: 8.4.6</p>	<p><b>Acknowledge report. CRS will initiate corrective action.</b></p>	<p>Complete step by recording supplied data on Attachment A as on Attachment Key</p> <p>Should notify CRS of unsatisfactory output indication.</p>	<p>Comments:</p>
<p>2. * Record AB PV-4 opening stroke time on Attachment A</p> <p>STEP: 8.4.7</p>		<p>Complete step by recording supplied data on Attachment A</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

Rev 0

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. * Record AB PV-4 close stroke time on Attachment A  STEP: 8.4.9	<p><b>If candidate announces the surveillance has failed and that they intend to suspend the rest of the procedure, acknowledge the failure and inform them to continue on to complete the surveillance.</b></p>	<p>Complete step by recording supplied data on Attachment A</p> <p>Realize that valve is inoperable per Note 1 of Attachment A.</p>	<p><b>S U</b></p> <p>Comments:</p>
4. * Record results of AB PV-4 complete cycle on Attachment A  STEP: 8.4.15		<p>Complete step by recording supplied data on Attachment A</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

Rev 0

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
5. * Record test data for AB-V344 on Attachment A  STEP: 8.4.17.4	<b>Acknowledge report. CRS will initiate corrective action.</b>	Complete step by recording supplied data on Attachment A.  Should notify CRS that corrective action is required.	<b>S U</b>  Comments:
6. * Record results of AB-V007 complete cycle on Attachment A.  STEP: 8.4.19		Complete step by recording supplied data on Attachment A	<b>S U</b>  Comments:

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. Complete block 3 of the surveillance routing sheet.</p> <p>STEP: Routing Sheet</p>	<p><b>Acknowledge the report.</b></p> <p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>* Complete block 3 of the STRS as on the attached Key and annotate that Step 8.4.9 made the valve inoperable. Report fact to CRS.</p> <p>Candidate may fill out block 3 for each individual deficiency and use a continuation sheet. (NOT Critical)</p> <p>May report directly to CRS that several deficiencies exist and that the valve is inoperable.</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: STS AB-201D, Atmospheric Relief Valve Inservice Valve Test, is being performed in Mode 1 for AB PV-4 only.

Initiating Cues: Some of the steps of the procedure are annotated as complete or NA. Go through the appropriate steps of the procedure for AB PV-4 only performing the steps which have not been marked as performed or NA. The JPM will be complete when you have completed Attachment A and made any necessary entries on the Surveillance Test Routing Sheet based on Attachment A entries only.

THE FOLLOWING DATA IS PROVIDED

STEP	AB PV-4 INDICATION AND PIT PARAMETER	Found Plant Condition
8.4.6	AB PIC-4A Output indicates approximately 100%	~80%
	Green indicating light on AB ZL-4A is out	out
	Red indicating light on AB ZL-4A is lit	out
	Computer point ABE0004 indicates valve NCLSD	nclsd
	If PIT was performed, THEN valve moved from closed to open position	NA

STEP	STROKE TEST PARAMETER	MEASURED
8.4.7	AB PV-4 opening stroke time*	15.4 sec
8.4.9	AB PV-4 closing stroke time*	20.1 sec
8.4.15	AB PV-4 Complete Cycle**	Complete Cycle - SAT
8.4.17.4	AB PV-4 Steam Trap Inspection	1650 ml
8.4.19	AB PV-4 Complete Cycle	Complete Cycle - SAT

**WOLF CREEK JOB PERFORMANCE MEASURE**

JPM NO: 004-A	K/A NO: 2.3.1
COMPLETION TIME:	K/A RATING: 2.6
JOB TITLE: RO	REVISION: 0
TASK TITLE: Given a Clearance Order for venting/draining a contaminated system in the RCA, Determine the RWP, limits and time allowed to complete the job.	
DUTY: Radiation Control	

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: NONE

PREPARER:  Ralph S. Ewy  DATE:  2/24/04



**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 a spare Reactor Operator. Another Operator has contacted you for assistance in completing a Clearance Order in the RCA.

**Initiating Cues:** The other Operator is requesting assistance in opening BG V0374, RWST To Charging Pump Suction Line Drain Valve, located in the A CCP Room. For this task:

- # identify the correct RWP.
- describe the dress out requirements.
- identify the dosimetry settings .
- consider that you have received 1830 MR dose this calendar year, and estimate your stay time in the lowest dose area of the room.

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

**Notes:** **#If performed at the RCA entrance.** Allow the candidate to access the book of RWPs and tell you which RWP would be correct. When the Candidate indicates they are going to read the posted survey map for the indicated area, provide them with the survey map attached to this JPM.  
**#If performed in a classroom.** Provide the candidate with the attached four RWPs and ask them to select the one appropriate for the job.

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 identified:

- **RWP 04-045**
- dress out requirement of **full set**
- dosimetry setting of **20 mr Dose and 200 mr Dose Rate**
- an estimated stay time of **4 hrs.** (4 hrs. X 5mr = 20 mr dose)

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

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

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

**CUE**

**STANDARD**

**SCORE**

<p>1 * Identify the correct RWP</p>		<p><b>If performed at the RCA entrance.</b> Look in book outside Access Control. Note that RWP 04-045 is for Operations access for contaminated systems venting and draining activities</p> <p><b>If performed in a classroom.</b> Select the correct RWP from the four provided.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. * Describe the dress out requirements</p>		<p>In work activity block of RWP 04-045, note that the requirement is for a “full set”.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>3 * Identify the dosimetry settings</p>		<p>Under setting block of RWP 04-045, note the settings are :</p> <ul style="list-style-type: none"> <li>• Dose 20 MR</li> <li>• Rate 200 MR/HR</li> </ul>	

\* CRITICAL STEP

Rev 0

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. * Estimate your stay time in the lowest dose area of the room	<p><b>THE JPM IS COMPLETE</b></p>	<p>Note that the limiting time                      is 20 MR dose from the                      RWP. The survey map                      indicates a lowest dose                      area of 5 mr. 20 MR                      divided by 5 MR = 4                      hour stay time</p>	
	<p><u>RECORD STOP TIME ON PAGE 1</u></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:** You are a spare Reactor Operator. Another Operator has contacted you for assistance in completing a Clearance Order in the RCA.

**Initiating Cues:** The other Operator is requesting assistance in opening BG V0374, RWST To Charging Pump Suction Line Drain Valve, located in the A CCP Room. For this task:

- identify the correct RWP.
- describe the dress out requirements.
- identify the dosimetry settings .
- consider that you have received 1830 MR dose this calendar year, and estimate your stay time in the lowest dose area of the room.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 004-A	K/A NO: 2.3.1
COMPLETION TIME:	K/A RATING: 2.6
JOB TITLE: RO	REVISION: 0
TASK TITLE: Given a Clearance Order for venting/draining a contaminated system in the RCA, Determine the RWP, limits and time allowed to complete the job.	
DUTY: Radiation Control	

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: NONE

PREPARER: Ralph S. Ewy DATE: 2/24/04



**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 a spare Reactor Operator. Another Operator has contacted you for assistance in completing a Clearance Order in the RCA.

**Initiating Cues:** The other Operator is requesting assistance in opening BG V0374, RWST To Charging Pump Suction Line Drain Valve, located in the A CCP Room. For this task:

- # identify the correct RWP.
- describe the dress out requirements.
- identify the dosimetry settings .
- consider that you have received 1830 MR dose this calendar year, and estimate your stay time in the lowest dose area of the room.

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

**Notes:** **#If performed at the RCA entrance.** Allow the candidate to access the book of RWPs and tell you which RWP would be correct. When the Candidate indicates they are going to read the posted survey map for the indicated area, provide them with the survey map attached to this JPM.  
**#If performed in a classroom.** Provide the candidate with the attached four RWPs and ask them to select the one appropriate for the job.

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 identified:

- **RWP 04-045**
- dress out requirement of **full set**
- dosimetry setting of **20 mr Dose and 200 mr Dose Rate**
- an estimated stay time of **4 hrs.** (4 hrs. X 5mr = 20 mr dose)

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

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

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

**CUE**

**STANDARD**

**SCORE**

<p>1 * Identify the correct RWP</p>		<p><b>If performed at the RCA entrance.</b> Look in book outside Access Control. Note that RWP 04-045 is for Operations access for contaminated systems venting and draining activities</p> <p><b>If performed in a classroom.</b> Select the correct RWP from the four provided.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. * Describe the dress out requirements</p>		<p>In work activity block of RWP 04-045, note that the requirement is for a “full set”.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>3 * Identify the dosimetry settings</p>		<p>Under setting block of RWP 04-045, note the settings are :</p> <ul style="list-style-type: none"> <li>• Dose 20 MR</li> <li>• Rate 200 MR/HR</li> </ul>	

\* CRITICAL STEP

Rev 0

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

4. \* Estimate your stay time  
in the lowest dose area  
of the room

**THE JPM IS  
COMPLETE**

RECORD STOP TIME  
ON PAGE 1

Note that the limiting time  
is 20 MR dose from the  
RWP. The survey map  
indicates a lowest dose  
area of 5 mr. 20 MR  
divided by 5 MR = 4  
hour stay time

\* 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:** You are a spare Reactor Operator. Another Operator has contacted you for assistance in completing a Clearance Order in the RCA.

**Initiating Cues:** The other Operator is requesting assistance in opening BG V0374, RWST To Charging Pump Suction Line Drain Valve, located in the A CCP Room. For this task:

- identify the correct RWP.
- describe the dress out requirements.
- identify the dosimetry settings .
- consider that you have received 1830 MR dose this calendar year, and estimate your stay time in the lowest dose area of the room.



**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 been stable at 100% power. The AFD Monitor Alarm is inoperable. A Reactor Operator performed one set of readings per STS SF-002 and then the AFD Monitor Alarm was declared operable.

**Initiating Cues:** You are to review the completed STS SF-002 for correctness and compliance.

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

Notes: Provide the candidate with a completed STS SF-002 on which the performer failed to recognize that AFD is out of the acceptable region of the COLR Figure 2.5.

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 determined that the test performer failed to recognize that two of the NIs are out of the band acceptable in the COLR and that Technical Specification 3.2.3, Action A applies.

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

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

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

**CUE**

**STANDARD**

**SCORE**

<p>1. * Record data as required on Attachment A</p> <ul style="list-style-type: none"> <li>Compare % flux <math>\Delta</math> for each channel to COLR limits</li> </ul> <p>STEP 8.1</p>		<p>Go to Attachment A and enter the data provide on the cue sheet</p> <p>Determine that N41 and N44 are in the acceptable region and annotate the attachment accordingly. Determine that N42 and N43 are in the unacceptable region and annotate the attachment accordingly.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. * If the indicated FLUX DIFF is outside the acceptable limits of COLR on two or more operable PR channels, then perform the actions required by Tech Specs.</p> <p>STEP 8.1.2</p>	<p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Determine that the Plant is in TS 3.2.3 Condition A and must reduce thermal power to &lt;50% within 30 minutes.</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 been stable at 100% power. The AFD Monitor Alarm is inoperable. A Reactor Operator performed one set of readings per STS SF-002 and then the AFD Monitor Alarm was declared operable.

**Initiating Cues:** You are to review the completed STS SF-002 for correctness and compliance.



**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. SG tube leakage has been detected by Main Condenser Vacuum Pump Vent Radiation Monitor GE RE-92 going into Hi Hi Alarm. The crew is performing OFN BB-07A, Steam Generator Tube Leakage. The pressurizer is at program level and stable. Radiation Monitor BM RE-25 is not calibrated.

**Initiating Cues:** You are the Control Room Supervisor. Beginning at step 9 of OFN 7A, write down the steps you will perform and actions that will be taken.. Use your cue sheet to record your answers.

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

**Notes:** Provide an information only copy of OFN 7A, When the candidate indicates they need the conversion chart, provide them with a copy of AIF 21D-004-01-02.

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 documented that they will perform Attachment C, Steps C1 and C4. After being cued that EG RE-92 is now inoperable, the Candidate will document that they will perform Step C2 directing that grab samples be performed once per 4 hours.

A sample answer sheet marked “key” is provided.

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

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

Rev 0

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

**CUE**

**STANDARD**

**SCORE**

			<b>S U</b>
<p>1. * Monitor SG Tube Leakage</p> <p>STEP 9</p>	<p><b>NOTE</b></p> <p><b>Any time the candidate asks what GE RE-92 is reading, cue:</b></p> <p><b>GE RE-92 reads 3.60E-01 mCi/cc.</b></p>	<p>Go to Attachment C, action level table</p>	<p>Comments:</p>
<p>2. * Determine leak rate</p> <p>STEP C1</p>	<p><b>When asked, provide the conversion chart.</b></p> <p><b>When asked:</b></p> <p><b>GE RE-92 reads 3.60E-01 mCi/cc.</b></p>	<p>Realize the need to use the conversion chart to determine the lake rate in order to use the table.</p> <p>Realize the need to know what value is displayed by GE RE-92.</p> <p>Use the conversion chart to determine the leak rate is 60 GPD.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. * Determine action level  STEP C1		Use the chart in step C1 to determine a 60 GPD leak is Action level 1 and go to step C4.	S U  Comments:
4. * Establish NPIS time trend  STEP C4.a	<b>If asked, the event has been in progress for 15 minutes.</b>	Note there is not enough data to apply the notes.  Establish a time trend on NPIS for GE RE-92. (BM RE-25 is not calibrated per initial instructions)	S U  Comments:
5. * Direct Chemistry to obtain grab samples  STEP C4.b		Notify Chemistry to take grab samples of the secondary at the frequency specified in STN CH-020.	S U  Comments:

\* CRITICAL STEP

Rev 0

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>6. * WHEN leak rate stabilizes, THEN reset radiation monitors.</p> <p>STEP C4.c</p>		<p>Realize the conditions have not been met for this step yet but that this is a continuous action step to reset the rad monitors to be applied when appropriate</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>7. Review procedures.</p> <p>STEP C4.d</p>	<p><b>At this point, cue:</b></p> <p><b>Radiation Monitor GE RE-92 is now inoperable.</b></p>	<p>Review OFN 7A, STN CH-020, OFN MA-38, EMG E-0, EMG E-3, and the Emergency Plan procedures. (This is a suggested list. It is not critical that the candidate identify this complete list.)</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
8. * Take actions appropriate for no continuous rad monitors operable.	<p><b>If the Candidate indicates they are returning to Step 1 of OFN BB-07A, Cue:</b></p> <p><b>All Plant conditions remain the same with the exception of GE RE-92.</b></p>	Realize that no continuous rad monitors are available now and return to C1. This condition meets the entry conditions for OFN BB-07A so the Candidate may indicate they are returning to Step 1 of OFN BB-07A.	
STEP C1			
9. * Determine Action Level.		Realize that there are no operable continuous rad monitors and go to step C2.	<p style="text-align: center;"><b>S      U</b></p> <p>Comments:</p>
STEP C1			

\* CRITICAL STEP

Rev 0

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. * Return GE RE-92 and BM RE-25 to perable as rapidly as possible.		Take action to expedite trouble shooting on GE RE-92 and calibration on BM RE-25.	S U Comments:
STEP C2.a			
11. Direct Chemistry to analyze grab samplesl		Direct Chemistry to sample the offgas system every 4 hours.	S U Comments:
STEP C2.b			
12. Consider more frequent sampling.		Realize that not enough data is available to make a definite decision on frequency of sampling but record this as a continuous action step	S U Comments:
STEP C2.c			

\* CRITICAL STEP

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

13. Consider temporary radiation monitors

STEP C2.d

**The JPM is Complete**

RECORD STOP TIME  
ON PAGE 1

Indicate consideration of directing that temporary rad monitor be used.

**S U**

Comments:

\* 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. SG tube leakage has been detected by Main Condenser Vacuum Pump Vent Radiation Monitor GE RE-92 going into Hi Hi Alarm. The crew is performing OFN BB-07A, Steam Generator Tube Leakage. The pressurizer is at program level and stable. Radiation Monitor BM RE-25 is not calibrated.

**Initiating Cues:** You are the Control Room Supervisor. Beginning at step 9 of OFN 7A, write down the steps you will perform and actions that will be taken.. Use your cue sheet to record your answers.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 007-A	K/A NO: 2.2.23
COMPLETION TIME:	K/A RATING: 3.8
JOB TITLE: SRO	REVISION: 0
TASK TITLE: Given a sequence of events, Determine the end time of an LCO including any extensions.	
DUTY: Equipment Control	

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  X

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

REFERENCES: WCGS Integrated Technical Specifications and Bases, LCO 3.5.2 and Section 1.3

TOOLS/EQUIPMENT: NONE

PREPARER:  Ralph S. Ewy  DATE:  4/14/04

**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 Control Room Supervisor, the Plant is stable in Mode 1.  
The “A” train SI pump has been declared inoperable. The time of discovery is 1000 on 5/08/2004. The “B” train SI is OPERABLE.  
Twelve (12) hours after the “A” train SI is declared inoperable, the “B” train RHR pump is declared inoperable.  
At 1000 on 5/09/2004, the “A” train SI pump is restored to OPERABLE status.

**Initiating Cues:** The Shift Manager directs you to determine when the “B” train RHR pump must be restored to OPERABLE status to avoid commencing a unit shutdown, including any extensions permitted by Technical Specifications.

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

Notes: Ensure that a copy of Improved Technical Specification is available for the candidate to refer to.

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 determined that the extensions allowed by section 1.3, “Completion Times”, would apply and that LCO 3.5.2 must be exited by 2200 on 12/11/2001.

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

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

Rev 0

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. The "A" train SI pump has been declared inoperable. The time of discovery is 1000 on 5/08/2004. The "B" train SI is OPERABLE.</p> <ul style="list-style-type: none"> <li>Twelve (12) hours after the "A" train SI was declared inoperable, the "B" train RHR pump is declared inoperable</li> <li>At 100 on 5/09/2004 the "A" Train SI pump is restored to operable status.</li> </ul>	<p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>* Determine that the extensions allowed by section 1.3, "Completion Times", would apply and that LCO 3.5.2 must be exited by 2200 on 5/11/2004</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:** You are the Control Room Supervisor, the Plant is stable in Mode 1.  
The “A” train SI pump has been declared inoperable. The time of discovery is 1000 on 5/08/2004. The “B” train SI is OPERABLE.  
Twelve (12) hours after the “A” train SI is declared inoperable, the “B” train RHR pump is declared inoperable.  
At 1000 on 5/09/2004, the “A” train SI pump is restored to OPERABLE status.

**Initiating Cues:** The Shift Manager directs you to determine when the “B” train RHR pump must be restored to OPERABLE status to avoid commencing a unit shutdown, including any extensions permitted by Technical Specifications.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 008-A	K/A NO: 2.3.6
COMPLETION TIME:	K/A RATING: 3.1
JOB TITLE: SRO	REVISION: 0
TASK TITLE: Given a Release Permit, review for technical accuracy	
DUTY: Radiation Control	

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  X

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

REFERENCES: AP 07B-001, Radioactive Releases  
AI 07B- 024, Preparation of Containment Purge Permits  
APF-07B-001-09-08, Containment Purge Release Permit

TOOLS/EQUIPMENT:

PREPARER:  Ralph S. Ewy  DATE:  3/09/04



**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:** It is May 11, 2004, at 0800. You are a spare Senior Reactor Operator. A containment purge has been initiated and stopped. The crew is preparing to initiate the purge again. The Reactor Operator has performed the preparatory steps on page 2 of 3 of the release permit provided.

**Initiating Cues:** The Shift Manager directs you to examine the permit for accuracy and compliance for the reinitiation. Locate and document the three errors on this permit.  
The following readings are indicated on the RM11

	High Setpoint	Low Setpoint
GTRE-22/33	2.06E-03	2.06E-04
GTRE-31/32	1.00E-03	5.83E-05

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

**Notes:** Provide the candidate with a copy of the partially completed APF 07B-001-09-08, Containment Purge Release Permit

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 Candidate will have documented that:

- The RO inadvertently transposed the number for GTRE-22/33 and GTRE-31/32 when establishing the setpoints.
- This permit has expired and cannot be used.
- The reading for GTG 313 exceeds the restart limit and the purge cannot be reinitiated

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

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

Rev 0

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

**CUE**

**STANDARD**

**SCORE**

			<b>S U</b>
1. * Check the release conditions		Note that the RO transposed the number for GTRE-22/33 and GTRE-31/32 when establishing the setpoints.	Comments:
2. * Check the special instructions		Note that the permit has expired	
3. * Check the Authorization Section, Release Data, and the continuation sheet	<p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	Note that the reading for GTG 313 exceeds the allowable value for restart of the purge	

\* CRITICAL STEP

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:** It is May 11, 2004, at 0800. You are a spare Senior Reactor Operator. A containment purge has been initiated and stopped. The crew is preparing to initiate the purge again. The Reactor Operator has performed the preparatory steps on page 2 of 3 of the release permit provided.

**Initiating Cues:** The Shift Manager directs you to examine the permit for accuracy and compliance for the reinitiation. Locate and document the three errors on this permit.

The following readings are indicated on the RM11

	High Setpoint	Low Setpoint
GTRE-22/33	2.06E-03	2.06E-04
GTRE-31/32	1.00E-03	5.83E-05

# Administrative (Simulator Scenario #2)

SRO A-4

## WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 009B-A	K/A NO: 2.4.41
COMPLETION TIME:	K/A RATING: 4.1
JOB TITLE: SRO	REVISION: 0
TASK TITLE: After observing an event on the simulator, make the E-plan Classification and Protective Action Recommendation.	
DUTY: Emergency Plan	

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: AP 06-002, Radiological Emergency Response Plan  
EPP 06-001, Control Room Operations  
EPP 06-005, Emergency Classification  
EPP 06-006, Protective Action Recommendations  
APF 06-002-01, Emergency Action Levels  
EPF 06-007-01, WCGS Emergency Notification

TOOLS/EQUIPMENT: NONE

PREPARER: Ralph S. Ewy DATE: 2/24/04

**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 Shift Manager.

**Initiating Cues:** Analyze the events you have just experienced on the simulator, complete an EPF 06-007-01, WCGS Emergency Notification form. Use current plant status.

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

Notes: After the Candidate indicates they would obtain the Emergency Notification form from the Shift Managers desk drawer, present the blank form attached to this JPM.

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 made the correct classification and the correct protective action recommendation per the performance page for the scenarion just completed.

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

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

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. * This classification is for Scenario #2</p> <p>2. * Perform Attachment A of EPP 06-006</p>	<p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>EAL</p> <p>3-LRCB1 – Yes</p> <p>3-LRCB2 – Yes</p> <p>3-LRCB3 – No</p> <p>3-LRCB5 – Yes</p> <p>3-LRCB6 – No</p> <p>3-LRCB7 – No</p> <p>Alert</p> <p>PAR</p> <p>Perform Attachment A of EPP 06-006</p> <p>Complete EMERGENCY ACTION NOTIFICATION as indicated on attached “Key”.</p> <ul style="list-style-type: none"> <li>• <b>Sections 4, 5, 7, and 8 are critical</b></li> </ul>	<p>S U</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:** You are the Shift Manager.

**Initiating Cues:** Analyze the events you have just experienced on the simulator, complete an EPF 06-007-01, WCGS Emergency Notification form. Use current plant status.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO:101-S	K/A NO: 029 EA1.02
COMPLETION TIME:15 Minutes	K/A RATING: 3.6/3.3
JOB TITLE:RO/SRO	REVISION: 0
TASK TITLE: Emergency Borate using EMG FR-S1	
DUTY:Anticipated Transient Without Scram	ASP

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: EMG FR-S1, Response To Nuclear Power Generation ATWT

TOOLS/EQUIPMENT: NONE

PREPARER: R. Arce DATE: 04/13/2004

**Simulator Setup**

IC 177

On monitor screen:

Monitor ybg8104

Set 1=0.045

Run

**Read to Examinee:**

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, an ATWT has occurred, The Control Room Supervisor has entered EMG FR-S1, Safety Injection is not in progress. Five rods failed to insert after PG-19 and 20 were de-energized.

**Initiating Cues:** The Control Room Supervisor directs you to complete steps 5 through 7 of EMG FR-S1 to commence emergency boration.

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

**Notes:** Provide a copy of EMG FR-S1, Steps 5 thru 7 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:** Upon completion of this JPM, the Candidate will have established emergency boration flow via the RWST thru the Normal Charging Pump.

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

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



TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>2. Verify Charging Flowpath</p> <ul style="list-style-type: none"> <li>• Ensure Charging Pumps to Regen HX Containment Iso VlvS - OPEN</li> <li>• Ensure Regen HX to Loop Cold Leg valves – ONLY ONE OPEN</li> <li>• Adjust Charging flow to maintain pressurizer level</li> <li>• Adjust back pressure control to establish between 8-13 gpm seal injection flow to each RCP</li> </ul> <p>STEP 6</p>		<p>Verify red lite only lit on BG HIS-8105 and BG HIS-8106.</p> <p>Verify red lite only illuminated on BG-8146 OR BG 8147. Verify green lite only on the remaining valve</p> <p>Note pressurizer level at or trending to 27% on BB LI-459A or 460A or 461. Select manual control and adjust BG FK-462 if necessary to establish desired level.</p> <p>Rotate BG HC-182 as necessary to establish 8–13 gpm on BG FR 154, 155, 156, and 157.</p>	<p>S U</p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. *Check Emergency Borate Flow Greater Than 30 GPM  STEP 7		Note flow on BG FI-183A is <30 GPM and recognize need to perform the RNO for Step 7	S U  Comments:

\* CRITICAL STEP

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

			<p style="text-align: center;"><b>S      U</b></p>
<p>4. Perform the following:</p> <ul style="list-style-type: none"> <li>• *Align RWST to charging pump suction</li>   <li>• *Check RWST flow through charging system - GREATER THAN 90 GPM</li>   <li>• <u>IF</u> RWST flow through charging system is less than 90 gpm <u>THEN</u> establish alternate boration flowpath using Attachment A</li> </ul> <p>Report to Control Room Supervisor that steps are complete.</p> <p>STEP 7 RNO</p>	<p><b>Control Room Supervisor acknowledges the report</b></p> <p><b>This completes this JPM</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Depress open button on BN HIS-112D or BN HIS-112E and note red lite only illuminated.</p> <p>Depress the close pushbutton on BG HIS-112B or BG HIS-112C and verify green lite only is illuminated.</p> <p>Check BG FI-121A or EM FI-917A or EM FI-917B and note flow is greater than 90 GPM</p> <p>Determine that Attachment A is not required.</p> <p>Report to the Control Room Supervisor that Immediate Borate flow of greater than 90 GPM has been established via the RWST</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:** You are the Reactor Operator, an ATWT has occurred, The Control Room Supervisor has entered EMG FR-S1, Safety Injection is not in progress. . Five rods failed to insert after PG-19 and 20 were de-energized

**Initiating Cues:** The Control Room Supervisor directs you to complete steps 5 through 7 of EMG FR-S1 to commence emergency boration.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 202-P	K/A NO: 002 A2.01
COMPLETION TIME: 10 Minutes	K/A RATING: 4.3/4.4
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: EMG C-0, "Loss of All AC", Isolate RCP Seal Leak Off	
DUTY: Reactor Coolant System	

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, Loss Of All AC Power

TOOLS/EQUIPMENT: NONE

PREPARER: R. Acree DATE: 04/13/2004

**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 total loss of AC power. EMG C-0 is being performed.

Initiating Cues: The Control Room Supervisor has directed you to perform step 15 of EMG C-0 to isolate the RCP seals.

**DO NOT OPERATE ANY EQUIPMENT IN THE PLANT**

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

**Notes:** Provide the operator with a copy of EMG C-0, Step 15.

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 isolated the valves from the RCP seals.

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

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

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

**CUE**

**STANDARD**

**SCORE**

<p>1. Dispatch personnel to locally close valves to isolate RCP seals</p> <ul style="list-style-type: none"> <li>* Seal Water Return Containment Isolation Valve</li> </ul> <p>BG HV-8100</p>	<p>As operator describes opening valve cue:</p> <p><b>Clutch Lever is disengaged</b></p> <p><b>Stem is retracting.</b></p> <p><b>Handwheel stops turning.</b></p>	<p>Go to BG HV-8100 at Aux Building , 2000' level, South Penetration Room. Gently disengage clutch lever while turning the handwheel in a clockwise direction. The declutch lever may be released once it engages. Continue turning the handwheel clockwise till the stem is fully retracted and the handwheel stops turning.</p>	<p><b>S U</b></p> <p>Comments:</p>
<ul style="list-style-type: none"> <li>* Seal Water Injection Filters Inlet Isolations</li> </ul> <p>BG-V101 BG-V105</p>	<p><b>Valve is turning in the clockwise direction. Valve will not turn any more. Stem is totally inserted.</b></p>	<p>Go to BG V101 at Aux Building, 2000' level, RX Coolant Filter/Seal Injection Filter A Valve Room. Rotate the valve operator in the clockwise direction and note the position of the stem.</p>	<p><b>S U</b></p> <p>Comments:</p>
	<p><b>Valve is turning in the clockwise direction. Valve will not turn any more. Stem is totally inserted</b></p>	<p>Go to BG V105 at Aux Building, 2000' level, RX Coolant Filter/Seal Injection Filter B Valve Room. Rotate the valve operator in the clockwise direction and note the position of the stem</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<ul style="list-style-type: none"> <li>* CCW Return From RCS Isolation Valve</li> </ul> <p>EG HV-61</p> <p>Contact Control Room and Report step complete</p> <p>STEP 15</p>	<p>As operator describes opening valve cue:</p> <p><b>Clutch Lever is disengaged</b></p> <p><b>Stem is inserting.</b></p> <p><b>Handwheel stops turning.</b></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>Go to the EG HV-61 at the Aux Building, 2000', North Penetration Room. Gently disengage clutch lever while turning the handwheel in a clockwise direction. The declutch lever may be released once it engages. Continue turning the handwheel clockwise till the stem is fully inserted and the handwheel stops turning..</p> <p>Call Control Room and report step 15 complete.</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 total loss of AC power. EMG C-0 is being performed.

Initiating Cues: The Control Room Supervisor has directed you to perform step 15 of EMG C-0 to isolate the RCP seals.

**DO NOT OPERATE ANY EQUIPMENT IN THE PLANT**

**WOLF CREEK JOB PERFORMANCE MEASURE**

JPM NO: 202-S	K/A NO: 3.2 006 A1.13
COMPLETION TIME: 25 Minutes	K/A RATING: 3.5/3.7
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Fill an SI Accumulator - Mode 3	
DUTY: Emergency Core Cooling System (ECCS)	

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: 04/13/2004

**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 with the plant stable in Mode 3. Accumulator "C" level is approximately 40% and annunciator 45C is lit. There is no known leakage past the Accumulator check valves. RWST was sampled yesterday and boron concentration is 2423 ppm. No evolutions have occurred that would have diluted the RWST since the sample.

**Initiating Cues:** The Control Room Supervisor directs you to raise SI Accumulator "C" level to between 55% - 58% using "B" SI Pump. RHR Header depressurization is desired during pump run. Safety Injection Pump discharge relief valves are expected to lift upon pump start.

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

**Notes:** Provide an information only copy of SYS EP-200 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 increased SI Accumulator "C" level to 55% - 58% using "B" Safety Injection Pump.

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

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

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

**CUE**

**STANDARD**

**SCORE**

1. Perform Prerequisites.

5.1 – 5.3

5.4 Ensure cooling to desired SI pump.

5.5 Check both SI Train A and B are operable

Cue from CRS: **BOTH Trains are operable.**

Steps 5.1 – 5.3 should be N/A

Verifies “B” CCW Train has a running pump. Initial step.

Initial step.

**S U**

Comments:

2. Procedure

6.1.1 Check accumulator pressure

6.1.2 Record RCS Pressure

6.1.3 Depressurize RHR header if desired.

- Open EJ HIS-8890A or 8890B

- Ensure EM HIS-8964 Open

- Ensure EM HIS-8871 open.

6.1.4 Using SI Pump “A”

Locate EP PI-964 and EP PI-965 on RL018.

Determine pressure is less than 619 psig. N/A the step.

Locate RCS or PRZR pressure indication on RL002. Record the pressure.

Locate EJ HIS 8890A or B and open one valve. N/A the other valve.

Check open.

Check open.

Recognize the Initiating Cue stated “B” SIP is to be used. N/A the step.

**S U**

Comments:

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. Procedure			<b>S U</b>
6.1.5 Using SI Pump "B"			Comments:
1. Ensure EM HIS 8814B - OPEN		Ensures Red Lite lit on EM HIS-8814B.	
2. Ensure BN HIS 8813 – OPEN		Ensures Red Lite lit on BNIS-8813	
3. *Close EM HIS-8821B		Recognizes initial cue was that relief's are expected to lift. *The critical step is to inform the CRS that T.S. 3.5.2 must be entered prior to closing the valve. Press close button and observe Green Lite lit and Red Lite out.	
4. *Start SI Pump "B"		*Rotate EM HIS-5 to Start; observe Red Lite lit and Green Lite out.  While not critical Mgmt expectations are to make a plant announcement prior to start and to have a NPIS screen displaying pump parameters for the B SI pump.	
5. *Open EM HIS 8821B		*Presses open on EM HIS 8821B. Observe Red Lite lit and Green Lite out. Informs CRS that T.S. 3.5.2 can be exited.	

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. Fill Accumulator</p> <p>*6.1.6 Open EM HIS-8888</p> <p>6.1.7 for Accumulator A and 6.1.8 for Accumulator B.</p> <p>6.1.9 Fill Accumulator C</p> <p>1. Record highest level</p> <p>2. *Open EP HIS-8878C</p> <p>3. *Fill to 55 – 58% and close EP HIS-8878C.</p> <p>4. Record level change.</p>		<p>*Presses open on EM HIS 8888. Observe Red Lite lit and Green Lite out.</p> <p>Steps 6.1.7 and 6.1.8 were marked N/A by the CRS prior to starting.</p> <p>Locate EP LI-954 or EP LI-955 on RL018. Record level.</p> <p>*Presses open on EM HIS 8888. Observe Red Lite lit and Green Lite out.</p> <p>Monitor level and close EP HIS-8878C when between 55 – 58%. *The critical step is not to exceed 77.8% which would make the Accumulator inoperable.</p> <p>Record level change for accumulator "C". Final – initial. Should be from 15 to 18%.</p>	<p>S U</p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
5. Continue Procedure			S U
6.1.11 Close EM HIS-8888		Press close button on EM HIS-8888 and observe Green Lite lit and Red Lite out.	Comments:
6.1.12 Run SI pump for 5-10 minutes.		Initial Conditions stated leakage was not present.	
*6.1.13 Stop SI Pump B.		*Rotate EM HIS-5 to Stop; observe Red Lite out and Green Lite lit.	
6.1.14 Ensure valves closed. EJ HIS-8890A EJ HIS-8890B		While not critical, Mgmt expectations are to make a plant announcement when securing B SI pump.	
6.1.15 Ensure valves open. EM HIS-8964 EM HIS-8871	As CRS cue: <b>SYS EJ-323 is in effect.</b> <b>Leave valves open.</b>	Press Close on valve opened in step 6.1.3. Ensures Green Lite lit and Red Lite out.	
6.1.16 Check for Chemistry need to sample.		Ensures Red Lite lit and Green Lite out.	
6.1.16 Check for Chemistry need to sample.		N/A the step.	
6.1.17 Secure Pump Room Cooler.	Acknowledge request. Respond as Turbine Watch: <b>B Pump Room Cooler is secured.</b>	Contacts Turbine Building Operator to stop fan at breaker for "B" room.	
6.1.18 Section 6.1 complete.	<b>THE JPM IS COMPLETE</b>	Initial and Date step.	
	<u>RECORD STOP TIME ON PAGE 1</u>		

\* 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:** You are the Reactor Operator with the plant stable in Mode 3. Accumulator "C" level is approximately 40% and annunciator 45C is lit. There is no known leakage past the Accumulator check valves. RWST was sampled yesterday and boron concentration is 2423 ppm. No evolutions have occurred that would have diluted the RWST since the sample.

**Initiating Cues:** The Control Room Supervisor directs you to raise SI Accumulator "C" level to between 55% - 58% using "B" SI Pump. RHR Header depressurization is desired during pump run.. Safety Injection Pump discharge relief valves are expected to lift upon pump start.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 202-P	K/A NO: 002 A2.01
COMPLETION TIME: 10 Minutes	K/A RATING: 4.3/4.4
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: EMG C-0, "Loss of All AC", Isolate RCP Seal Leak Off	
DUTY: Reactor Coolant System	

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, Loss Of All AC Power

TOOLS/EQUIPMENT: NONE

PREPARER: R. Acree DATE: 04/13/2004

**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 total loss of AC power. EMG C-0 is being performed.

Initiating Cues: The Control Room Supervisor has directed you to perform step 15 of EMG C-0 to isolate the RCP seals.

**DO NOT OPERATE ANY EQUIPMENT IN THE PLANT**

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

**Notes:** Provide the operator with a copy of EMG C-0, Step 15.

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 isolated the valves from the RCP seals.

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

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

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

**CUE**

**STANDARD**

**SCORE**

<p>1. Dispatch personnel to locally close valves to isolate RCP seals</p> <ul style="list-style-type: none"> <li>* Seal Water Return Containment Isolation Valve</li> </ul> <p>BG HV-8100</p>	<p>As operator describes opening valve cue:</p> <p><b>Clutch Lever is disengaged</b></p> <p><b>Stem is retracting.</b></p> <p><b>Handwheel stops turning.</b></p>	<p>Go to BG HV-8100 at Aux Building , 2000' level, South Penetration Room. Gently disengage clutch lever while turning the handwheel in a clockwise direction. The declutch lever may be released once it engages. Continue turning the handwheel clockwise till the stem is fully retracted and the handwheel stops turning.</p>	<p><b>S U</b></p> <p>Comments:</p>
<ul style="list-style-type: none"> <li>* Seal Water Injection Filters Inlet Isolations</li> </ul> <p>BG-V101 BG-V105</p>	<p><b>Valve is turning in the clockwise direction. Valve will not turn any more. Stem is totally inserted.</b></p>	<p>Go to BG V101 at Aux Building, 2000' level, RX Coolant Filter/Seal Injection Filter A Valve Room. Rotate the valve operator in the clockwise direction and note the position of the stem.</p>	<p><b>S U</b></p> <p>Comments:</p>
	<p><b>Valve is turning in the clockwise direction. Valve will not turn any more. Stem is totally inserted</b></p>	<p>Go to BG V105 at Aux Building, 2000' level, RX Coolant Filter/Seal Injection Filter B Valve Room. Rotate the valve operator in the clockwise direction and note the position of the stem</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<ul style="list-style-type: none"> <li>* CCW Return From RCS Isolation Valve</li> </ul> <p>EG HV-61</p> <p>Contact Control Room and Report step complete</p> <p>STEP 15</p>	<p>As operator describes opening valve cue:</p> <p><b>Clutch Lever is disengaged</b></p> <p><b>Stem is inserting.</b></p> <p><b>Handwheel stops turning.</b></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>Go to the EG HV-61 at the Aux Building, 2000', North Penetration Room. Gently disengage clutch lever while turning the handwheel in a clockwise direction. The declutch lever may be released once it engages. Continue turning the handwheel clockwise till the stem is fully inserted and the handwheel stops turning..</p> <p>Call Control Room and report step 15 complete.</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 total loss of AC power. EMG C-0 is being performed.

Initiating Cues: The Control Room Supervisor has directed you to perform step 15 of EMG C-0 to isolate the RCP seals.

**DO NOT OPERATE ANY EQUIPMENT IN THE PLANT**

**WOLF CREEK JOB PERFORMANCE MEASURE**

JPM NO: 202-S	K/A NO: 3.2 006 A1.13
COMPLETION TIME: 25 Minutes	K/A RATING: 3.5/3.7
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Fill an SI Accumulator - Mode 3	
DUTY: Emergency Core Cooling System (ECCS)	

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:    04/13/2004

**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 with the plant stable in Mode 3. Accumulator "C" level is approximately 40% and annunciator 45C is lit. There is no known leakage past the Accumulator check valves. RWST was sampled yesterday and boron concentration is 2423 ppm. No evolutions have occurred that would have diluted the RWST since the sample.

**Initiating Cues:** The Control Room Supervisor directs you to raise SI Accumulator "C" level to between 55% - 58% using "B" SI Pump. RHR Header depressurization is desired during pump run. Safety Injection Pump discharge relief valves are expected to lift upon pump start.

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

**Notes:** Provide an information only copy of SYS EP-200 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 increased SI Accumulator "C" level to 55% - 58% using "B" Safety Injection Pump.

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

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

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

**CUE**

**STANDARD**

**SCORE**

1. Perform Prerequisites.

5.1 – 5.3

5.4 Ensure cooling to desired SI pump.

5.5 Check both SI Train A and B are operable

Cue from CRS: **BOTH Trains are operable.**

Steps 5.1 – 5.3 should be N/A

Verifies “B” CCW Train has a running pump. Initial step.

Initial step.

**S U**

Comments:

2. Procedure

6.1.1 Check accumulator pressure

6.1.2 Record RCS Pressure

6.1.3 Depressurize RHR header if desired.

- Open EJ HIS-8890A or 8890B

- Ensure EM HIS-8964 Open

- Ensure EM HIS-8871 open.

6.1.4 Using SI Pump “A”

Locate EP PI-964 and EP PI-965 on RL018.

Determine pressure is less than 619 psig. N/A the step.

Locate RCS or PRZR pressure indication on RL002. Record the pressure.

Locate EJ HIS 8890A or B and open one valve. N/A the other valve.

Check open.

Check open.

Recognize the Initiating Cue stated “B” SIP is to be used. N/A the step.

**S U**

Comments:

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. Procedure			S U
6.1.5 Using SI Pump "B"			Comments:
1. Ensure EM HIS 8814B - OPEN		Ensures Red Lite lit on EM HIS-8814B.	
2. Ensure BN HIS 8813 – OPEN		Ensures Red Lite lit on BNIS-8813	
3. *Close EM HIS-8821B		Recognizes initial cue was that relief's are expected to lift. *The critical step is to inform the CRS that T.S. 3.5.2 must be entered prior to closing the valve. Press close button and observe Green Lite lit and Red Lite out.	
4. *Start SI Pump "B"		*Rotate EM HIS-5 to Start; observe Red Lite lit and Green Lite out.  While not critical Mgmt expectations are to make a plant announcement prior to start and to have a NPIS screen displaying pump parameters for the B SI pump.	
5. *Open EM HIS 8821B		*Presses open on EM HIS 8821B. Observe Red Lite lit and Green Lite out. Informs CRS that T.S. 3.5.2 can be exited.	

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. Fill Accumulator</p> <p>*6.1.6 Open EM HIS-8888</p> <p>6.1.7 for Accumulator A and 6.1.8 for Accumulator B.</p> <p>6.1.9 Fill Accumulator C</p> <p>1. Record highest level</p> <p>2. *Open EP HIS-8878C</p> <p>3. *Fill to 55 – 58% and close EP HIS-8878C.</p> <p>4. Record level change.</p>		<p>*Presses open on EM HIS 8888. Observe Red Lite lit and Green Lite out.</p> <p>Steps 6.1.7 and 6.1.8 were marked N/A by the CRS prior to starting.</p> <p>Locate EP LI-954 or EP LI-955 on RL018. Record level.</p> <p>*Presses open on EM HIS 8888. Observe Red Lite lit and Green Lite out.</p> <p>Monitor level and close EP HIS-8878C when between 55 – 58%. *The critical step is not to exceed 77.8% which would make the Accumulator inoperable.</p> <p>Record level change for accumulator "C". Final – initial. Should be from 15 to 18%.</p>	<p>S U</p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
5. Continue Procedure			S U
6.1.11 Close EM HIS-8888		Press close button on EM HIS-8888 and observe Green Lite lit and Red Lite out.	Comments:
6.1.12 Run SI pump for 5-10 minutes.		Initial Conditions stated leakage was not present.	
*6.1.13 Stop SI Pump B.		*Rotate EM HIS-5 to Stop; observe Red Lite out and Green Lite lit.	
6.1.14 Ensure valves closed. EJ HIS-8890A EJ HIS-8890B		While not critical, Mgmt expectations are to make a plant announcement when securing B SI pump.	
6.1.15 Ensure valves open. EM HIS-8964 EM HIS-8871	As CRS cue: <b>SYS EJ-323 is in effect.</b> <b>Leave valves open.</b>	Press Close on valve opened in step 6.1.3. Ensures Green Lite lit and Red Lite out.	
6.1.16 Check for Chemistry need to sample.		Ensures Red Lite lit and Green Lite out.	
6.1.16 Check for Chemistry need to sample.		N/A the step.	
6.1.17 Secure Pump Room Cooler.	Acknowledge request. Respond as Turbine Watch: <b>B Pump Room Cooler is secured.</b>	Contacts Turbine Building Operator to stop fan at breaker for "B" room.	
6.1.18 Section 6.1 complete.	<b>THE JPM IS COMPLETE</b>	Initial and Date step.	
	<u>RECORD STOP TIME ON PAGE 1</u>		

\* 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:** You are the Reactor Operator with the plant stable in Mode 3. Accumulator "C" level is approximately 40% and annunciator 45C is lit. There is no known leakage past the Accumulator check valves. RWST was sampled yesterday and boron concentration is 2423 ppm. No evolutions have occurred that would have diluted the RWST since the sample.

**Initiating Cues:** The Control Room Supervisor directs you to raise SI Accumulator "C" level to between 55% - 58% using "B" SI Pump. RHR Header depressurization is desired during pump run.. Safety Injection Pump discharge relief valves are expected to lift upon pump start.



**Simulator Setup**

IC 173  
Malfunction mRHR07A and tie to event 1  
Ensure Digital Displays are selected to  
    Top           BBP0403 and place sticky note on label  
    BottomBBT0413A and place sticky note on label  
DNO SIP A, SIP B, and CCP A  
Run

**Read to Examinee:**

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 4. You are the Reactor Operator, a loss of reactor coolant is occurring. "A" Train RHR system is aligned and operating in the Shutdown Cooling Mode. The crew has entered OFN BB-31 and performed steps 1 thru 26 a. All efforts to isolate the leak so far have been unsuccessful.

**Initiating Cues:** Per Step 26a RNO, the Control Room Supervisor directs you to perform Attachment C. Pressure is 375 pounds and decreasing.

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

**Notes:** Provide a copy of OFN BB-031, Attachment C, 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:** Upon completion of this JPM, the Candidate will have isolated the RCS leak by closing the RCS hot leg to RHR Pump A Suction Valves.

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

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

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Check at least one RHR Pump – OPERATING IN COOLDOWN MODE</p> <p>STEP C1</p>		<p>Determine that red lite only is illuminated on EJ HIS-1 with EJ PI-614 indicating discharge pressure and EJ FI-618 indicating flow.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. * Check operating RHR Pump discharge temperature – GREATER THAN 260°F</p> <p>STEP C2</p>		<p>Check EJ TR-612 and determine that temperature is greater than 260°F</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>3. Isolate flow through operating RHR train</p> <ul style="list-style-type: none"> <li>• * Close RHR HX flow control valve</li> <li>• * Place RHR HX bypass controls in manual and close the valves</li> </ul> <p>STEP C3</p>		<p>Operate EJ HIC-606 clockwise until scale indicates closed</p> <p>Depress the Man pushbutton on EJ FK-618 and depress the close pushbutton until the scale indicates 0 output</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. Check operating RHR Pump discharge temperature - DECREASING:  STEP C4		Check EJ TR-612 red pen and note decreasing temperature trend  NOTE: Candidate may perform Step C4 RNO and ensure RHR recirc valves and CCW to HX valves – OPEN if immediate temperature decrease is not apparent.	S U  Comments:
5. * Check operating RHR pump discharge temperature – LESS THAN OR EQUAL TO 260°F :  STEP C5		Check EJ TR-612 red pen and note temperature <260°F  NOTE: Temperature may not be <260°F yet Candidate may be required to perform the RNO and loop back to Step C4 until temperature reaches <260°F	S U  Comments
6. Check RHR pump A – RUNNING IN COOLDOWN MODE  STEP C6		Check lineup from hot legs to HX into cold legs.  NOTE: This was part of initial conditions	S U  Comments

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. Check RHR pump A for leakage</p> <ul style="list-style-type: none"> <li>• * Stop RHR Pump A</li> <li>• RCS leakage stopped or reduced</li> <li>• * Isolate RHR Train A from the RCS by closing RCS hot leg to RHR Pump A suction valves</li> <li>• Check RCS leakage isolated</li> <li>• Align RHR Train B for RCS cooldown per SYS EJ-120</li> </ul>	<p><b>Control Room Supervisor acknowledges the report</b></p>	<p>* Rotate EJ HIS-1 to the left and note green lite only illuminated. with EJ PI-614 indicating no discharge pressure and EJ FI-618 indicating no flow.</p> <p>Note wide range pressure increasing.</p> <p>* Depress the close pushbutton on BB HIS-8702A and EJ HIS-8701A and note green lites only illuminated.</p> <p>Note wide range pressure increasing.</p> <p>Inform CRS that the leak has been isolated and next intended action is to perform SYS EJ-120</p>	<p><b>S U</b></p> <p>Comments</p>
<p>STEP C7</p>	<p><u>RECORD STOP TIME ON PAGE 1</u></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 4. You are the Reactor Operator, a loss of reactor coolant is occurring. "A" Train RHR system is aligned and operating in the Shutdown Cooling Mode. The crew has entered OFN BB-31 and performed steps 1 thru 26 a. All efforts to isolate the leak so far have been unsuccessful.

**Initiating Cues:** Per Step 26a RNO, the Control Room Supervisor directs you to perform Attachment C. Pressure is 375 pounds and decreasing.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 302-P	K/A NO: 006 A2.02
COMPLETION TIME: 10 Minutes	K/A RATING:3.9/4.3
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Establish Alternate High Head Injection	
DUTY: Emergency Core Cooling System	

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 FR-C1, Response to Inadequate Core Cooling

TOOLS/EQUIPMENT: NONE

PREPARER:

R. Acree

DATE:

04/13/2004

**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 a spare licensed operator assigned to the shift. The Plant has experienced a loss of coolant accident resulting in a reactor trip and safety injection. The crew has transitioned to EMG FR-C1, Response to Inadequate Core Cooling. The Normal Charging Pump was tagged out for maintenance and the Aux Building Operator is removing the Clearance Order at this time.

**Initiating Cues:** The Control Room Supervisor directs you to take a copy of Attachment A from EMG C-1, Response to Inadequate Core Cooling, and go to the Aux Building. There you are to coordinate with the Reactor Operator (RO) and perform Attachment A to establish Alternate High Head Injection. The RO is ready to perform step A11 of the attachment.

**DO NOT OPERATE ANY EQUIPMENT IN THE PLANT**

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

**Provide the candidate with an information only copy of EMG FR-C1, Attachment A.**

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 aligned the NCP discharge to the Boron Injection Tank.

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

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

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

**CUE**

**STANDARD**

**SCORE**

			<b>S      U</b>
1. Open BIT Inlet Valves	As RO cue: <b>8803A indicates no power and 8803B is not responding. Perform RNO for Step A11.</b>		Comments:  Critical Step is to open EM HV-8803A.
Locally Open Bit Inlet Valves  *EM HV-8803A	As applicant describes opening valve cue:  <b>Clutch Lever is disengaged</b>  <b>Stem is rising.</b>  <b>Handwheel stops turning.</b>  <b>Position indicator points to open.</b>	Locate EM HV-8803A in the BIT room. Gently disengage clutch lever while turning the handwheel in a counter clockwise direction. The declutch lever may be released once it engages. Continue turning the handwheel counter clockwise till the stem is fully extended and the handwheel stops turning.	
EM HV-8803B	As applicant describes opening valve cue:  <b>Handwheel will not turn.</b>	EM HV-8803B is bound and will not open.	
Contact Control Room and report status.	<b>Acknowledge report.</b> <b>Going to step A12.</b>		
STEP A11 RNO			

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>2. Open BIT Outlet Valves</p> <p>*Locally Open Bit Outlet Valves</p> <p>EM HV-8801A</p> <p>EM HV-8801B</p> <p>Contact Control Room and report status.</p> <p>STEP A12 RNO</p>	<p>As RO cue: <b>I have no power indicated on either BIT outlet valve. Perform RNO.</b></p> <p>As applicant describes opening valves cue:</p> <p><b>Clutch Lever is disengaged</b></p> <p><b>Stem is rising.</b></p> <p><b>Handwheel stops turning.</b></p> <p><b>Position indicator points to open.</b></p> <p><b>Acknowledge Report.</b></p>	<p>Locate EM HV-8801A and 8801B in the North Piping Penetration room. Gently disengage clutch lever while turning the handwheel in a counter clockwise direction. The declutch lever may be released once it engages. Continue turning the handwheel counter clockwise till the stem is fully extended and the handwheel stops turning.</p>	<p><b>S U</b></p> <p>Comments:</p> <p>The critical task is to open at least one of the BIT outlet valves.</p>

\* CRITICAL STEP

Rev 0

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. RO performs steps A13 and A15 from the Control Room.	<p><b>AS RO cue: The Clearance Order has been removed from the NCP. The Aux Building Watch is standing by while I start the NCP.</b></p> <p><b>I have completed steps A13 and A15. The NCP is running. Perform step A16.a.</b></p>	None	
4. Ensure one train of valves from charging header to BIT – OPEN.  *Locally open BG-8483A.	<p><b>BG-8483A stem is fully retracted and locking device is installed.</b></p> <p><b>Locking device removed.</b></p> <p><b>Stem is rising.</b></p> <p><b>Handwheel stops turning.</b></p>	<p>Locate BG-8483A in the “A” CCP Room.</p> <p>Remove locking device. Rotate handwheel counterclockwise and watch for stem rising. Stem must be fully extended and the handwheel stops turning to verify valve is full open.</p>	<p style="text-align: center;"><b>S U</b></p> <p>Comments:</p> <p>The applicant must recognize that only EM HV-8803A was opened at step A11 and ensure BG-8483A is open to align for flow.</p>
Locally close BG-8483C.	<p><b>BG-8483C stem is fully extended and locking device is installed.</b></p> <p><b>Locking device removed.</b></p> <p><b>Stem is inserting.</b></p> <p><b>Handwheel stops turning.</b></p>	<p>Applicant may or may not close the “B” Train valve. Locate BG-8483C in the “B” CCP Room.</p> <p>Remove locking device. Rotate handwheel clockwise and watch for stem inserting. Stem must be fully inserted and the handwheel stops turning to verify valve is full closed.</p>	<p>BG-8483C may be in a contaminated area. If so have applicant describe the process.</p>
Report status to Control Room.	<p><b>Acknowledge Report</b></p>		

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE S U
<p>5. Check CCP to BIT Flow Meters – FLOW INDICATED.</p> <p>Step A17 RNO a.</p>	<p>As RO cue: <b>I have completed step A16. At step A17 I still have no BIT flow indicated. I have performed step A17 RNO a. Continue with the RNO for steps b and c.</b></p>		<p>Comments:</p>
<p>6. Check CCP to BIT Flow Meters – FLOW INDICATED.</p> <p>Locally ensure BG-8483B is open.</p> <p>*Locally ensure BG-8388 is open.</p> <p>Step A17 RNO b and c</p>	<p><b>Stem is fully extended. Handwheel will not turn counterclockwise.</b></p> <p><b>Stem is fully retracted. Handwheel is turning. Stem is rising.</b></p> <p><b>Stem is fully extended. Handwheel will not turn counterclockwise.</b></p>	<p>Locate BG-8483B in the NCP Room. Ensure valve is open by checking for stem fully extended. Applicant may attempt to turn handwheel counterclockwise.</p> <p>Locate BG-8388 in the NCP Room. Ensure valve is open by checking for stem fully extended. Recognize valve indicates closed. Turn handwheel in the counterclockwise direction watching for stem movement. Continue turning handwheel till the stem is fully extended and the handwheel stops turning.</p>	<p>S U</p> <p>Comments:</p> <p>The critical task is to open BG-8388.</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. Report task complete	<p><b>Acknowledge report. I have BIT flow indicated.</b></p> <p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Simulate calling the Control Room and reporting task complete.</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:** You are a spare licensed operator assigned to the shift. The Plant has experienced a loss of coolant accident resulting in a reactor trip and safety injection. The crew has transitioned to EMG FR-C1, Response to Inadequate Core Cooling. The Normal Charging Pump was tagged out for maintenance and the Aux Building Operator is removing the Clearance Order at this time.

**Initiating Cues:** The Control Room Supervisor directs you to take a copy of Attachment A from EMG C-1, Response to Inadequate Core Cooling, and go to the Aux Building. There you are to coordinate with the Reactor Operator (RO) and perform Attachment A to establish Alternate High Head Injection. The RO is ready to perform step A11 of the attachment.

**DO NOT OPERATE ANY EQUIPMENT IN THE PLANT**

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 401-S	K/A NO: 061 A1.01
COMPLETION TIME: 15 Minutes	K/A RATING: 3.9/4.2
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Feed S/G's with TDAWP	
DUTY: Auxiliary/Emergency Feedwater System	

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: SYS AL-120, Feeding Steam Generators With A Motor Driven or Turbine Driven AFW Pump

TOOLS/EQUIPMENT: NONE

PREPARER:

R. Acree

DATE:

04/13/2004

**Simulator Preparation:**  
IC 174

**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 3 at normal operating temperature and pressure. SG levels are being maintained in the narrow range instruments. The Start Up Motor Driven Feed Pump has tripped.

**Initiating Cues:** The Control Room Supervisor directs you to start the Turbine Driven Auxiliary Feed Water Pump (TDAFWP) and increase SG levels using Section 6.2 of SYS AL-120. Stabilize level between 50 and 55%. Return the TDAFWP to standby conditions when finished. The procedure prerequisites are satisfied.

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

**Notes:** Provide a current copy of SYS AL-120 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:** Upon completion of this JPM, the Candidate will have increase SG level to ≈50% narrow range using the Turbine Driven Auxiliary Feedwater Pump.

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

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

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

**CUE**

**STANDARD**

**SCORE**

			<b>S U</b>
1. Verify AFP Turb mechanical trip/throttle valve is closed  STEP 6.2.1		On FC HIS-312A verify green lite only is lit.	Comments:

\* CRITICAL STEP

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

**CUE**

**STANDARD**

**SCORE**  
**S U**

2. \*Close the TDAFWP discharge throttle valves to each SG

- SG A

- SG B

- SG C

- SG D

Operate the AL HK-8A control to the closed detent position and verify output meter indicates zero.

Operate the AL HK-10A control to the closed detent position and verify output meter indicates zero

Operate the AL HK-12A control to the closed detent position and verify output meter indicates zero

Operate the AL HK-6A control to the closed detent position and verify output meter indicates zero

Comments:

STEP 6.2.2

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>3. * Open at least one steam supply valve to TDAFWP</p> <ul style="list-style-type: none"> <li>• Open loop 2 steam supply</li> </ul> <p>And/Or</p> <ul style="list-style-type: none"> <li>• Open loop 3 steam supply</li> </ul> <p>STEP 6.2.3</p>		<p>Depress the open pushbutton on AB HIS-5A and verify red lite only is lit</p> <p>And/Or</p> <p>Depress the open pushbutton on AB HIS-6A and verify red lite only is lit</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>4. Start TDAFWP</p> <ul style="list-style-type: none"> <li>• * Open trip/throttle valve</li> <li>• Time valve opened</li> <li>• Verify discharge pressure greater than 1625 psig</li> </ul> <p>STEP 6.2.4</p>		<p>Depress the open pushbutton on FC HIS-312A and note red lite only is lit. Note red light only on FC ZL-315A/317A, discharge pressure and flow indicated on AL PI 21A, and the SG flow indicator(s).</p> <p>Record time opened in blank on 6.2.4.2</p> <p>Note pressure on AL PI-21A is &gt;1625 psig and record in blank on 6.2.4.3</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
			S U
5. * Throttle flow to desired steam generators			Comments:
<ul style="list-style-type: none"> <li>• SG A</li> </ul>		Operate the controller on AL HK-8A to the open position until 75,000-100,000 LBM is indicated on AL FI-2A	
<ul style="list-style-type: none"> <li>• SG B</li> </ul>		Operate the controller on AL HK-10A to the open position until 75,000-100,000 LBM is indicated on AL FI-3A	
<ul style="list-style-type: none"> <li>• SG C</li> </ul>		Operate the controller on AL HK-12A to the open position until 75,000-100,000 LBM is indicated on AL FI-4A	
<ul style="list-style-type: none"> <li>• SG D</li> </ul>		Operate the controller on AL HK-6A to the open position until 75,000-100,000 LBM is indicated on AL FI-1A	
STEP 6.2.5			

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
6. Record TDAFWP total flow  STEP 6.2.6		Add the indication on AL FI-1A, 2A, 3A, and 4A and record sum in blank provided	S U  Comments:
7. * Monitor appropriate SG levels  STEP 6.2.7		Monitor SG level on level recorders and SG NR indicators. Determine NR levels are increasing as appropriate	S U  Comments:

\* CRITICAL STEP

TASK		CUE	STANDARD	SCORE	
NUMBER - ELEMENT				S	U
8.	<p>*When desired SG level is obtained, then adjust the flow control valve controllers to 25% demand position</p> <p>STEP 6.2.8</p>		<p>Note 50% NR level indicated on SG A. Operate the controller on AL HK-8A until 25% demand is indicated or to the signal necessary to stabilize level.</p> <p>Note 50% NR level indicated on SG B. Operate the controller on AL HK-8A until 25% demand is indicated or to the signal necessary to stabilize level.</p> <p>Note 50% NR level indicated on SG C. Operate the controller on AL HK-8A until 25% demand is indicated or to the signal necessary to stabilize level.</p> <p>Note 50% NR level indicated on SG D. Operate the controller on AL HK-8A until 25% demand is indicated or to the signal necessary to stabilize level.</p>	<p>S U</p> <p>Comments:</p>	

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>9. Stop the TDAFWP:</p> <ul style="list-style-type: none"> <li>• If running after auto start then ensure all activation signals are reset/blocked</li> <li>• *Close Trip/Throttle valve</li> <li>• Time valve closed</li> <li>• *Close steam supply valves to TDAFWP</li> </ul> <p>STEP 6.2.9</p>		<p>Realize this step is NA</p> <p>Depress the close pushbutton on FC HIS-312A and note green lite only is lit. Should check discharge pressure (AL PI-21A) and SG flow indicators (AL FI-1A, 2A, 3A, and 4A) returning to zero.</p> <p>Record the time the valve was closed in blank provided.</p> <p>Depress the close pushbutton on AB HIS-5A and verify green lite only is lit</p> <p>And/Or</p> <p>Depress the close pushbutton on AB HIS-6A and verify green lite only is lit</p>	<p>S U</p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. *Return TDAFWP discharge throttle valves to safeguards lineup.</p> <ul style="list-style-type: none"> <li>• AL HK-8A for SG A</li>   <li>• AL HK-10A for SG B</li>   <li>• AL HK-12A for SG C</li>   <li>• AL HK-6A for SG D</li> </ul> <p>STEP 6.2.10</p>		<p>Operate controller to latch detent open position and note demand meter indicates 100.</p> <p>Operate controller to latch detent open position and note demand meter indicates 100.</p> <p>Operate controller to latch detent open position and note demand meter indicates 100.</p> <p>Operate controller to latch detent open position and note demand meter indicates 100.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>11. If stopping the TDAFWP after auto start, then perform the following</p> <p>STEP 6.2.11</p>		<p>Realize this step is NA</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

12. Section 6.2 complete

STEP 6.2.12

**ACKNOWLEDGE  
THE REPORT**

**THE JPM IS  
COMPLETE**

RECORD STOP TIME  
ON PAGE 1

Report to Control Room  
Supervisor that section  
6.2 is complete.

**S U**

Comments:

\* 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 3 at normal operating temperature and pressure. SG levels are being maintained in the narrow range instruments. The Start Up Motor Driven Feed Pump has tripped.

**Initiating Cues:** The Control Room Supervisor directs you to start the Turbine Driven Auxiliary Feed Water Pump (TDAFWP) and increase SG levels using Section 6.2 of SYS AL-120. Stabilize level between 50 and 55%. Return the TDAFWP to standby conditions when finished. The procedure prerequisites are satisfied.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 501-S	K/A NO: E15 EA1.3
COMPLETION TIME: 14 Minutes	K/A RATING: 2.8/3.0
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE Isolate Source of Containment Flooding, EMG FR-Z2	
DUTY: Containment Flooding	

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: EMG FR-Z2, Response To Containment Flooding

TOOLS/EQUIPMENT: NONE

PREPARER: R. Aree DATE: 04/13/2004

**Simulator Setup**

IC 174

Run

- Override annuns 60E and 60F ON
- Insert ESW break mWAT07A at 30%
- Insert override on P20013a (value 87)
- Insert override on P20013b(value 87)

Freeze until JPM begins

**Read to Examinee**

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 crew is recovering from a reactor trip. An Orange Path exists for Critical Safety Function – Containment.

Initiating Cues: The Control Room Supervisor directs you to perform Steps of EMG FR-Z2, Response To Containment Flooding.

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

**Notes:** Provide a current copy of EMG FR-Z2 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:** Upon completion of this JPM, the Candidate will have determined the leak location and will have isolated it per EMG FR-Z2.

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

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

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
--------------------------	-----	----------	-------

<p>1. Procedure Note:</p> <p>Containment Sump Level Indication of 2003 ft 11 in is equal to the design basis LOCA level.</p>		<p>Operator may check level indicators for Containment Sump.</p>	
<p>2. Try to identify unexpected source of water to sump</p> <ul style="list-style-type: none"> <li>• * Check Essential Service Water – NOT LEAKING</li> <li>* ESW Pump Discharge Flow - NORMAL</li> <li>ESW Pump Discharge Pressure - NORMAL</li> </ul> <p>Perform RNO</p> <p>STEP 1</p>		<p>Compare “A” Train and “B” Train ESW flow indicators, EF FI-53 and 54. Note that EF FI-53 is indicating significantly higher than EF FI-54.</p> <p>Compare “A” Train and “B” Train ESW pressure indicators, EF PI-01 and 02. Note that EF PI-01 is indicating significantly lower than EF PI-02.</p> <p>Recognize conditions indicate a Leak on “A” ESW Train.</p>	<p style="text-align: center;"><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE S U
<p>3. *Close valves and stop pumps as necessary to limit containment flooding.</p> <p>Close EF HV-49 Close EF HV-45 Check ESW flow and pressure indicators</p> <p>Close EF HV-33 *Close EF HV-31 Check ESW flow and pressure indicators</p> <p>STEP 1 RNO</p>	<p>If required: <b>“CRS directs that “A” ESW pump remain running to support other loads.”</b></p>	<p>Identify from the mimic on the MCB the ESW flowpath and possible leak location.</p> <p>EF HV 45 and 49 are the ESW From CTMT Isolations. EF HV-31 and 33 are ESW To CTMT Isolations.</p> <p>The preferred method would be to close the outlets first (45,49) to minimize effects from large water column separation. However due to leak location the critical task is to close EF HV-31.</p> <p>Depress the close pushbutton on the HIS and note green lite only illuminated.</p> <p>When leak is isolated, ESW flow will decrease and pressure will increase back to the normal bands.</p>	<p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. Identify if any other sources are leaking.</p> <p>b. Check CCW Surge Tank Levels.</p> <p>c. Check Reactor Makeup Storage Tank Level.</p> <p>d. Check Fire Protection Outer Containment Isolation - CLOSED.</p> <p>Step 1 Continuation.</p>		<p>The operator may or may not return to complete step 1 since the leak was identified at the first substep.</p> <p>Locate all indicators and determine normal values are indicated.</p>	<p>S U N/A</p> <p>Comments:</p>
<p>5. Sample Containment Sumps</p> <p>Recognize RHR is not running in recirc mode and the sumps cannot be sampled per the procedure note prior to step 2.</p> <p>STEP 2</p>		<p>Recognize RHR is not running in recirc mode and the sumps cannot be sampled.</p>	<p>S U</p> <p>Comments:</p>

\* CRITICAL STEP

<b>TASK</b>				
<b>NUMBER - ELEMENT</b>	<b>CUE</b>	<b>STANDARD</b>	<b>SCORE</b>	
6. Notify Plant Engineering of sump level and activity level and obtain a recommended action.	<b>Control Room Supervisor acknowledges the report</b>	Notify the Control Room Supervisor that the TSC needs to be contacted.	<b>S</b>	<b>U</b>
STEP 3	<b>This completes this JPM</b>		Comments:	
	<u>RECORD STOP TIME ON PAGE 1.</u>			

\* 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 crew is recovering from a reactor trip. An Orange Path exists for *Critical Safety Function –Containment*.

Initiating Cues: The Control Room Supervisor directs you to perform Steps of EMG FR-Z2, Response To Containment Flooding.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 601-C	K/A NO: 055 EA1.07
COMPLETION TIME: 30 Minutes	K/A RATING: 4.3/4.5
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: EMG C-0, "Loss of All AC", Align Alternate Power to Safeguards Bus using OFN NB-030	
DUTY: Station Blackout	ASP

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

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

REFERENCES:

TOOLS/EQUIPMENT: NONE

PREPARER:

R. Acree

DATE:

04/09/2004

**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 complete loss of AC electrical power to the switchyard. Emergency Diesel Generator B (NE02) is tagged out for maintenance and is currently disassembled. Bus NB01 experienced a bus lockout and Electrical Maintenance estimates it will take three hours to clear it.

**Initiating Cues:** System Operations has informed the Control Room that they have re-energized the Athens 69KV line. The Control Room Supervisor has directed you to go to OFN NB-30, Loss Of AC Emergency Bus NB01 (NB02), and perform the steps that will restore power to an NB Bus. The Site Watch is presently in the Switchyard.

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

**Notes:** Provide the Candidate with a current copy of OFN NB-030.

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 performed the steps of the procedure necessary to energize NB02 from the Athens 69KV line.

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

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

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Check AC Buses – AT LEAST ONE ENERGIZED</p> <p>STEP 1</p>	<p><b>When candidate checks NB EI-1 and NB EI-2 state that no voltage is indicated</b></p>	<p>Check NB EI-1 and NB EI-2 and determine both buses have zero voltage</p> <p>NOTE: Candidate may decide from the Initial conditions that neither bus is energized.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>2. * If entering this procedure from EMG C-0 then go to desired attachment</p> <p>STEP 1 RNO</p>	<p>If asked: <b>“EMG C-0 is in progress.”</b></p>	<p>Note that NB01 is locked out and go to Attachment B step B12 for NB02</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>3. Check NB02 bus lockout relays - RESET</p> <p>STEP B12</p>	<p><b>Annunciator 21A not lit</b></p>	<p>Note Annunciator 21A, Bus Lockout - CLEAR</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. Check EDG NE02 - RUNNING  STEP B13	If required cue: <b>“DNO tags are hung on the “B” EDG start button and output breaker.”</b>	Note that NE02 is tagged out in the initial conditions and perform the RNO	<b>S U</b>  Comments:
5. If SM/CRS directs that NB02 be energized from a source other than the diesel, then go to: <ul style="list-style-type: none"> <li>• B16 for normal offsite power</li> <li>Or</li> <li>• B18 for alternate offsite power</li> </ul> STEP B13 RNO  -----	-----  <b>Annunciator 22A is clear</b>  <b>Transformer XNB02 and bus PA02 are de-energized.</b>	Should realize that this was directed in the initial conditions of this JPM.  Candidate must recognize that NB02 is the only bus available and can be powered from its alternate source. Go to step B18  -----	<b>S U</b>  Comments:
If candidate proceeds to step B16, use the following:  Check Alarm 022A clear.  Check transformer XNB02 energized by off site power  Go to Step B18	-----  <b>Annunciator 22A is clear</b>  <b>Transformer XNB02 and bus PA02 are de-energized.</b>	-----  Recognize XNB02 cannot be energized from Normal Offsite power and proceed to step B18.	-----  <b>S U</b>  Comments:

\* CRITICAL STEP

TASK					
NUMBER - ELEMENT	CUE	STANDARD	SCORE	S	U
6. * Verify alternate offsite power supply – AVAILABLE  • Check annunciator 19A, XNB01 XFMR Lockout – CLEAR  • Check XNB01 – ENERGIZED BY OFFSITE POWER  STEP B18	<b>Annunciator 19A – CLEAR</b>  <b>XNB01 is de-energized.</b>	Check annunciator 19A  Note that no power is currently supplied to XNB01 and perform the RNO	S U  Comments:		
7. * Perform the following  • Energize XNB01 using Attachment C  STEP B18 RNO B.		Transition to Attachment C	S U  Comments:		
8. Verify Annunciator 12E - CLEAR  STEP C1	<b>Annunciator 12E is CLEAR</b>	Check Annunciator 12E	S U  Comments:		

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
9. Verify Power Supply to #4 Transformer Load Tap Changer – ON  Circuits 13 and 15  STEP C2	As Site Watch report: <b>Circuits 13 and 15 are both in the ON position at #4 Transformer.</b>	Contact the Site Operator and verify status	
10. Verify Power Supply to #5 Transformer Load Tap Changer - ON  Circuits 2 and 4  STEP C3	As Site Watch report: <b>Circuits 2 and 4 are both in the ON position at #5 Transformer.</b>	Contact the Site Operator and verify status.	<p style="text-align: center;"><b>S U</b></p> Comments:
11. Ensure load tap changers on #4 transformer - AUTO  STEP C4	As Site Watch report: <b>Load Tap Changer for #4 Transformer is in AUTO</b>	Contact the Site Operator and verify status.	<p style="text-align: center;"><b>S U</b></p> Comments:

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
12. Ensure load tap changers on #5 transformer - AUTO  STEP C5	As Site Watch report: <b>Load Tap Changer for #5 Transformer is in AUTO</b>	Contact the Site Operator and verify status	<b>S U</b>  Comments:
13. Ensure breaker 13-8 is open and racked in  STEP C6	As Site Watch report: <b>Breaker 13-8 is open and racked in</b>  <u>OR</u>  <b>Green Lite is lit and Red Lite is out.</b>	May Contact Site Operator and verify status.  <u>OR</u>  Locate Breaker 13-8 on MCB mimic bus and verify Green Lite is Lit and Red Lite is out.	<b>S U</b>  Comments:
14. Ensure Disconnect 13-21 is closed  STEP C7	As Site Watch report: <b>Disconnect 13-21 indicates closed.</b>  <u>OR</u>  <b>Red lite is lit for disconnect indication.</b>	May Contact Site Operator and verify status  <u>OR</u>  Locate disconnect 13-21 indication on MCB and verifies red lite lit..	<b>S U</b>  Comments:

\* CRITICAL STEP

**TASK**

**NUMBER - ELEMENT**

**CUE**

**STANDARD**

**SCORE**

<p>15. * Place breaker 13-48 in PTL</p> <p>STEP C8</p>	<p>After candidate describes proper operation cue:</p> <p><b>13-48 Handswitch is in the Pull To Lock position. Green Lite is lit and Red Lite is out.</b></p>	<p>Place handswitch 13-48 in Pull To Lock (PTL) by rotating the switch counterclockwise and pulling out on switch. Handswitch will remain in the PTL position with the Green Lite lit and the Red Lite out.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>16. * Close breaker 13-8</p> <p>STEP C9</p> <p>This completes Attachment C.</p>	<p>After candidate describes proper operation cue:</p> <p><b>Breaker 13-8 indicates closed. Red Lite is lit and Green Lite is out.</b></p>	<p>Locate Breaker 13-8 on the MCB. Rotate 1HS-SY0018 to the right and note the Green Lite goes out and the Red Lite is lit.</p> <p>Recognize the Attachment is complete and return to step B18 RNO b. 2</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>17. * Perform the following</p> <ul style="list-style-type: none"> <li>If XNB01 can be energized then go to step B19</li> </ul> <p>STEP B18 RNO b.2</p>		<p>Go to B19</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
18. Check NB01 normal supply breaker - OPEN.  STEP B19	<b>NB HIS-2 indicates green lite only</b>	Locate Handswitch for NB0112 on the MCB and check NB HIS-2 -OPEN	<b>S U</b>  Comments:
19. Reenergize NB02 from alternate offsite power supply  <ul style="list-style-type: none"> <li>• Place alternate sync transfer switch to ON</li> <li>• Close NB02 alternate supply breaker</li> <li>• Place alternate supply sync transfer switch to OFF</li> <li>• Check NB02 – ENERGIZED</li> </ul> Report to CRS that NB02 is energized  STEP B20	<b>NB HS-9 is in the ON Position.</b>  <b>NB HIS-5 indicates closed</b>  <b>NB HS-9 is in the OFF Position.</b>  <b>NB EI-2 indicates 4200 volts.</b> <b>NB ZL-6 white lite lit.</b>  <b>Acknowledge report.</b>  <b>THE JPM IS COMPLETE</b>  <u>RECORD STOP TIME ON PAGE 1</u>	<ul style="list-style-type: none"> <li>* Rotate NB HS-9 to ON</li> <li>* Rotate NB HIS-5 to the right and note Green Lite goes out and Red Lite is lit</li> <li>Rotate NB HS-9 to OFF (Not Critical)</li> <li>Check NB EI-2 for voltage <u>OR</u> Check white lite lit for power available.</li> </ul>	<b>S U</b>  Comments:

\* 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 complete loss of AC electrical power to the switchyard. Emergency Diesel Generator B (NE02) is tagged out for maintenance and is currently disassembled. Bus NB01 experienced a bus lockout and Electrical Maintenance estimates it will take three hours to clear it.

**Initiating Cues:** System Operations has informed the Control Room that they have re-energized the Athens 69KV line. The Control Room Supervisor has directed you to go to OFN NB-30, Loss Of AC Emergency Bus NB01 (NB02), and perform the steps that will restore power to an NB Bus. The Site Watch is presently in the Switchyard.



**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 3 with all items for entering Mode 2 complete. Annunciator 25A, “NN01 Bus UV” and 25B, “NN11 Inv UV”, have gone into alarm. The Reactor Operator has verified from OFN NN-021, “Loss of 120 VAC Instrument Bus”, that Bus NN01 is de energized..

**Initiating Cues:** The Control Room Supervisor directs you to locally restore power to BUS NN01 using OFN NN-021, Step A4.

**DO NOT OPERATE ANY COMPONENTS IN THE PLANT**

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

**Notes:** Provide the candidate with an information only copy of OFN NN-21, Attachment A.

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 placed the NN01 Bus on the power supply from the SOLA Transformer.

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

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

Rev 0

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Locally Restore power to Bus NN01</p> <ul style="list-style-type: none"> <li>• Check NN Bus – NO APPARENT DAMAGE</li>   <li>• * Check inverter NN11 output voltage – NORMAL</li> </ul> <p>STEP A4</p>	<p><b>No damage is evident and no odor of smoke or heat exists.</b></p> <p><b>Meter indicates 0 voltage</b></p>	<p>At NN01, 2016' level of the Control Building, check for indication physical damage</p> <p>Look at inverter output voltmeter on NN11</p> <p>Realize that voltage is not normal and perform the RNO to go to Step A5</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

Rev 0

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
2. Align Backup Power to Bus NN01	<ul style="list-style-type: none"> <li><b>Breaker operator is pointing to the closed position</b></li> </ul>	Locate NG01ACR3, 2000' level of Control Building, and rotate the operator up to the closed position.	
<ul style="list-style-type: none"> <li>* Close backup transformer XNN05 power supply breaker</li> </ul>	White lite is illuminated	Look at white light on NN11	
<ul style="list-style-type: none"> <li>Verify backup power available white light – LIT</li> </ul>	<ul style="list-style-type: none"> <li><b>Breaker operator is pointing at the open position</b></li> </ul>	Install the interlock key into the lock mechanism and turn. Move the NN0101 breaker operator to the left until it indicates off.	
<ul style="list-style-type: none"> <li>* Open normal feeder breaker</li> </ul>	<ul style="list-style-type: none"> <li><b>Breaker operator is pointing at the closed position</b></li> </ul>	Move the slide bar to the left and move NN0102 breaker operator to the left until it indicates closed	
<ul style="list-style-type: none"> <li>* Close alternate feeder breaker</li> </ul>			
STEP A5			

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. Refer to applicable Technical Specifications	<p><b>Acknowledge report. Balance of crew will refer to Technical Specifications.</b></p> <p><b>THE JPM IS COMPLETE</b></p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Call the Control Room and report NN01 is powered from the SOLA transformer. Note that TS 3.8.7 and 3.8.8 must be referred to.</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 3 with all items for entering Mode 2 complete. Annunciator 25A, “NN01 Bus UV” and 25B, “NN11 Inv UV”, have gone into alarm. The Reactor Operator has verified from OFN NN-021, “Loss of 120 VAC Instrument Bus”, that Bus NN01 is de energized..

**Initiating Cues:** The Control Room Supervisor directs you to locally restore power to BUS NN01 using OFN NN-021, Step A4.

**DO NOT OPERATE ANY COMPONENTS IN THE PLANT**

**WOLF CREEK JOB PERFORMANCE MEASURE**

JPM NO: 701-S	K/A NO: 015 A1.03
COMPLETION TIME: 20 Minutes	K/A RATING: 3.7/3.7
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Rx Start Up, 10-8 amps to Point of Adding Heat	
DUTY: Nuclear Instrumentation System	ASP

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: GEN 00-003, Hot Standby to Minimum Load

TOOLS/EQUIPMENT: NONE

PREPARER: \_\_\_\_\_ DATE: 04/13/2004

**Simulator Setup**

IC 175

Run

Insert malfunctions mNIS03A, C, and D. Set value to 0

Ensure that GDSU & BB01 are displayed on NPIS.

**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 crew is performing a reactor startup per GEN-003 with the core at Middle of Life (MOL). The reactor is critical at  $10^{-8}$  AMPS, and the crew is holding at step 6.29 of GEN 00-003. A Reactivity Brief was completed as part of the shift turnover.

**Initiating Cues:** The Control Room Supervisor directs you to perform the steps necessary to increase reactor power at a rate of .5 to .8 DPM to the point of adding heat (POAH) and stabilize reactor power at 0.5% to 1.0%. Do not exceed a transient SUR of 1.5 DPM or a steady state SUR of 1.0 DPM.

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

**Notes:** Provide an information only copy of step 6.29 of GEN 00-003, Hot Standby To Minimum Load, 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:** Upon completion of this JPM, the Candidate will have stabilized power at less than 5.0% and reported the NI failure to the CRS.

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

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



**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. * Check Diverse Indications for entry into the power range.		* At least two of the five diverse indications should be checked. <ul style="list-style-type: none"> <li>• RCS Tavg increasing</li> <li>• Steam Dumps Opening farther</li> <li>• S/G Level decreasing</li> <li>• Start Up Feed Pump flow increasing.</li> <li>• Loop Delta T's show increasing power.</li> </ul>	S U Comments:
4. * Insert Control Rods and stabilize Reactor Power in the power range.		* Stabilize reactor power in the power range prior to exceeding 5.0% as indicated on NI-42, which would constitute a Mode Change.	S U Comments:
5. Inform CRS of NI failures and status of reactor power.  STEP 6.28	NOTE: JPM is complete when power is stabilized.  <b>Acknowledge report.</b>  <b>THE JPM IS COMPLETE</b>  <u>RECORD STOP TIME ON PAGE 1</u>	Inform CRS	S U Comments:

\* 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 crew is performing a reactor startup per GEN-003 with the core at Middle of Life (MOL). The reactor is critical at  $10^{-8}$  AMPS, and the crew is holding at step 6.29 of GEN 00-003. A Reactivity Brief was completed as part of the shift turnover.

**Initiating Cues:** The Control Room Supervisor directs you to perform the steps necessary to increase reactor power at a rate of 0.5 to 0.8 DPM to the point of adding heat (POAH) and stabilize reactor power at 0.5% to 1.0%. Do not exceed a transient SUR of 1.5 DPM or a steady state SUR of 1.0 DPM.

**WOLF CREEK JOB PERFORMANCE MEASURE**

JPM NO: 801-S	K/A NO: 008 A4.01
COMPLETION TIME: 25 minutes	K/A RATING: 3.3/3.1
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Swap CCW Trains	
DUTY: Component Cooling Water	

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: SYS EG-201, Transferring Supply Of CCW Service Loop And CCW Train Shutdown

TOOLS/EQUIPMENT: NONE

PREPARER: Ralph S. Ewy DATE: 3/09/04

**Simulator Setup**

IC 175 (low power IC)  
Ensure the NCP is in service  
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. The CCW Service Loop is on the “B” Train. Maintenance is pending on the “B” Train CCW Heat Exchanger.

**Initiating Cues:** The Control Room Supervisor directs you to shift the CCW Service Loop to “A” Train and secure the “B” Train pump. The Auxiliary Building Operator is performing the Section 6.2 of SYS EG-201. A reactivity briefing has been performed for the completion of this procedure. The Spent Fuel Pool Cooling was already transferred by the crew.

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

**Notes:** Provide an information only copy of SYS EG-201 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:** Upon completion of this JPM, the Candidate will have transferred the CCW Service Loop to “A” Train with the “A” CCW Pump running and all “B” Train Pumps secured.

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

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

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

**CUE**

**STANDARD**

**SCORE**

			S U
<p>1. Start desired Train A CCW Pump</p> <ul style="list-style-type: none"> <li>• Turn off the motor space heater supply breaker.</li> <li>• * Start desired CCW Pump</li> <li>• Verify operating CCW Pump discharge flow is greater than 1.5 E6 LBM/HR</li> <li>• If operating CCW Pump discharge flow is less than 1.5 E6 LBM/HR then refer to step 4.4</li> </ul> <p>STEP6.1.1</p>	<p>Local Operator will acknowledge request and call back immediately and state the breaker has been turned off</p> <p><b>If local operator is contacted they will report that flow is 1.6 E6 LBM/HR.</b></p>	<p>Contact the local operator and direct that breaker PG19NJF118 be turned off</p> <p>Actuate EG HIS-21 to the right. Note that the red lite only is illuminated.</p> <p>Contact local operator to monitor EG FI-95 or use computer point EGF0095. Note that flow is adequate.</p> <p>Determine that this step is NA</p>	<p>Comments:</p>

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE S U
<p>2. Locally verify CCW Train A Pump Room Cooler running.</p> <p>STEP 6.1.2</p>	<p>When called, the local operator will report the cooler is running.</p>	<p>Contact local operator</p>	<p>Comments:</p>
<p>3. If CCW Pump A was started, then verify proper room cooler damper alignment:</p> <ul style="list-style-type: none"> <li>• GL-D156 – OPEN</li> <li>• GL-D157 – CLOSED</li> </ul> <p>STEP 6.1.3</p>	<p>When called, the local operator will report GL-D156 open and GL-D157 is closed.</p>	<p>Contact local operator and ask them to verify that GL-D156 is open</p> <p>Contact local operator and ask them to verify that GL-D157 is closed</p>	<p>S U</p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. If CCW Pump C was started, then verify proper room cooler damper alignment  STEP 6.1.4		Realize that the step is NA	S U  Comments:
5. * If RHR Train B is not in service, then ensure SFP HX B CCW Outlet Vlv is open to provide a flow path for CCW Train B  STEP 6.1.5		Depress the open pushbutton on EC HIS-12 and note red lite only is illuminated.	S U  Comments:
6. * Close CCW Surge Tank A and B Vent Valves  <ul style="list-style-type: none"> <li>• EG HIS-9</li> <li>• EG HIS-10</li> </ul> STEP 6.1.6		Depress the close pushbutton on EG HIS-9 and note green lite only is illuminated.  Depress the close pushbutton on EG HIS-10 and note green lite only is illuminated	S U  Comments:

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. * Open CCW Train A Supply/Return Valves</p> <p>STEP 6.1.7</p>	<p><b>If candidate mentions reactivity briefing is required, cue them the briefing was already conducted.</b></p> <p><b>Thermal Barriers will isolate at his point. When candidate announces the alarms, the Control Room Supervisor will acknowledge the report.</b></p>	<p>Actuate the EG HS-15 open pushbutton and note red lites only illuminted for the Train A Supply and Return Valves.</p>	<p><b>S U</b></p> <p>Comments:</p>
<p>8. * Close CCW Train B Supply/Return Valves</p> <p>STEP 6.1.8</p>		<p>Actuate the EG HS-16 close pushbutton and note green lite only on the Train B Supply and Return Valves.</p>	<p><b>S U</b></p> <p>Comments:</p>

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
9. Verify CCW to RW and RCS Flow indication  STEP 6.1.9		Read EG FI-55A and confirm flow is >1.6 E6 LBM/HR and <4.3 E6 LBM/H	S U  Comments:
10. * Open CCW Surge Tank A and B Vent Valves  <ul style="list-style-type: none"> <li>• EG HIS-9</li>   <li>• EG HIS-10</li> </ul> STEP 6.1.10		Actuate the EG HIS-9 open pushbutton and note red lite only is illuminated.  Actuate the EG HIS-10 open pushbutton and note red lite only is illuminated.	

\* CRITICAL STEP

**TASK**

NUMBER - ELEMENT	CUE	STANDARD	SCORE
11. * Ensure CCW from RCP Thermal Barriers are open <ul style="list-style-type: none"> <li>• BB HIS-13 – OPEN</li> <li>• BB HIS-14 – OPEN</li> <li>• BB HIS-15 – OPEN</li> <li>• BB HIS-16 – OPEN</li> </ul> STEP 6.1.11		Actuate BB HIS-13 open pushbutton and note red lite only is illuminated  Actuate BB HIS-14 open pushbutton and note red lite only is illuminated  Actuate BB HIS-15 open pushbutton and note red lite only is illuminated  Actuate BB HIS-16 open pushbutton and note red lite only is illuminated	S U  Comments:
12. Section 6.1 complete		Announce that section 6.1 is complete and move on to section 6.3 to secure B Train.	S U  Comments:

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. Ensure all train B ECCS pumps stopped  STEP 6.3.1		Note the handswitch and discharge pressure indication for CCP B, RHR Pump B, and SI Pump B all green lite only illuminated with no discharge pressure indicated.	S U  Comments:
14. Align Spent Fuel Pool Cooling Train A for operation using SYS EC-120  STEP 6.3.2	<b>Will be performed by spare RO.</b>	Announce intention to perform SYS EC-120.	S U  Comments:
15. Stop the running train B CCW Pump  STEP 6.3.3		Actuate EG HIS-22 to the left and note green lite only illuminated	S U  Comments:

\* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
15. Ensure the motor space heater breaker for both CCW Pumps are turned on.  STEP 6.3.4	The local operator will acknowledge the request and report the breakers are closed.	Contact the local operator and direct that breakers PG20GBR240 and PG20GBR241 be closed	S U  Comments:
16. Section 6.3 complete  STEP 6.3.5	<b>Acknowledge the report</b>  <b>THE JPM IS COMPLETE</b>  <u><b>RECORD STOP TIME ON PAGE 1</b></u>	Announce that Section 6.3 is complete.	S U  Comments:

\* 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. The CCW Service Loop is on the “B” Train. Maintenance is pending on the “B” Train CCW Heat Exchanger.

**Initiating Cues:** The Control Room Supervisor directs you to shift the CCW Service Loop to “A” Train and secure the “B” Train pump. The Auxiliary Building Operator is performing the Section 6.2 of SYS EG-201. A reactivity briefing has been performed for the completion of this procedure. The Spent Fuel Pool Cooling was already transferred by the crew.



**INITIAL LICENSE EXAM**

**OPERATING TEST # 1**

**SCENARIO # 1**

**Revision 03**

**Week of May 10, 2004**

Facility: Wolf Creek                      NRC Scenario No.:    1    Op-Test No.: 1    Revision 03

**Source:**

New X Bank - Significantly Modified    \_\_\_\_\_ Bank - Initial Condition Change

See page 3 for Examiner/student assignments

**Initial Conditions: 100% Power, MOL, “A” MDAFWP is OOS for bearing replacement.  
 “A” Safety Injection Pump is OOS for oil change.  
 Severe Thunderstorm Watch for Coffey County.**

**Turnover: Maintain current plant conditions.**

Event No.	Malf. No.	Event Type*	Event Description
1 T+1	mMSS1 3	I (BOP)	Steam Header Pressure Channel fails low. (Affects both MFP's)
2 T+11	mPRS0 3A	C (RO)	Pzr Spray Valve fails full open in Automatic.
3 T+18	mEPS 06B	C (ALL)	Vital 4160volt NB02 bus lockout
4 T+38	N/A	N (BOP) R (RO)	Tech Spec Required Shutdown due to loss of two AFW pumps.
5 T+48	mFWM 20	M (ALL)	Main Feed Line break in Turbine Building
6 T+54	mAFW0 2B	C (BOP)	TDAFW pump fails. Entry to FR-H1.
7 T+60	IOR P01055 B	C (RO)	“A” CCP fails to Auto Start on Safety Injection.

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

**Scenario # 1 Crew Assignments**

Session 1		
Examiners		Applicants
E1: Steka E2: McKernon		CRS: Surrogate RO: SRO-I1, Blow BOP: RO3, Askins
Session 2		
Examiners		Applicants
E3: Gage		CRS: Surrogate RO: RO4, Link BOP: Surrogate
Session 3		
Examiners		Applicants
E3: Gage E2: McKernon		CRS: Surrogate RO: SRO-I2, Ryan BOP: RO5, Winn
Session 4		
Examiners		Applicants
E3: Gage E1: Stetka		CRS: Surrogate RO: RO2, Gholson BOP: RO1, Keating

## SCENARIO MISCELLANEOUS INFORMATION

### SCENARIO OBJECTIVE:

The objective for this scenario is to mitigate a Loss of Heat Sink event by initiating feed and bleed using plant procedures. Initial conditions have one Aux Feedwater (AFW) pump and one Safety Injection (SI) pump out of service for maintenance. The scenario contains a steam header pressure instrument failure and failure of the controller for one PZR spray valve. All will require operator action to prevent a reactor trip. These are followed by a loss of one vital 4160 volt AC bus. The crew must start the alternate train cooling systems to prevent a loss of the reactor coolant pumps (RCP).

The SRO will evaluate technical specifications associated with the vital AC bus loss. For the vital AC bus loss, numerous tech specs are involved, however the SRO must realize the limiting specifications is for AFW, since two pumps are now inoperable, requiring the unit to be in Mode 3 within six hours. The crew will be cued to commence a 1% per minute downpower

The major event is a feed line break in the turbine building and a subsequent loss of the Turbine Driven AFW pump. This places the crew in a red path, "Loss of Heat Sink", functional recovery procedure. The crew will meet requirements to initiate bleed and feed to the reactor coolant system (RCS). The crew must realize that the only available high head injection pump did not autostart and manually start it to establish a feed path to the RCS. The scenario terminates when the crew has completed the bleed and feed portion of the functional recovery procedure.

The following is the expected major procedure flow path:

- OFN SB-008, INSTRUMENT MALFUNCTIONS
- OFN NB-030, LOSS OF AC EMERGENCY BUS NB01 (NB02)
- OFN MA-038, RAPID PLANT SHUTDOWN
- EMG E-0, REACTOR TRIP OR SAFETY INJECTION
- EMG ES-02, REACTOR TRIP RESPONSE
- EMG FR-H1, LOSS OF HEAT SINK

### CRITICAL PARAMETERS:

The following parameters may be of value in evaluating crew performance when the scenario is completed:

- Vital AC bus failure:  
RCP bearing and motor temperatures.
- Loss of Heat Sink  
S/G Wide Range Levels  
RCS pressure  
Hot Leg/Incore Temperatures  
High head injection flow (BIT)  
PZR PORV and block valve status.

**OPERATOR ACTIONS TABLE NOTES:**

1. Critical Tasks are indicated by a bolded "C" in the position column and in bold type in the actions column.
2. Actions required throughout the event are indicated as "(continuous)" in the position column.
3. Shaded cells indicate procedural entry points.

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 1 Event No.: 1**

**Event Description: Steam Header Pressure Channel fails low. (Affects both MFP's)**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	BOP	Notes and communicates that level is decreasing in all four S/G's.	
	CRS/BOP	Communicate and takes manual control of the Master MFP Speed controller.	<i>Master Speed Controller must be placed in manual and SG levels stabilized in time to prevent a Rx Trip.</i>
	RO/BOP	Identify Steam Header Pressure channel 507 has failed low.	
	CRS	Enter and direct OFN SB-008, Instrument Malfunctions, Attachment B.	
	RO/BOP	Verify Steam Header Pressure channel malfunction. Check Steam Dump select switch NOT in Steam Pressure Mode.	
	BOP (Continuous)	Manually control MFP speed. Establish dP IAW Figure 1. (Operator may match steam and feed flows, then adjust MFP speed to maintain FRVs positioned at ~ 80%.)	<i>At 100% power Main Feed header pressure should read ~165 psi higher than S/G pressure.</i>
	BOP	Place Steam Header Pressure Controller in manual.	
	CRS	Contact WWM to request I&C repair failed channel.	

**Termination Criteria: MFP speed controller in manual, all S/G levels stable or trending to program level (50%).**

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 1 Event No.: 2**

**Event Description: PZR Spray Valve “A” fails full open in Automatic.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO/BOP/ CRS	Note and Communicate that RCS pressure is decreasing.	
	RO/BOP/ CRS	Monitor RCS pressure for entry into DNB Tech. Spec. at < 2220 psig.	<i>T.S. 3.4.1, two hours to restore.</i>
	CRS/RO	As RCS pressure decreases to < 2220, the crew may energize 2 <sup>nd</sup> set of PZR back-up heaters.	
	RO	Note and communicate ‘A’ Spray valve is failing open. Place ‘A’ spray controller in Manual and close ‘A’ spray valve.	<i>‘A’ spray controller must be placed in Manual and closed in time to prevent a Rx Trip.</i>
	CRS	Enter and direct OFN SB-008, Instrument Malfunctions, Attachment ‘V’.	
	RO	Verify “A” Spray Valve controller failed open in auto and is now in manual/closed.	
	CRS	Contact WWM to request I&C repair failed channel.	

**Termination Criteria: ‘A’ Spray Valve Controller in manual/closed. RCS pressure stable at or trending to program (2235).**

**OPERATOR ACTIONS****Op-Test No.: # 1 Scenario No.: 1 Event No.: 3****Event Description: Vital 4160 volt NB02 bus lockout.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO/CRS	Acknowledge and communicates annunciators for NB02 Bus Lock Out (21A)	
	CRS	Direct Actions for ALR 00-021A	<i>Crew may enter OFN NB-030 directly.</i>
	RO/BOP	Ensures all NB02 supply breakers open. NB0209 NB0211 NB0212	
	RO/BOP (C)	<b>Align CCW to Red Train: Start one CCW pump (A or C) Open Red Train to Service Loop Valves (EG HIS-15)</b> Dispatch operator to locally close Yellow Train to Service Loop (EG HV-16/54).	<i>CCW is required to prevent damage to RCP's.</i>
	RO/BOP	Dispatch operator to locally shutdown 'B' EDG.	
	CRS	Review and comply with Tech. Specs. T.S. 3.8.1 AC Sources. T.S. 3.8.9 Distribution Systems. T.S. 3.7.8 ESW (per 3.8.1) T.S. 3.7.5 AFW	<i>The Limiting T.S. action is from T.S. 3.7.5, condition C, the CRS must recognize that two trains of AFW are inoperable, requiring Mode 3 in 6 hours.</i>
	CRS	Enter and direct OFN NB-030, Loss of AC Emergency Bus. Attachment 'B'.	
	RO	Check Rx power < 100% Close FW Heaters Bypass valve, AE HV-38.	

**OPERATOR ACTIONS**  
**Event 3 Continued**

	RO	Check Yellow Train AC Emergency Bus De-energized.	
	BOP	<p>Verify CCW Service Loop Aligned to Red Train.</p> <ul style="list-style-type: none"> <li>• Start A or C CCW pump.</li> <li>• Open Red Train Supply/Return Valves. EG HS-15</li> <li>• Dispatch Operator to locally close Yellow Train Supply/Return valves.</li> </ul>	<i>May have been performed in the ALR.</i>
	BOP	Check RCP Thermal Barrier L/U Normal	
	BOP	Verify Instrument Air from Red Train.	
	RO/BOP	Check RCP Cooling Normal.	
	RO	Ensure RCP Seal Injection to each RCP between 8-13 gpm.	
	BOP	<p>Establish ESW to Red Train</p> <ul style="list-style-type: none"> <li>• Start "A" ESW Pump</li> <li>• Open Train A to UHS EF HIS-37</li> <li>• Close red train ESW valves EF HIS 23 EF HIS-41</li> </ul>	
	CRS/BOP	<p>Check if TDAFW flow should be reduced: CRS – NOT needed for Heat Sink BOP – Close or throttle all TDAFW flow control valves. (Crew may decide to leave open/throttled for minimum flow concerns.)</p>	
	RO/BOP	Start Red Train SFP cooling pump.	
	BOP	At panel RP068 (in back), Start Red Train CR AC unit. GK HIS-29.	
	CRS	Determine Bus Lockout is not clear and this is a hold point in procedure at step B12.	
<b>Termination Criteria: Red Train ESW and CCW are in service.</b>			

**OPERATOR ACTIONS****Op-Test No.: # 1 Scenario No.: 1 Event No.: 4****Event Description: Tech Spec Required Shutdown**

(Cue provided from Shift Manager to reduce power at 1% per minute.)

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	CRS	Enter and direct actions of OFN MA-038. Conduct Reactivity Brief with board operators. Pre-Shift brief for reduction to 90%.	<i>Crew should commence 10% downpower from pre-shift brief then determine remaining actions.</i>
	RO	Calculate Boration required.	<i>155 gallons at 15.4 gpm.</i>
	BOP (Continuous)	Establish 1% per minute power decrease on the Load Set potentiometer. <ul style="list-style-type: none"> <li>• Press Decrease Load till Load Limit light is out.</li> <li>• Select 1%/Minute on Loading Rate.</li> <li>• Select Decrease Loading Rate – ON.</li> <li>• Decrease Load Set, maintain within 200 MW of actual load.</li> </ul>	
	RO (Continuous)	<ul style="list-style-type: none"> <li>• Use rods to maintain Tavg/Tref error between 0 and +5</li> <li>• Energize both PZR B/U heaters.</li> <li>• Borate and adjust rods as necessary to maintain rods above RIL.</li> </ul>	
	RO/BOP	<ul style="list-style-type: none"> <li>• Check PZR PORV's / Block Valves</li> <li>• Check PZR Pressure</li> <li>• Check PZR Level</li> </ul>	
	BOP (Continuous)	Control S/G levels to maintain 45-55%.	
	BOP	Check AE HV-038 - Closed	<i>May have been performed in OFN NB-030.</i>
	CRS	Check Reactor Power < 60%. Recognize hold point in procedure.	

**Termination Criteria:** **Power Reduction in Progress. Rods have automatically stepped in.**

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 1 Event No.: 5**

**Event Description: Main Feed Line break in Turbine Building.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	BOP	Note and communicate level decreasing in all four S/G's.	
	BOP	Acknowledge and communicate alarms	
	RO/BOP CRS	Note S/G Levels are approaching Rx Trip setpoint.	
	CRS	Direct a Rx Trip or respond to a Rx Trip and enter EMG E-0.	
	RO	Verify Rx Trip <ul style="list-style-type: none"> <li>• Rod Bottom Lights Lit.</li> <li>• Rx Trip and Bypass Bkrs open.</li> <li>• Neutron Flux decreasing (Intermediate Range &amp; Gamma metrics)</li> <li>• Transfer NR-45 recorder to Intermediate Range</li> </ul> Verify Vital AC Power <ul style="list-style-type: none"> <li>• NB01 normal voltage / off site power.</li> <li>• Determine SI is NOT actuated.</li> </ul>	
	BOP	Verify Turbine Trip <ul style="list-style-type: none"> <li>• Main Stop valves all closed.</li> <li>• Generator and exciter bkrs open.</li> </ul>	
	RO	Verify SI NOT required <ul style="list-style-type: none"> <li>• RCS Press &gt; 1830 PSIG</li> <li>• All S/G Press &gt; 615 psig</li> <li>• Ctmt Press &lt; 3.5 psig</li> <li>• RCS Subcooling &gt; 30 degrees</li> <li>• PZR Level &gt; 6%</li> </ul>	

**OPERATOR ACTIONS**  
**Event 5 (Continued)**

	CRS	Ensure Immediate Actions complete. Identify any immediate concerns.	
	CRS/BOP	Secure all Condensate Pumps and Heater Drain Pumps after Immediate actions are complete.	<i>Management Expectation is to NOT perform any other actions till the immediate actions are complete. With a feed break in the Turbine Building it is expected to secure running secondary pumps.</i>
	CRS/RO BOP	Using procedure verify Immediate Actions of EMG E-0 complete	
	CRS	Direct Operator to Monitor CSFST's and Transition to EMG ES-02 from Step 4 RNO.	
<b>Termination Criteria:</b>		<b>EMG E-0 Immediate Actions completed, transition is made to EMG ES-02.</b>	

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 1 Event No.: 6 and 7**

**Event Description: Loss of Heat Sink, failure of high head Injection.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	CRS	Conduct Transition Brief for entry to EMG ES-02.	<i>Crew may enter EMG FR-H1 directly based on timing of report of red path.</i>
	RO	Perform EMG F-0 for CSFST	
	CRS/RO BOP (Continuous)	Monitor CSFST on NPIS computer screen after 1 <sup>st</sup> verification with the procedure.	
	BOP	Note that AFW flow is zero to all S/G's. <ul style="list-style-type: none"> <li>• May attempt to open all AFW valves.</li> <li>• Note and report that zero flow is indicated to all S/G's.</li> </ul>	
	CRS	Recognize that entry conditions are met for RED path on EMG FR-H1, Loss of Heat Sink. Transition to EMG FR-H1.	<i>After transition to FR-H1 the crew will be watching for Fold Out Page Criteria to go to the steps for Feed and Bleed.</i>
	CRS	Try to establish AFW Flow. Determine from Building reports that No AFW pump is available.	<i>If Fold Out page is met the crew will go directly to step 27 and initiate bleed and feed.</i>
	BOP	Close all AFW valves	
	RO/BOP	Reduce heat input to RCS. Stop all RCP's Turn off all PZR heaters (3)	
	BOP	Establish S/G pressure control. IF MSIV's are open, align Steam Dumps. IF MSIV's are closed, then use ARV's.	

**OPERATOR ACTIONS  
Event 6/7 (Continued)**

	CRS	Verify Condensate/Feedwater systems available. Based on Building reports, determine the Main Feedwater header is unavailable. Recognize to use the RNO and this places the crew in a loop from step 1 to step 7.	
	CRS	Conduct Quick Brief with crew. In a procedure loop till the Fold Out Page is met or meet a step criteria.	
	Crew	Monitor S/G WR levels. As level reaches 26% proceed to step 27 and initiate bleed and feed.	<i>Perform Step for Bleed and Feed.</i>
	RO/BOP	Stop all RCP's Turn off all PZR heaters	<i>May have already performed.</i>
	RO	Actuate Safety Injection	
	RO (C)	<b>Manually start "A" CCP. Checks BIT flow indicated on EM FI-917A.</b>	<i>Ensures Feed Path Established</i>
	RO/BOP (C)	<b>ARM both Cold Overpressue Protection circuits. Ensure Both Block Valves open. Open both PZR PORV's.</b>	<i>Ensures Bleed Path Established</i>
	RO/BOP	Verifies BOTH Block valves and BOTH PORV's are open.	
<b>Termination Criteria:</b>		<b>Bleed and Feed established per steps 27-31 of EMG FR-H1.</b>	<b>Scenario may be terminated anytime after bleed and feed has been established .</b>

**CRITICAL TASK SUMMARY**

POSITION	EXPECTED RESPONSE	ACCEPTANCE CRITERIA	SAT/ UNSAT
RO/BOP	Utilizing guidance in the ALR or OFN, start a CW pump in the unaffected train and transfer the service loop to the running train.	CCW established to RCP's prior to high temperatures meeting immediate RCP trip criteria.	
RO/BOP	Initiate SI and manually start "A" Centrifugal Charging Pump to ensure a Feed path, ensure PORV's/Block valves open for a Bleed path.	Bleed and Feed must be established prior to S/G dry out. (3 S/G's < 8% WR)	

### **Booth Instructions**

Ensure batch file has been loaded into X:\Opensim\Batch folder in the Instructor Station Computer.

Initialize in **IC 171** and go to **RUN**.

On the Expert screen load batch file: **a2004SCN01.txt**. After file loads **FREEZE** the simulator.

**Hang DNO tags** on the following:

- AL HIS-31 and AL HIS-35 for “A” AFW pump suction
- “A” AFW pump handswitch. Place handswitch in PTL.
- “A” SI pump handswitch. Place handswitch in PTL.

**Perform** Simulator Ready checklist.

**BOOTH COMMUNICATIONS AND ACTIONS**

Unless otherwise directed, all events will be entered when cued from the floor.

When cued from the floor or when crew assumes the watch go to **RUN**.

**WHEN** cued from the floor, enter **EVENT 1**.

When CRS contacts I&C or the Work Week Manager for Steam Header pressure instrument, respond:

**“I will assemble a team.”**

**WHEN** cued from the floor, enter **EVENT 2**.

When CRS contacts I&C or the Work Week Manager for PZR Spray Valve Failure, respond:

**“I will assemble a team.”**

**WHEN** cued from the floor, enter **EVENT 3**.

When Aux watch is contacted to isolate “B” Train CCW, enter **EVENT 8**.

When Turbine watch is contacted to shutdown “B” diesel, enter **EVENT 9**.

When CRS contacts Shift Manager or Call Superintendent, acknowledge communications and respond: **“We’ll get back with you.”**

Wait approximately one minute then call back as Shift Manager and state: **“I’ve talked with the Plant Manager and Vice President. Weather predictions indicate severe storms are heading towards the site. The decision has been made to commence a rapid shutdown at 1% per minute to put the plant in a safer condition.”**

When cued from the floor, enter **EVENT 5**.

After the reactor trip, page the Control Room as Turbine Building Watch and state: **“I saw large amounts of steam and water at the south end of the Turbine Building and have evacuated the building.”**

During the Main Feed Line Break and EMG FR-H1 the following communications MAY be required:

If asked about break location respond: **“It appears to be in the main header area above the MFRV’s. It does not appear safe to enter the area.”**

If asked to investigate TDAFW pump, respond: **“ There is still steam and hot water all around on the 2000 elevation, I will try to make it into the room as it clears.”**

When directed from the floor, **FREEZE** the simulator. **DO NOT RESET** till allowed by the NRC Chief

Examiner.

**Batch File:**

> BAT a2004SCN01.TXT  
>TAGOUT 'A' AFW PUMP MOTOR  
IRF NALP01A 1  
IRF NALP01AX 1  
IRF RALH31 1  
IRF RALH35 1  
>Tag Out "A" SI Pump  
IRF NEMP01A 1  
> AB PT-507 fails low  
IMF mMSS13 (1) 0 20  
> A PZR Sray valve fails full open in Auto  
IMF mPRS03A (2) 100 30  
>Bus Lockout on NB02  
IMF mEPS06B (3)  
> Main Feed Line break in Turb Bldg  
IMF mFWM20 (5) 1e+7 45  
> Trip of TDAFWP tied to Rx Trip  
TRGSET 6 "JPPLP4"  
IMF mAFW02B (6 180)  
> A CCP Fails to auto start on SI  
IOR P01055B 0  
> Close EG HV16/54 CCW B to Service Loop  
TRGSET 8  
TRG 8 "SET regh16=0"  
> Local Shutdown of B EDG  
TRGSET 9  
IRF RDGS02 (9 5) 0  
IRF RDGS10 (9 8) 0  
IRF RDGS19 (9 15) 1  
>End of File

**SHIFT BRIEFING INFORMATION**

**THIS FORM IS FOR TRAINING PURPOSES ONLY**

CONTROL ROOM TURNOVER CHECKLIST			
DATE : May 12, 2004	NIGHT SHIFT	X	DAY SHIFT
			MODE- <b>1</b>
OFF-GOING: (PRINT)	CRS _____	ON-COMING: (PRINT)	CRS _____
	RO _____		RO _____
	BOP _____		BOP _____
	SE _____		SE _____

**ON-COMING CRS/SE/RO/BOP REVIEW**

EVOLUTIONS IN PROGRESS:	"A" Train Work Week
	Severe Thunderstorm Watch in effect for next four hours. Maintenance is trying to complete all work due to weather.
MAINTENANCE IN PROGRESS:	"A" MD AFW Pump for bearing replacement. "A" SI pump, jump up for oil change.
TESTING IN PROGRESS:	NONE
SIGNIFICANT LCOs IN EFFECT:	3.7.5 AFW, Condition B, 42 hours to restore. 3.5.2 ECCS, Condition A, 68 hours to restore.

REACTOR POWER	100	%	RCS:	586.5	°F	2235	PSIG
ROD CONTROL	AUTO	<input checked="" type="checkbox"/>					
	MANUAL	<input type="checkbox"/>					
CONTROL BANK D	229	STEPS					
RCS BORON (C <sub>b</sub> )	1028	PPM	@ DATE/TIME	Today/0400			
LEAK RATE (GPM):	IDENTIFIED	.02	UNIDENTIFIED	.001	@ DATE/TIME	Today/0400	
COND. AIR INLEAKAGE (IAW STN CH-020)	13.8 scfm						

**ESF STATUS PANELS AND REACTOR TRIP/BLOCK PANEL**

PANEL	COMPONENT/TRIP/BLOCK	REASON
SA066X	SI	A SI and A MDAFW
SA066X	AFAS	A MDAFW

**TRAINING ONLY**

**ALARM WINDOW DESCRIPTION**

<u>WINDOW</u>	<u>NAME</u>	<u>REASON</u>	<u>WR/WO</u>
018F	NB01 BKR NOT OPEARBLE	"A" MDAFW pump "A" SI pump	04-2083 04-2650





**INITIAL LICENSE EXAM**

**OPERATING TEST #1**

**SCENARIO # 2**

**Revision 03**

**Week of May 10, 2004**

**Facility: Wolf Creek    NRC Scenario No.: 2   Op-Test No.: 1   Revision 03**

**Source:**

**New \_\_\_\_\_ Bank - Significantly Modified    X Bank - Initial Condition Change**

**See page 3 for Examiner/student assignments**

**Initial Conditions: 100% Power, MOL, Normal Charging Pump is OOS for bearing replacement.**

**Turnover: Maintain current plant conditions.**

<b>Event No.</b>	<b>Malf. No.</b>	<b>Event Type*</b>	<b>Event Description</b>
1 T+1	mPRS0 1C	I (RO)	PZR Pressure Channel Fails High
2 T+17	mMSS0 7C	C (BOP)	“C” S/G ARV fails open in auto, manual available.
3 T+26	mFWM 03B	C (BOP)	“B” S/G MFRV fails closed in auto, manual available.
4 T+34	mNIS 03C	I (RO)	Nuclear Instrumentation Channel NI-43 fails high.
5 T+45	mRCS0 6A	M (ALL)	SSE/OBE escalates to Loss of Offsite Power, LBLOCA.
6 T+49	mDGS0 2A/B	C (RO)	Both EDG’s fail to Auto Start.
7 T+70	rBN881 2A	C (RO)	“A” Train RWST suction to RHR fails to align during EMG ES-12, Transfer to Cold Leg Recirc

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

### Scenario # 1 Crew Assignments

Session 1		
Examiners		Applicants
E1: Stetka E2: McKernon E3: Gage		CRS: SRO-I1, Blow RO: RO3, Askins BOP: RO4, Link
Session 2		
Examiners		Applicants
E3: Gage E2: McKernon		CRS: SRO-I2, Ryan RO: RO5, Winn BOP: Surrogate
Session 3		
Examiners		Applicants
E2: McKernon E3: Gage E1: Stetka		CRS: SRO-U, Camp RO: RO1, Keating BOP: RO2, Gholson

## SCENARIO MISCELLANEOUS INFORMATION

### SCENARIO OBJECTIVE:

The objective of this scenario is to mitigate a large break LOCA with a failure in the automatic switchover of the Residual Heat Removal (RHR) pump suction to the containment sumps. Initial conditions have the Normal Charging Pump (NCP) out of service as distractor. The NCP has no affect on the scenario. The scenario contains a PZR pressure channel failure, failure of automatic control of a Main Feed Regulating Valve, and a Nuclear Instrument failure, all requiring operator action to prevent a reactor trip. The scenario also contains a failure of a S/G Atmospheric Relief Valve (ARV) as a board awareness issue affecting reactor power.

The SRO will evaluate Technical Specifications for the PZR pressure channel and the Nuclear Instrument failure. The S/G ARV should also be reviewed, however the valve is not inoperable.

The main event is an escalating earthquake. The first part of the event exceeds the Operational Based Earthquake (OBE) causing a small break LOCA. The crew will enter the off normal procedures and the second part of the event then exceeds the Safe Shutdown Earthquake (SSE) resulting in a large break LOCA causing an automatic reactor trip, safety injection actuation and a loss of offsite power.

Post trip failures include both emergency diesels do not auto start and a failure during the automatic switchover of the RHR suction valves. The operator must start both diesels to not enter the loss of all AC contingency procedure. The switchover failure has the Refueling Water Storage Tank (RWST) suction valve to "A" train RHR fails to close. This is the worse case condition as described in the Wolf Creek Updated Safety Analysis Report (USAR). This results in an open path from the RWST to Containment. The required actions are to secure the "A train pump and close the containment suction valve. The operators must realize the remaining train can meet all needs of the accident in progress.

The following is the expected major procedure flow path:

- OFN SB-008, INSTRUMENT MALFUNCTIONS
- Possibly OFN SG-003, NATURAL EVENTS
- OFN BB-007, RCS LEAKAGE
- EMG E-0, REACTOR TRIP OR SAFETY INJECTION
- EMG E-1, LOSS OF REACTOR OR SECONDARY COOLANT
- EMG FR-P1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK
- EMG ES-12, TRANSFER TO COLD LEG RECIRCULATION

### CRITICAL PARAMETERS:

The following parameters may be of value in evaluating crew performance when the scenario is completed:

- RCS Pressure and Temperatures
- RWST Level

**OPERATOR ACTIONS TABLE NOTES:**

1. Critical Tasks are indicated by "C" in the position column and indicated in bold type.
2. Actions required throughout the event are indicated as "(continuous)" in the position column.
3. Shaded cells indicate procedural entry points.

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 1**

**Event Description: PZR Pressure Channel Fails High**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO	Notes and communicates alarms for PZR PORV Open.	
	RO	Places Master Pressure Controller in Manual and decreases output.	<i>RO may select out the failed channel. Action must be taken in time to prevent a Rx Trip.</i>
	RO/BOP/CRS	Monitor RCS pressure for entry into DNB Tech. Spec. at < 2220 psig.	<i>T.S. 3.4.1, two hours to restore.</i>
	CRS/RO	As RCS pressure decreases to < 2220, the crew may energize 2 <sup>nd</sup> set of PZR back-up heaters.	<i>Crew may enter appropriate ALR's which will direct entry to OFN SB-008</i>
	CRS	Enter and direct OFN SB-008, Attach. "K"	
	RO	Identify BB PI-457 indicates high. Select out failed channel. Ensure system stable and return to automatic. Monitor system response.	
	CRS	Contact Work Week Manager (WWM) and request I&C assistance to trip bi-stables and repair channel.  Review and comply with Tech Specs. 3.3.1 Reactor Trip System Table 3.3.1, Functions 6 and 8. 3.3.2 ESFAS Instrumentation Table 3.3.2, Functions 1.d and 8.b 3.3.4, Remote S/D, N/A 3.3.6, CPIS Instrumentation, Function 4 3.3.7, CREVS Instrumentation, Function 4	<i>3.3.1 and 3.3.2 6 hours to place channel in trip. 3.3.2, function 8.b. Verify P-11 bi-stable within 1 hour.  3.3.4/3.3.6/3.3.7 No Action Required</i>

**Termination Criteria:** Master pressure controller back in Auto with pressure between 2220 and 2250 psig. T.S. actions identified.

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 2**

**Event Description: "C" S/G ARV fails open in auto, manual available.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	CRS/RO BOP	Note and communicate RCS temperature and pressure are decreasing.	<i>The crew may notice the ARV right away and effects on plant parameters will not occur.</i>
	RO	Note and communicate Rx power has increased.	
	BOP	Note that turbine load has decreased but load set is stable.	
	CRS/RO BOP (Continuous)	Note that "C" S/G ARV is indicating open, BOP take manual control and close the ARV.	
	CRS	Diagnose indications as a steam leak. Enter and direct actions of OFN AB-041 "Steamline or Feedline Leak".	<i>If the ARV was closed quickly the crew may not enter the off normal. The T.S should still be reviewed.</i>
	CRS/RO BOP	Check Rx Power < 100%, if not: <ul style="list-style-type: none"> <li>• Close AE HV-038.</li> <li>• Reduce turbine load.</li> </ul> Check S/G levels stable Check Tavg/Tref mismatch <3 degrees Check Condenser Hotwell level.	<i>If the crew has already closed the ARV, no action would be required.</i>
	CRS/BOP	Ensure S/G ARV's closed. BOP places ARV in manual/closed.	
	CRS	Refer to T.S. 3.7.4. No action required.	<i>The ARV is still operable since it is capable of opening and closing.</i>
	CRS	Contact Work Week Manager (WWM) and request assistance to troubleshoot/repair ARV.	

**Termination Criteria:** "C" S/G ARV is in manual/closed. Rx Power is stable at or below 100%.

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 3**

**Event Description: “B” S/G MFRV fails closed in auto, manual available.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	BOP	Notes and communicates “B” S/G level is decreasing.	
	BOP	Notes and communicates annunciators 109B and/or 109C, Steam Flow/Feed Flow Mismatch.	
	BOP	Places MFRV “B in manual, matches feed flow to steam flow and stabilizes S/G level.	<i>Actions must be taken in time to prevent a reactor trip.</i>
	RO	Checks Secondary Panels and determines there is no instrument failure.	
	CRS	Enter and direct actions of Alarm Response ALR 00-109B or 109C.	
	CRS/BOP	Verify Steam/Feed Mismatch. Verify <u>NO</u> instrument failures. Verify <u>NO</u> Secondary transient.	
	BOP	Use manual control on “B” MFRV and restore S/G level to program. (50%)	
	CRS/BOP	Check for S/G Tube Leakage	
	CRS	Contact Work Week Manager (WWM) and request assistance to troubleshoot/repair “B” MFRV controller.	

**Termination Criteria: “B” S/G level stable at or trending to program (50%), with the controller in manual.**

**OPERATOR ACTIONS****Op-Test No.: # 1 Scenario No.: 2 Event No.: 4****Event Description: Nuclear Instrumentation Channel NI-43 fails high.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO	Notes and communicates to the crew "rods stepping in."	
	BOP	Verifies and communicates, "no loss of load has occurred."	
	RO	Places rod control in manual.	<i>Rods must be placed in manual in time to prevent a Rx Trip.</i>
	CRS	Acknowledge communications and that rod control is in manual.	
	RO	Notes that NI-43 indication is high.	
	CRS	Enter and direct OFN SB-008, Instrument Malfunctions, Attachment "R". Steps R1 through R3 are already complete.	<i>Crew may enter an ALR which will direct entry to OFN SB-008.</i>
	CRS/BOP	Bypass Failed Channel at the NI Cabinets.  At Detector Current Comparator Drawer: <ul style="list-style-type: none"> <li>• Upper Section switch to N43</li> <li>• Lower Section switch to N43</li> <li>• Power Mismatch Bypass to N43</li> <li>• Rod Stop Bypass to N43</li> </ul> At Comparator and Rate Drawer: <ul style="list-style-type: none"> <li>• Comparator Channel Defeat to N43.</li> </ul>	
	CRS/RO	Conduct Reactivity brief and withdraw control rods back to the 'parked' position.  BOP Peer check rod motion.  Checks Tav <sub>g</sub> /Tref within 1 degree  Place rod control in Automatic.  Monitor Rod Control System.	<i>Management Expectation that all reactivity actions be peer checked.</i>

**OPERATOR ACTIONS****Event 4 Continued**

	CRS/RO	Check channel not used for recorders.	
	CRS/BOP	Remove Control Power Fuses for N43.	
	CRS	<p>Contact Work Week Manager (WWM) and request I&amp;C assistance to trip bi-stables and repair channel.</p> <p>Review and comply with Tech Specs.</p> <p>3.3.1 Reactor Trip System Table 3.3.1-1, Functions 2, 3 and 6. Table 3.3.1, Function 18, Permissives. P-7, P-8, P-9 and P-10</p> <p>Technical Requirements Manual TRM 3.3.17 Reactivity Alarms Conditions A and D</p>	<p><i>T.S. 3.3.1 Function 2 6 hours to place channel in trip and Perform SR 3.2.4.2 Functions 3 and 6 6 hours to place channel in trip. Function 18 Verify bistable in proper state or be in Mode 2 in 7 hours.</i></p> <p><i>TRM 3.3.17 Perform AFD STS once per hr Perform QPTR STS once/12 hrs</i></p>
<p><b>Termination Criteria: Control Rods are in automatic and returned to the 'park' position. Tech Spec time limit has been identified</b></p>			

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 5**

**Event Description: SSE/OBE Earthquake causes SBLOCA escalating to a LBLOCA.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO/BOP	Notes and acknowledges Annunciators 098C, 98D and 98E earthquake. OBE earthquake.	
	CRS	Enter and direct actions of OFN SG-003, "Natural Events" or Alarm Response 98C, 98D or 98E.	<i>CRS will enter OFN SG-003 or perform the ALR's. In either case the SBLOCA will escalate requiring entry to OFN BB-007, "RCS Leakage".</i>
	RO/BOP	Note and communicate RCS pressure is decreasing, Containment humidity is increasing. Monitor for entry to DNB T.S. entry at < 2220 psig.	
	CRS	Enter and direct OFN BB-007 "RCS Leakage".	
	RO	Checks PZR Level – decreasing. Increase charging flow. Isolate Letdown.	<i>RO should increase charging flow and isolate letdown.</i>
	CRS/RO	Check Charging Pump Suction. Check PZR pressure – stable.	
	CRS/BOP	Check S/G Tubes – intact. <ul style="list-style-type: none"> <li>• Dispatch HP</li> <li>• Contact Chemistry.</li> </ul>	
			<i>Earthquake escalates to large Break LOCA after 3 minutes. The crew may not perform all steps listed for OFN BB-007.</i>

**Termination Criteria:** **OFN BB-007 has been entered.**

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 6**

**Event Description: SSE/OBE escalates to Loss of Offsite Power, LBLOCA.  
Both Emergency Diesels Fail to Auto Start.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO/BOP	Notes and communicates annunciators 98A and 98B. SSE earthquake.	
	RO	Notes and communicates rapidly decreasing PZR level and pressure. Isolate Letdown. Maximize Charging.	
	CRS	Direct Rx Trip and SI. Enter and direct actions of EMG E-0.	<i>Automatic actuation will probably occur before the crew can take action.</i>
	RO/BOP	Perform Immediate Actions of EMG E-0.	
	RO	Verify Rx Tripped.	
	BOP	Verify Turbine Tripped.	
	RO (C)	Check AC buses – At least one energized. <b>Depress Start/Reset pushbutton for both EDG's.</b> Verify Buses energize.	<i>EVENT 6 Procedure requires starting both EDG's.</i>
	RO	Verify Safety Injection has actuated.	
	CRS	Ensure Immediate Actions complete. Identify any immediate concerns.	
	ALL	One person from the crew should recognize adverse containment values have been exceeded and communicate this to the rest of the crew.	

**Termination Criteria:**

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 6 Continued**

**Event Description: Continue through EMG network till Lo-Lo RWST level reached then execute EMG ES-12 Transfer to Cold Leg Recirc.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	CRS/RO	Check if SI is required - YES	
	CRS/RO	Perform EMG E-0 Attach. F for Automatic Signal verification.	
	CRS/BOP	Verify AFW > 270 klbm/hr. Close AC HIS-134 Reduce AFW to 270 klbm/hr Establish S/G Pressure Control	
	CRS/BOP	Check PORV/Block Valves. Check PZR Spray Valves. Check PZR Safety Valves. Check if RCP's should be stopped.	
	CRS/BOP	Monitor Critical Safety Function Status Trees using EMG F-0.	
	CRS/RO	Check if S/G's are not faulted. Check if S/G Tubes are intact. • Dispatch HP Check S/G levels – controlled increase	
	CRS/RO	Check if RCS Intact in Containment NO Ensure BIT inlet and outlets open. Transition to EMG E-1	
	CRS/BOP	At some point a Red Path will occur on Integrity due to the large cooldown. The CRS should transition to EMG FR-P1.	<i>This may occur before or after transition to EMG E-1.</i>
	CRS	Enter and exit EMG FR-P1, Response to Imminent Pressurized Thermal Shock.	
	CRS/RO	At step one determine RHR flow > 500gpm and exit procedure.	

**Event No.: 6 Continued**

	CRS	Enter and Direct EMG E-1, "Loss of Reactor or Secondary Coolant." Conduct Transition Brief with Crew.	<i>Crew will begin working through EMG E-1 till Annunciator 047D, RWST Lev Lo-Lo 1 alarms.</i>
	CRS/RO BOP (Continuous)	Monitor Fold Out Page for Cold Leg Recirculation Criteria. RWST Level < 36%, Annunciator	
	CRS/RO	Check if RCP's should be stopped.	
	CRS/BOP	Check if S/G's not faulted. Check if S/G Tubes are intact.	
	CRS/ RO	Reset SI. Reset CIS-A. Reset CIS-B	
<p><b>Annunciator 047D, RWST Level Lo-Lo 1</b>  <b>Termination Criteria: alarms and the Crew transitions to EMG ES-12.</b></p>			

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 7**

**Event Description: EMG ES-12 is entered; RWST Suction Valve BN HV-8812A fails to automatically re-align.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	CRS	Enter and direct action of EMG ES-12. No transition brief is desired or required. CRS/RO will perform procedure while the BOP monitors the rest of the plant.	<i>The first ten steps of EMG ES-12 are critical to establish cold leg recirc.</i>
	CRS/RO (C)	<b>Reset All SI signals. SIS - SB HIS-42A and 43A. RWST Switchover – SB HIS-62 and 63.</b>	
	CRS/RO	Ensures CCW pump running in both trains. Ensures both CCW to RHR HX valves open.	
	CRS/RO	Ensure CCW to SFP HX valves closed.	
	CRS/RO (C)	Checks Red Train Switchover. Note that BN HV-8812A is open. Perform RNO. <b>Stop “A” RHR pump. Close EJ HV-8811A.</b>	<i>Additional critical action to isolate the “A” Train.</i>
	CRS/RO	Checks Yellow Train Switchover.	
	CRS/RO (C)	Close both Hot Leg Recirc valves. Ensures “B” RHR pump running.	<i>Operators should realize they should not start “A” RHR.</i>
	CRS/RO (C)	<b>Close both SI pump mini-flow valves. EM HIS-8814A and 8814B <u>OR</u> Using the Power Lockout, close SI pump recirc to RWST. BN HIS-8813</b>	

**Event No.: 7 Continued**

	<p>CRS/RO (C)</p>	<p>Open Both RHR to CCP/SI suction valves. EJ HIS-8804A <b>EJ HIS-8804B (Critical)</b> Open both CVCS to SI suction valves. <b>EM HIS-8807A and 8807B</b> <b>At least one open. (Critical)</b> Close both RWST to SI suction valves. <b>BN HIS-8806A and BN HIS-8806B</b> <b>(Both are Critical)</b> Close both RWST to CCP suction valves. <b>BN HIS-112D and BN HIS-112E</b> <b>(Both are Critical)</b></p>	
	<p>CRS</p>	<p>Resume monitoring Critical Safety Functions.</p>	
<p><b>Termination Criteria:</b></p>		<p><b>Cold Leg Recirculation is aligned with "A" RHR pump secured.</b></p>	<p><b>Terminate Scenario</b></p>

**CRITICAL TASK SUMMARY**

<b>POSITION</b>	<b>EXPECTED RESPONSE</b>	<b>ACCEPTANCE CRITERIA</b>	<b>SAT/ UNSAT</b>
RO	Start both Emergency Diesels by pressing the Start/Reset pushbuttons.	At least one AC Emergency bus is powered from its associated diesel generator before transition to EMG C-0, "Loss of All AC". Although only one is required from a Critical Task standpoint, procedure EMG E-0 directs starting <u>any</u> stopped diesel.	
CRS/RO	Establish Cold Leg Recirc. Isolate "A" Train RHR pump.	"A" RHR pump secured and its RWST suction valve closed. Remaining ECCS pumps on at least one train are aligned for suction from "B" RHR pump.	

### **Booth Instructions**

Ensure batch file has been loaded into X:\Opensim\Batch folder in the Instructor Station Computer.  
Initialize in **IC 176** and go to **RUN**.

On the Expert screen load batch file: **a2004SCN02.txt**. After file loads **FREEZE** the simulator.

**Hang DNO tags** on the following:

- NCP Handswitch BG HIS-3 and place in PTL.

**Perform** Simulator Ready checklist.

## **BOOTH COMMUNICATIONS AND ACTIONS**

Unless otherwise directed, all events will be entered when cued from the floor.

If at any time the crew makes contact with the Shift Manager or Call Supt., simply acknowledge their report and respond you will get back with them.

When cued from the floor or when crew assumes the watch go to **RUN**.

**WHEN** cued after crew assumes the watch, enter **EVENT 1**.

When CRS contacts I&C or the Work Week Manager for PZR instrument failure, respond:

**“I will assemble a team.”**

**WHEN** cued from the floor, enter **EVENT 2**.

When CRS contacts I&C or the Work Week Manager for “C” ARV, respond:

**“I will assemble a team.”**

**WHEN** cued from the floor, enter **EVENT 3**.

When CRS contacts I&C or the Work Week Manager for “B” MFRV failure, respond:

**“I will assemble a team.”**

**WHEN** cued from the floor, enter **EVENT 4**.

When CRS contacts I&C or the Work Week Manager for NI-43 failure, respond:

**“I will assemble a team.”**

**WHEN** cued from the floor, enter **EVENT 5**.

During event 5 the CRS may contact personnel outside the Control Room to confirm the earthquake.

Report: **“I have felt some sort of movement or vibrations.”**

When directed from the floor, **FREEZE** the simulator. **DO NOT RESET** till allowed by the NRC Chief Examiner.

**Batch File:**

>Bat 2004SCN02.txt  
>Tag Out NCP  
IRF NBGP04 1  
>Controlling PZR Press channel fails high  
IMF mPRS01C (1) 2500 30  
>FAIL Open OF "C" S/G ARV  
IMF mMSS07C (2) 100 20  
>"B" MFRV fails in Auto  
IMF mFWM03B (3) 0 60  
>NIS Channel 43 fails high  
IMF mNIS03C (4) 120 10  
>Earthquake occurs causing a SBLOCA escalates to LOCA/LOSP  
TRGSET 5 (0)  
IMF ANN-E098 (5) 0  
IMF ANN-D098 (5 4) 0  
IMF ANN-C098 (5 10) 0  
IMF mRCS07C (5 7) 120 60  
IMF ANN-B098 (5 240) 0  
IMF ANN-A098 (5 243) 0  
IMF mRCS06C (5 243) 80000 120  
>LOSP tied to Rx Trip/Both EDG's Fail to auto start  
TRGSET 6 "JPPLP4"  
IMF mEPS01A (6 20)  
IMF mEPS01B (6 25)  
IMF mDGS02A  
IMF mDGS02B  
>Failure of BN HV-8812A to close on RWST Lo-Lo  
TRGSET 8 "JD047A"  
IRF rBN8812A (8) 1  
>End of File

**SHIFT BRIEFING INFORMATION**

**THIS FORM IS FOR TRAINING PURPOSES ONLY**

CONTROL ROOM TURNOVER CHECKLIST				
DATE : Today	NIGHT SHIFT	X	DAY SHIFT	MODE- 1
OFF-GOING: (PRINT)	CRS _____		ON-COMING: (PRINT)	CRS _____
	RO _____			RO _____
	BOP _____			BOP _____
	SE _____			SE _____

**ON-COMING CRS/SE/RO/BOP REVIEW**

EVOLUTIONS IN PROGRESS:
MAINTENANCE IN PROGRESS: NCP OOS for Bearing Replacement.
TESTING IN PROGRESS:
SIGNIFICANT LCOs IN EFFECT:

REACTOR POWER	100%	%	RCS:	586.5	°F	2235	PSIG
ROD CONTROL	AUTO	<input checked="" type="checkbox"/>					
	MANUAL	<input type="checkbox"/>					
CONTROL BANK D	229	STEPS					
RCS BORON (C <sub>b</sub> )	1028	PPM	@ DATE/TIME	Today/0400			
LEAK RATE (GPM):	IDENTIFIED	.02	UNIDENTIFIED	.01	@ DATE/TIME	Today/0400	
COND. AIR INLEAKAGE (IAW STN CH-020)	13.1						

**ESF STATUS PANELS AND REACTOR TRIP/BLOCK PANEL**

PANEL	COMPONENT/TRIP/BLOCK	REASON

**TRAINING ONLY**

**ALARM WINDOW DESCRIPTION**

<u>WINDOW</u>	<u>NAME</u>	<u>REASON</u>	<u>WR/WO</u>



**INITIAL LICENSE EXAM**

**OPERATING TEST # 1**

**SCENARIO # 3 Back Up**

**Revision 03**

**Week of May 10, 2004**

**Facility:** Wolf Creek      **NRC Scenario No.:** 3      **Op-Test No.:** 1 **Revision 03**

**Source:**

New X Bank - Significantly Modified      \_\_\_\_\_ Bank - Initial Condition Change

See page 3 for Examiner/student assignments

**Initial Conditions:** Chemistry hold at 30% power, Ready to Enter Gen 00-004

**Turnover:** Prepare to continue power increase to 100%

Event No.	Malf. No.	Event Type*	Event Description
1 T+1	mFWM 02C4	I	“C” S/G Controlling Level Channel fails high.
2 T+11	mCVC1 3C	C	Normal Charging Pump Trips
3 T+18	MCVC0 6A	C	Excessive Seal Leak Off “A” RCP.
4 T+46	mRCS0 2A	M	S/G Tube Rupture develops on “A” S/G requiring Rx Trip/SI.
5 T+47	P19019 B & P19028 B	C	Both ESW pumps fail to auto start on Safety Injection.

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

### Scenario # 3 Crew Assignments

Session 1 Crew A		
Examiners		Applicants
E1: E2: E3: E4:		CRS: RO: BOP:
Session 2 Crew B		
Examiners		Applicants
E1: E2: E3: E4:		CRS: RO: BOP:
Session 3 Crew C		
Examiners		Applicants
E1: E2: E3: E4:		CRS: RO: BOP:
Session 4 Crew D		
Examiners		Applicants
E1: E2: E3: E4:		CRS: RO: BOP:

## SCENARIO MISCELLANEOUS INFORMATION

### SCENARIO OBJECTIVE:

The objective of this scenario is to mitigate a Steam Generator Tube Rupture (SGTR) using the guidance provided in the EMG's. Initial conditions have the unit in a hold at 30% power for S/G chemistry following a start up from a forced outage. The scenario contains a failure of the controlling level channel for "C" S/G, requiring operator action to prevent a reactor trip. Following is a trip of the Normal Charging Pump (NCP), which leads to a failure of the "A" RCP seal. The crew establishes proper conditions, then trips the "A" RCP.

The SRO will evaluate technical specifications associated with the S/G level channel failure and the loss of an operable reactor coolant loop. Technical Specifications do not allow power operation with less than all four loops operable. The CRS needs to recognize the unit has to be shutdown.

The major event is a SGTR. After the RCP is tripped a SGTR develops on the idle "A" S/G. The rupture starts small and gradually increases leading to a manual Reactor Trip and Safety Injection (SI). Both Essential Service Water (ESW) Pumps fail to auto start on the SI requiring manual operator actions. The crew must determine target conditions and successfully cooldown the unit to the target conditions without overcooling which could cause entry into a different mitigation procedure. The scenario is terminated once the crew has stabilized at or below the target.

The following is the expected major procedure flow path:

- OFN SB-008, INSTRUMENT MALFUNCTIONS
- OFN BB-005, RCP MALFUNCTIONS
- OFN BB-007 or 07A during the Steam Generator Tube Leak.
- EMG E-0, REACTOR TRIP OR SAFETY INJECTION
- EMG E-3, STEAM GENERATOR TUBE RUPTURE

### CRITICAL PARAMETERS:

The following parameters may be of value in evaluating crew performance when the scenario is completed:

- S/G "C" level
- S/G "A" level
- Core Exit TC's
- S/G pressures
- CCW and RCP temperatures.

### OPERATOR ACTIONS TABLE NOTES:

1. Critical Tasks are indicated by "C" in the position column and indicated in bold type.
2. Actions required throughout the event are indicated as "(continuous)" in the position column.
3. Shaded cells indicate procedural entry points.

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 1**

**Event Description: "C" S/G Controlling Level Channel fails high.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	BOP	Notes and communicates annunciator 00-110B, and that "C" MFRV is going closed. Takes manual control of "C" MFRV and stabilizes level at program level (50%).	<i>Stabilize S/G level to prevent a Rx Trip.</i>
	CRS	Acknowledges communications, enters and directs Alarm Response (ALR 00-110B)	<i>CRS may enter OFN SB-008 directly.</i>
	RO	Notes and communicates that level indicator AE LI-553 is failing high.	
	BOP	Manually controls MFRV to establish S/G level at program. Select out failed channel. Returns MFRV controller to auto.	
	CRS	Enter and direct actions of OFN SB-008, "Instrument Malfunctions", Attach. F.	
	BOP	Confirms failed channel, channel has been selected out, monitors S/G level to ensure proper control.	
	CRS	Contact Work Week Manager (WWM) to have I&C troubleshoot and trip bi-stables. Recognize channel does affect AMSAC.	

**OPERATOR ACTIONS**

**Event 1 Continued**

	CRS	Refer to and comply with T.S. Actions. Table 3.3.1-1 Function 14 T.S. 3.3.1, Condition E Table 3.3.2-1, Functions 5b and 6d. T.S. 3.3.2, Conditions I and D	<i>All are 6 hours to trip bi-stables.</i>
	CRS	Review Attach. S, determine instrument does not affect T.S. 3.3.3 or 3.3.4 for Post Accident or Shutdown Monitoring.	
<p><b>Termination Criteria:</b>      <b>S/G level stable or trending to 50%. MFRV back in auto and Tech Specs identified.</b></p>			

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 2**

**Event Description: Normal Charging Pump Trips**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO	Notes and communicate annunciator 042E / 042A and other alarms. Determine and communicate that the Normal Charging Pump has tripped.	
	CRS	Acknowledge communications. Enter and direct Alarm Response (ALR 00-042E)	<i>Crew may go to ALR 042A.</i>
	RO	Reports charging flow is < 45 gpm and no charging pump is running. Closes Letdown Orifice Isolations. Makes plant announcement and starts "B" CCP. Manually control BG FCV-121 to control charging flow.	<i>"B" CCP is aligned to the normal charging header. Starting "A" CCP would require additional actions.</i>
	CRS	Direct RO to establish letdown flow using ALR or SYS procedure.	
	RO	Place Letdown HX Outlet Pressure Control in Manual (BG PK-131) and Open between 90% and 100% Open two Letdown Orifice Isolation Valve(s). Adjust Letdown HX Outlet Pressure Control to establish Letdown HX Outlet Pressure between 340 psig and 360 psig. Place Letdown HX Outlet Pressure Control in Auto	<i>If ALR 00-042A was entered, these steps will be performed using the system procedure.</i>
	RO	Adjust PZR Master Level Controller to stabilize PZR level or establish a trend towards program level.	

**Termination Criteria:** "B" CCP is running with normal letdown re-established.

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 3**

**Event Description: Excessive Seal Leak Off "A" RCP.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	RO	Notes and communicates alarm 072A. Checks seal leak off "A" RCP @ 6 gpm.	
	CRS	Acknowledges communication. Enters and directs ALR 00-072A.	<i>May enter OFN BB-005, "RCP Malfunctions", directly.</i>
	CRS/RO	Determines RCP "A" seal leakoff > 5.7. Transition to OFN BB-005.	
	CRS	Enter and direct OFN BB-005, "RCP Malfunctions."	
	RO/BOP	Enter Turn on Code BB3 on the plant computer NPIS screen.	
	RO/BOP	Check RCP Parameters: #1 Seal temperature < 230 degrees Motor bearing temperature < 195 degrees Stator Winding temperature < 299 degrees	
	BOP	Check RCP vibration readings. (Located in back panels)	<b><i>Cue from booth: All frame vibrations &lt; 2 All shaft vibrations &lt; 10 All appear steady.</i></b>
	RO	Check Seal leak off < 6 gpm. NO	
	CRS	Use RNO and go to Attach. E	
	CRS	Determine from Attach. E: Seal leak off > 6 gpm Total #1 seal flow > 8 gpm Shutdown RCP using Attach. B	
	CRS	Direct actions of Attach. B Rx critical at < 48% power.	

**OPERATOR ACTIONS**  
**Event 3 Continued**

	BOP (Continuous)	Prepare S/G for RCP S/D Place "A" MFRV in manual and feed "A" S/G to 70% narrow range. When RCP is stopped then place MFRV back in Auto	
	CRS/RO	Stop "A" RCP Place "A" Spray Valve controller in manual and zero output. Defeat Tavg and Delta T inputs for Loop A. Between 3-5 minutes after RCP S/D, close Seal water outlet isolation for "A" RCP.	
	CRS	Reference T.S. 3.4.4, RCS Loops in Modes 1 and 2.	<i>All 4 loops required. 6 hours to Mode 3.</i>
<p><b>Termination Criteria:</b> RCP "A" is stopped with Seal Leak Off isolated, T.S required Shut Down identified.</p>			

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 4**

**Event Description: S/G Tube Rupture develops on "A" S/G requiring Rx Trip/Sl.**  
(Leak ramps in from 50 gpm to 250 gpm.)

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	CRS/RO BOP	Note and communicate RCS pressure is decreasing.	
	CRS/RO BOP	Monitor RCS pressure for entry into DNB Tech. Spec. at < 2220 psig. T.S. 3.4.1, two hours to restore.	
	RO	As RCS pressure decreases, may energize PZR B/U heaters.	<i>Monitor for DNB T.S.</i>
	RO	Note and communicate that PZR level is decreasing.	
	CRS	May enter OFN BB-007 for RCS Leakage or OFN BB-07A for S/G Tube Leakage, depending on indications observed. Initial actions are the same.	<i>There is a delayed reaction of the off gas radiation monitor due to securing "A" RCP.</i>
	CRS/RO	Unit in Modes 1, 2 or 3. PZR Level >17% PZR Level stable or increasing - NO	
	RO (Continuous)	Maximizing Charging from "B" CCP. Monitor PZR level. When level continues to decrease, Then isolate letdown	
	CRS/RO BOP	Note and communicate GE RE-92, Condenser Air Discharge Rad Monitor in alarm.	
	CRS/RO	Diagnose S/G tube leak based on: GE RE-92 in Alarm. No indications of leak in Containment or Auxiliary Building.	

**OPERATOR ACTIONS**

**Event 4 Continued**

	CRS/RO	Fold Out Page criteria is met when charging is maximized, letdown isolated and PZR level continues to decrease.	
--	--------	---	--

	CRS	Direct a Reactor Trip and Initiate Safety Injection.	
<b>Termination Criteria:      Determined the leak is in excess of the capacity of one charging pump, Rx trip and Safety Injection actuated.</b>			

## OPERATOR ACTIONS

Op-Test No.: # 1 Scenario No.: 2 Event No.'s: 5 and 6

**Event Description: During Crew response for immediate actions of EMG E-0, the Main Turbine fails to trip automatically, both ESW pumps fail to Auto Start.**

Time	Position	Applicant's Actions or Behavior	Notes
	CRS	Enter and Direct actions of EMG E-0, "Reactor Trip or Safety Injection."	
	RO/BOP	Perform Immediate Actions of EMG E-0.	
	RO	Verify Rx Trip <ul style="list-style-type: none"> <li>• Rod Bottom Lights Lit.</li> <li>• Rx Trip and Bypass Bkrs open.</li> <li>• Neutron Flux decreasing (Intermediate Range &amp; Gamma metrics)</li> <li>• Transfer NR-45 recorder to Intermediate Range</li> </ul> Verify Vital AC Power <ul style="list-style-type: none"> <li>• Both NB buses - normal voltage / off site power.</li> </ul> Verify SI actuated <ul style="list-style-type: none"> <li>• Determine SI is actuated. Annunciators 30A and 30B are lit.</li> <li>•</li> </ul>	
	BOP	Recognize Turbine did not trip. Manually trip Turbine <ul style="list-style-type: none"> <li>• Main Stop valves all closed.</li> <li>• Generator and exciter bkrs open.</li> </ul>	<i>BOP should trip before a Main Steam Line Isolation occurs.</i>
	CRS	At completion of Immediate Actions determine if there are any immediate concerns.	
	RO	Reports both ESW pumps failed to start.	
	CRS	Direct RO to start both ESW pumps.	
	RO (C)	<b>Makes plant announcement and starts both ESW pumps.</b>	

**OPERATOR ACTIONS**

**Op-Test No.: # 1 Scenario No.: 2 Event No.: 5 (Continued)**

**Event Description: Continuation of the SGTR using EMG E-0 at step 5 and EMG E-3.**

<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	<b>Notes</b>
	CRS	Check if SI is required. Recognize SI was manually initiated.	
	BOP	Perform Attach. "F" to verify automatic actions. If ESW pumps were not previously started, Attach. F will provide guidance to start them. Ops expectations, per AP 15C-003 though, requires starting ESW/CCW at the end of Immediate Actions.	
	RO (Continuous)	Monitor "A" S/G level and isolate AFW when Level is > 6% Narrow Range.	
	CRS/RO	Check Plant: AFW > 270,000 lbm/hr RCS Cold Leg Temperature Stable Place Steam Dumps in Stm Press Mode Check PORV's/Block Valves Check Spray valve/Safeties Closed Check if RCP's should be stopped - NO	
	CRS	Direct monitoring of Critical Safety Function Status Trees(CSFST)	
	CRS/RO BOP (Continuous)	Monitor CSFST on NPIS computer screen after 1 <sup>st</sup> verification with the procedure.	
	CRS/RO	Check S/G's not faulted. Check S/G's Tubes intact: GE RE-92 normal – NO	

**Operator Actions  
Event 5 Continued**

	CRS/RO BOP	Ensure BIT is not isolated. Transition to EMG E-3 (Attach. F of EMG E-0 must be completed prior to transition.) A transition brief is not required nor desired.	
--	---------------	---	--

	CRS/RO BOP (Continuous)	Monitor RCS pressure for RCP trip criteria. Does not apply once the cooldown is started.	
	CRS/BOP	Identify and isolate ruptured S/G by: “A” S/G level increasing uncontrolled. “A” ARV set at 1125 and closed. Dispatch operator to close low point drain. Blowdown/Sampling isolated. Close “A” MSIV and ensure bypass closed. Feed flow isolated if level > 6% NR.	
	CRS/BOP	Steam Dumps in Steam Pressure Mode.	
	CRS	Verify ruptured “A” S/G is isolated. Do NOT continue till it is.	
	CRS/RO BOP	Check ruptured S/G press > 275 psig.	
	RO (Continuous)	Block Low Steam Line Pressure SI. Monitor RCS and perform when pressure is less than 1970 and prior to 1830 psig.	
	CRS/BOP (C)	<b>Initiate RCS Cooldown</b> <b>Determine Target Temperature.</b> <b>Cooldown using Steam Dumps/ARVs.</b> Per Ops Expectations, AP 15C-003, the steam dump controller should be lowered slowly such that only group 1 valves open. Once Tavg is below 550 degrees the low temperature interlock is by-passed and the controller is set at Target Setpoint.	<i>If above 550 on Tavg, setting the controller directly to the target setpoint could cause a Main Steam Line Isolation requiring the use of the ARVs. If the main steam line has isolated, the cooldown must be performed on the ARVs.</i>
	CRS/BOP	Control AFW flow to maintain intact S/G levels between 29 and 50%.	

**Operator Actions**  
**Event 5 Continued**

	CRS/RO	Check PORV’s/Block Valves. Check PZR Safeties closed. Reset SI Reset CISA and CISB. Establish Instrument Air to Containment. Stop the RHR pumps.	<i>Steps are performed concurrently with the cooldown.</i>
	CRS/RO (Continuous)	Monitor RCS pressure for RHR restart if pressure decrease to < 300 psig.	

	<p>CRS/BOP (C)</p>	<p><b>Stop the RCS Cooldown. Ensure Steam Dumps close as target temperature is approached. Adjust steam dump controller as required to maintain RCS temperature at or below target but greater than 350 degrees.</b></p>	
<p><b>Termination Criteria:</b></p>		<p><b>RCS cooldown is terminated with temperature stable at or below target.</b></p>	

**CRITICAL TASK SUMMARY**

<b>POSITION</b>	<b>EXPECTED RESPONSE</b>	<b>ACCEPTANCE CRITERIA</b>	<b>SAT/ UNSAT</b>
CRS/RO	Start both Essential Service Water (ESW) Pumps.	ESW is required to ensure cooling to safety related components that have actuated during an accident response. At least one train must be started prior to the end of the scenario.	
CRS/BOP	Conduct the RCS Cooldown during a SGTR to the target conditions. Stabilize at or slightly below the target.	Max rate cooldown conducted to target conditions. When stable at target; RCS subcooling >50 degrees and core exit TCs > 350 degrees.	

### **Booth Instructions**

Ensure batch file has been loaded into X:\Opensim\Batch folder in the Instructor Station Computer.

Initialize in **IC 172** and go to **RUN**.

On the Expert screen load batch file: **2004SCN03.txt**. After file loads **FREEZE** the simulator.

Provide copy of GEN 00-004 for the CRS with Initial Conditions signed off.

**Perform** Simulator Ready checklist.

## **BOOTH COMMUNICATIONS AND ACTIONS**

Unless otherwise directed, all events will be entered when cued from the floor.

When cued from the floor or when crew assumes the watch go to **RUN**.

**WHEN** cued after crew assumes the watch, enter **EVENT 1**.

When CRS contacts I&C or the Work Week Manager for “C” S/G Level instrument failure, respond:

**“I will assemble a team.”**

**WHEN** cued from the floor, enter **EVENT 2**.

If CRS contacts the Work Week Manager for the NCP, respond:

**“I will assemble a team.”**

**WHEN** cued from the floor, enter **EVENT 3**.

When the CRS contacts the Shift Manager or Call Supt about the RCP seal leak off, acknowledge the report and state you will contact management.

When the CRS contacts System Ops about the unit shutdown, acknowledge the report.

**WHEN** cued from the floor, enter **EVENT 4**.

During EMG E-3 and possibly OFN BB-007/07A, the CRS will contact Chemistry and HP for assistance in determining the SGTR. Acknowledge their request.

AB V-062 is not modeled.

When directed from the floor, **FREEZE** the simulator. **DO NOT RESET** till allowed by the NRC Chief Examiner.

**Batch File:**

>BAT 2004SCN03.txt  
> "C" S/G Level channel fails high  
IMF mFWM02C4 (1) 100 20  
>Normal Charging pump trips  
IMF mCVC13C (2)  
>Excessive seal leakoff "A" RCP  
IMF mCVC06A (4) 9.5 180 5.7  
> SGTR develops on "A" S/G  
IMF mRCS02A (5) 250 200 50  
> Main Turbine fails to Auto Trip  
IMF mTUR08C  
>Both ESW pumps fail to auto start  
IOR P19019B 0  
IOR P19028B 0  
>END OF FILE

**SHIFT BRIEFING INFORMATION**

**THIS FORM IS FOR TRAINING PURPOSES ONLY**

CONTROL ROOM TURNOVER CHECKLIST			
DATE : Today	NIGHT SHIFT	X	DAY SHIFT
			MODE- <b>1</b>
OFF-GOING: (PRINT)	CRS _____	RO _____	BOP _____
	SE _____	ON-COMING: (PRINT)	
		CRS _____	RO _____
		BOP _____	SE _____

**ON-COMING CRS/SE/RO/BOP REVIEW**

EVOLUTIONS IN PROGRESS: Borating 100 gallons every 30 minutes to hold power.
MAINTENANCE IN PROGRESS: None
TESTING IN PROGRESS:
SIGNIFICANT LCOs IN EFFECT:

REACTOR POWER	<b>30</b>	%	RCS:	<b>566.5</b>	°F	<b>2235</b>	PSIG
ROD CONTROL	AUTO	<input checked="" type="checkbox"/>	MANUAL				
CONTROL BANK <b>D</b>	<b>171</b>	STEPS					
RCS BORON (C <sub>b</sub> )	<b>1360</b>	PPM	@ DATE/TIME	<b>Today/0400</b>			
LEAK RATE (GPM):	IDENTIFIED	<b>.02</b>	UNIDENTIFIED	<b>.01</b>	@ DATE/TIME	<b>Today/0400</b>	
COND. AIR INLEAKAGE (IAW STN CH-020)	<b>13.8</b>	(total)					

**ESF STATUS PANELS AND REACTOR TRIP/BLOCK PANEL**

PANEL	COMPONENT/TRIP/BLOCK	REASON

**TRAINING ONLY**

**ALARM WINDOW DESCRIPTION**

<u>WINDOW</u>	<u>NAME</u>	<u>REASON</u>	<u>WR/WO</u>
78B/78C	PWR RANGE UPR/LWR FLUX DEV	Current power level.	N/A
103D	FW HTR DUMP VALVE OPN	Current power level.	N/A
103E	HTR DRN TANK DUMP	Current power level.	N/A

