

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 601-C	K/A NO: 055 EA1.07
COMPLETION TIME: 20 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 the OFN	
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 ☒ SIMULATOR/LAB _____ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED ☒ 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: The Plant has experienced a complete loss of AC electrical power. to the switchyard. Emergency Diesel Generator B (NE02) is tagged out for 12 more hours. Bus NB01 has 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 will be able to re energize the Athens 69KV line in about 30 minutes. The Control Room Supervisor has directed you to go to OFN NB-30, Loss Of AC Emergency Bus NB01 (NB02), and mark up the steps that will need to be performed in order to restore power to an NB Bus.

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 provided a marked up copy of the procedure which indicates the steps of the procedure which will need to be performed to energize NB-02 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>When candidate checks NB EI-1 and NB EI-2 state that no voltage is indicated</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>S U</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>Note that NB01 is locked out and go to Attachment B step B12 for NB02</p>	<p>S U</p> <p>Comments:</p>
<p>3. Check NB02 bus lockout relays - RESET</p> <p>STEP B12</p>	<p>Annunciator 21A not lit</p>	<p>Note Annunciator 21A, Bus Lockout - CLEAR</p>	<p>S U</p> <p>Comments:</p>

*** CRITICAL STEP**

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. * Check EDG NE02 - RUNNING STEP B13		Note that NE02 is tagged out in the initial conditions and perform the RNO	S U Comments:
5. If CRS directs that NB02 be energized from a source other than the diesel, then go to: • B16 for normal offsite or • B18 for alternate offsite STEP B13 RNO		Should realize that this was directed in the initial conditions of this JPM. Note that NB02 is the only bus available and go to B18	S U Comments:
6. * Verify alternate offsite power supply – AVAILABLE • Check annunciator 19A, XNB01 XFMR Lociout – CLEAR • Check XNB01 – ENERGIZED BY OFFSITE POWER STEP B18	Annunciator 19A - CLEAR	Check annunciator 19A Note that no power is currently available to XNB01 and perform the RNO	S U Comments:

* CRITICAL STEP

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. * Perform the following</p> <ul style="list-style-type: none"> Energize XNB01 using Attachment C <p>STEP B18 RNO b.</p>		Transition to Attachment C	<p>S U</p> <p>Comments:</p>
<p>8. Verify Annunciator 12E - CLEAR</p> <p>STEP C1</p>	Annunciator 12E is CLEAR	Check Annunciator 12E	<p>S U</p> <p>Comments:</p>
<p>9. Verify Power Supply to #4 Transformer Load Tap Changer - ON</p> <p>STEP C2</p>	Verify that the power supply to the load tap changer is ON	<p>Contact the Site Operator and verify</p> <p>NOTE: Candidate may indicated that they would do this later when actually performing the procedure.</p>	

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. Verify Power Supply to #5 Transformer Load Tap Changer - ON STEP C3	Verify that the power supply to the load tap changer is ON	Contact the Site Operator and verify NOTE: Candidate may indicated that they would do this later when actually performing the procedure	S U Comments:
11. Ensure load tap changers on #4 transformer - AUTO STEP C4	Verify they are in AUTO	Contact the Site Operator and verify NOTE: Candidate may indicated that they would do this later when actually performing the procedure	S U Comments:
12. Ensure load tap changers on #5 transformer - AUTO STEP C5	Verify they are in AUTO	Contact the Site Operator and verify NOTE: Candidate may indicated that they would do this later when actually performing the procedure	S U Comments:

* CRITICAL STEP

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. Ensure breaker 13-8 is open and racked in STEP C6	Verify it is open and racked in	Contact Site Operator and verify NOTE: Candidate may indicated that they would do this later when actually performing the procedure	S U Comments:
14. Ensure Disconnect 13-21 is closed STEP C7	Verify it is closed	Contact Site Operator and verify NOTE: Candidate may indicated that they would do this later when actually performing the procedure	S U Comments:
15. * Place breaker 13-48 in PTL STEP C8		Place handswitch 13-48 in PTL	S U Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. * Close breaker 13-8 STEP C9		Rotate 1HS-SY0018 to the right and note the red lite only is lit. Return to step B18 RNO b. 2)	S U Comments:
17. * Perform the following • If XNB01 can be energized then go to step B19 STEP B18 RNO b		Go to B19	S U Comments:
18. Check NB01 normal supply breaker - OPEN. STEP B19	NB HIS-2 indicates green lite only	Check NB HIS-2 -OPEN	S U Comments:

* CRITICAL STEP

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
			S U
19. * Reenergize NB02 from alternate offsite power supply <ul style="list-style-type: none"> • Place alternate sync transfer switch to ON • Close NB02 alternate supply breaker • Place alternate supply sync transfer switch to OFF • Check NB02 – ENERGIZED 	<p>THE JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	Rotate NB HS-9 to ON Rotate NB HIS-5 to the right and note red lite only lit Rotate NB HS-9 to OFF Check XXX for voltage	Comments:
STEP B20			

* 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 12 more hours. Bus NB01 has 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 will be able to re energize the Athens 69KV line in about 30 minutes. The Control Room Supervisor has directed you to go to OFN NB-30, Loss Of AC Emergency Bus NB01 (NB02), and mark up the steps that will need to be performed in order to restore power to an NB Bus.

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: Locally Unisolate the BIT	
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: Ralph L. 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 has experienced a reactor trip and safety injection. The crew has entered EMG FR-C1, Response to Inadequate Core Cooling.

Initiating Cues: The Control Room Supervisor directs you to ensure one of the following trains of valves is open to align the NCP to the BIT.

BG-V8483A AND EM HV8803A

OR

BG V8483C AND EM HV8803B

DO NOT OPERATE ANY EQUIPMENT IN THE PLANT

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

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: _____

Rev 0

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

			S	U
1	Ensure BG-V8483A is open		Comments:	
	* <u>OR</u>			
	Ensure BG-V8483C is open			
STEP A16 RNO				

Valve operator will turn in the clockwise direction. Valve indicator indicates open.

Locate BG-V8483A on the 1974' level of the Aux Bldg, in the "A" CCP room and check the position by turning the valve clockwise and/or looking at the position indicator

OR

Valve operator will turn in the clockwise direction. Valve indicator indicates open

Locate BG-V8483C on the 1974' level of the Aux Bldg, in the "B" CCP room and check the position by turning the valve clockwise and/or looking at the position indicator

* CRITICAL STEP

Rev 0

TASK**NUMBER - ELEMENT****CUE****STANDARD****SCORE****S U**

2. Ensure EMG HV-8803A is open

Valve operator will not turn in the clockwise direction. Position indicator is down.

Valve operator is turning in the counterclockwise direction. Position indicator is moving up. Position indicator is all the way up.

*OR

Ensure EM HV-8803B is open

Valve operator will not turn in the clockwise direction. Position indicator is down.

Valve operator is turning in the counterclockwise direction. Position indicator is moving up. Position indicator is all the way up

If BG-V8483A was checked open in element 1 than locate EM HV-8803A in the BIT room.. Check the valve open by turning the handwheel in the clockwise direction to see if it will turn or check the position indicator.

Turn the valve operator in counterclockwise direction and check position indicator

OR

If BG-V8483C was checked open in element 1 than locate EM HV-8803B in the BIT room. Check the valve open by turning the handwheel in the clockwise direction to see if it will turn or check the position indicator.

Turn the valve operator in counterclockwise direction and check position indicator

STEP A16 RNO

Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. Report task complete STEP A16 RNO	Acknowledge report THE JPM IS COMPLETE <u>RECORD STOP TIME</u> <u>ON PAGE 1</u>	Simulate calling the Control Room and reporting task 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 has experienced a reactor trip and safety injection. The crew has entered EMG FR-C1, Response to Inadequate Core Cooling.

Initiating Cues: The Control Room Supervisor directs you to ensure one of the following trains of valves is open to align the NCP to the BIT.

BG-V8483A AND EM HV8803A

OR

BG V8483C AND EM HV8803B

DO NOT OPERATE ANY EQUIPMENT IN THE PLANT

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 602-P	K/A NO: 057 AA1.01
COMPLETION TIME: 20 Minutes	K/A RATING: 3.7/3.7
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Align 120 vac Vital Bus to SOLA Xfmr	
DUTY: Loss of Vital AC Instrument Bus	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 X CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED X PERFORMED _____

REFERENCES: OFN NN-021

TOOLS/EQUIPMENT: NONE

PREPARER: Ralph L. 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 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**

			S U
<p>1. Locally Restore power to Bus NN01</p> <ul style="list-style-type: none"> • Check NN Bus – NO APPARENT DAMAGE • * Check inverter NN11 output voltage – NORMAL <p>STEP A4</p>	<p>No damage is evident and no odor of smoke or heat exists.</p> <p>Meter indicates 0 voltage</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>Comments:</p>

* CRITICAL STEP

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>2. Align Backup Power to Bus NN01</p> <ul style="list-style-type: none"> * Close backup transformer XNN05 power supply breaker Verify backup power available white light – LIT * Open normal feeder breaker * Close alternate feeder breaker 	<p>Breaker operator is pointing to the closed position</p> <p>White lite is illuminated</p> <p>Breaker operator is pointing at the open position</p> <p>Breaker operator is pointing at the closed position</p>	<p>Locate NG01ACR3, 2000' level of Control Building, and rotate the operator to the right</p> <p>Look at white light on NN11</p> <p>Install the interlock key into the lock mechanism and turn. Move the NN0101 breaker operator to the left until it indicates off.</p> <p>Move the slide bar to the left and move NN0102 breaker operator to the left until it indicates closed</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>	
<p>3. Refer to applicable Technical Specifications</p> <p>STEP A5</p>			

* CRITICAL STEP

TASK		CUE	STANDARD	SCORE
NUMBER	ELEMENT			
		Acknowledge report. Balance of crew will refer to Technical Specifications.		:
		THE JPM IS COMPLETE		
		<u>RECORD STOP TIME</u> <u>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 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: 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: 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 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 Candidate 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**

			S U
<p>1. Dispatch personnel to locally close valves to isolate RCP seals</p> <ul style="list-style-type: none"> * Seal Water Return Containment Isolation Valve * Seal Water Injection Filters Inlet Isolations 	<p>Valve is turning in the clockwise direction. Valve will not turn any more. Stem is totally inserted.</p> <p>Valve is turning in the clockwise direction. Valve will not turn any more. Stem is totally inserted.</p> <p>Valve is turning in the clockwise direction. Valve will not turn any more. Stem is totally inserted</p>	<p>Go to BG HV-8100 at Aux Building , 2000' level, South Penetration Room. Push down on the declutch lever and operate the valve in the clockwise direction. Note the stem indication.</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>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 not the position of the stem</p>	<p>Comments:</p>

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<ul style="list-style-type: none"> * CCW Return From RCS Isolation Valve <p>STEP 15</p>	<p>Acknowledge report</p> <p>THE JPM IS COMPLETE</p> <p><u>RECORD STOP TIME</u> <u>ON PAGE 1</u></p>	<p>Go to the EG HV-61 at the Aux Building, 2000', North Penetration Room. Push down on the declutch lever and operate the valve in the clockwise direction. Note the stem indication.</p> <p>Call Control Room and report step 15 complete.</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

Administrative

RO A1a

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 001-A	K/A NO: 2.1.33
COMPLETION TIME:	K/A RATING: 3.4
JOB TITLE: RO	REVISION: 0
TASK TITLE: Perform Surveillance Test for AFD	
DUTY: Conduct of Operations	

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: STS SF-002, CORE AXIAL FLUX DIFFERENCE
CORE OPERATING LIMITS REPORT
TECHNICAL SPECIFICATION 3.2.3

TOOLS/EQUIPMENT: NONE

PREPARER: Ralph L. 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: 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
% Power	100	100	100	100
% Flux Difference	-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**

			S U
<p>1. Record data as required on Attachment A</p> <ul style="list-style-type: none"> * Compare % flux Δ for each channel to COLR limits * 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>THE JPM IS COMPLETE</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>Comments:</p>
STEP 8.1			

* 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
% Power	100	100	100	100
% Flux Difference	-13	-16	-16	-14

CORRECTED COPY 07-03-2002



STS SF-002

CORE AXIAL FLUX DIFFERENCE

Responsible Manager

Manager Operations

[illegible]

• Revision Number • 7 •

- Use Category
- Continuous

- Administrative Controls Procedure • No •

- Infrequently Performed Procedure ● No ●

• Program Number • 21D •

Revision: 7	CORE AXIAL FLUX DIFFERENCE	STS SF-002
Continuous Use		Page 1 of 6

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Revision: 7	CORE AXIAL FLUX DIFFERENCE	STS SF-002
Continuous Use		Page 2 of 6

1.0 PURPOSE

- 1.1 The purpose of this procedure is to monitor and log Axial Flux Difference (AFD) at least once per hour when the AFD Monitor Alarm (NPIS Computer) is inoperable.

2.0 SCOPE

- 2.1 This procedure satisfies the requirements of Technical
- Requirements Manual TR 3.3.17 and Technical Specification
 - SR 3.2.3.1 if/when the NPIS Computer is inoperable for
 - more than 7 days.
 -

3.0 REFERENCES AND COMMITMENTS

3.1 References

- 3.1.1 WCGS Technical Specifications
- 3.1.2 COLR, Core Operating Limits Report
- 3.1.3 WCGS Technical Requirements Manual
-

3.2 Commitments

- 3.2.1 None
-

4.0 PRECAUTIONS/LIMITATIONS

- 4.1 Report any irregularities or component malfunctions to the
- Shift Manager immediately, and reference Technical
 - Specification LCO 3.2.3.
 -
- 4.2 The Control Rods should not be moved when the AFD is being monitored.
- 4.3 The AFD Monitor Alarm is an NPIS Computer generated alarm. It is considered operable by the performance of STN RJ-001, VERIFICATION OF OPERABILITY OF COMPUTER PROCESSES, whenever the NPIS Computer is operable, and is inoperable whenever the NPIS Computer is down.

5.0 TEST EQUIPMENT

- 5.1 None

6.0 ACCEPTANCE CRITERIA

- 6.1 AFD is monitored to be within the limits specified in the COLR.
- 6.2 The AFD shall be considered outside limits when two or more OPERABLE excore channels indicate AFD to be outside limits.

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7.0 PREREQUISITES

INIT/DATE

7.1 The plant is in Mode 1 with thermal power greater
• than or equal to 50% rated thermal power.

_____/____

7.2 The AFD Monitor Alarm is inoperable.

_____/____

INIT/DATE

8.0 PROCEDURE

NOTE

The recorded values of indicated FLUX DIFF shall be assumed to exist during the interval preceding each logging.

8.1 At RL004, record data as required on ATTACHMENT A, at least once per hour for each operable power range channel. (Mark inoperable channel(s) N/A) ☐

8.1.1 Compare the % FLUX DIFF from each operable power range channel to the limits of COLR, Figure 2.5. ☐

1. Designate whether the indicated % FLUX DIFF is within the acceptable operation range of COLR, Figure 2.5 for each operable channel by placing a check mark in yes (Y) or no (N) column. ☐

NOTE

The AFD shall be considered outside the limits when two or more operable excore channels indicate AFD to be outside the limits.

8.1.2 IF the indicated FLUX DIFF is outside the acceptable limits of COLR, Figure 2.5 on two or more operable power range channels, THEN perform the actions required by Technical Specification 3.2.3. ☐

8.2 IF additional copies of ATTACHMENT A are needed, THEN attach copies as necessary and sequentially number each sheet in the space provided. ☐

9.0 RESTORATION

9.1 None

9.2 Comments: _____

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10.0 RECORDS

10.1 The following QA records are generated by this procedure:

10.1.1 Sections 7, 8 and 9

10.1.2 ATTACHMENT A

-END-

(Step 8.2) Sheet_____ of _____

In COLR

INIT/DATE

N41● N42● N43● N44● N41● N42● N43● N44●

● Y● N● Y● N● Y● N● Y● N●

SURVEILLANCE TEST ROUTING SHEET (STRS)

DOCUMENT NUMBER: STS SF-002 **TEST FREQ. Contingent
 **DUE DATE/TIME: N/A
 DOCUMENT TITLE: CORE AXIAL FLUX DIFFERENCE **LATE DATE/TIME: N/A
 **T/S REQUIRED MODE: 1
 **REQUIRED PLANT MODE: 1

**INITIATING DOCUMENT #(S): _____

**SUPPORTING CLEARANCE ORDER(s) [Commitment Step 3.2.29] _____

**RESPONSIBLE GROUP: OPS **SUPPORT GROUP(S): _____

**PRE-TEST COMMENTS: _____

1) PROCEDURE VERIFIED TO BE CORRECT REVISION WITH ALL _____/_____
 TEMPORARY CHANGES ATTACHED AND INCORPORATED. INIT/DATE

TEST PERFORMERS:

PRINT NAME	INIT/DATE	PRINT NAME	INIT/DATE
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____

2) PRE-TEST REVIEWS: SIGNATURE DATE TIME

SM/CRS/DESIGNEE	_____	<div><div></div><div></div></div> / <div><div></div><div></div></div> / <div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>
AUTH/NOTIF/NI	_____	<div><div></div><div></div></div> / <div><div></div><div></div></div> / <div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>
(CIRCLE AS APPLICABLE)	_____	<div><div></div><div></div></div> / <div><div></div><div></div></div> / <div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>

3) *TEST DEFICIENCY DESCRIPTION: _____

4) *T/S OR TRM FAILURE? _____ TP INIT / DATE

☐ YES ☐ NO

SM/CRS/DESIGNEE SIGNATURE DATE

IF NO - JUSTIFICATION: _____

5) *ACTION TAKEN: _____

TEST SUSPENDED ☐ YES ☐ NO EOL # _____ WR/WO# _____

SM/CRS/DESIGNEE SIGNATURE DATE

*SECTIONS 3, 4, AND 5 ARE COMPLETED IF A TEST DEFICIENCY OCCURS. OTHERWISE MARK N/A.

6) POST TEST REVIEWS: (GROUP SUP. CHECK ONE) ☐ COMPLETE ☐ PARTIAL ☐ N/A

TOTAL MAN HOURS:

	SIGNATURE	DATE	TIME
TEST PERFORMER	_____	<div><div></div><div></div></div> / <div><div></div><div></div></div> / <div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>
SM/CRS/DESIGNEE REVIEW/NOTIF:	_____	<div><div></div><div></div></div> / <div><div></div><div></div></div> / <div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>
GROUP SUPERVISOR:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

SC/SURV. TECHNICIAN

7) ADDITIONAL COMMENTS**:

**OPTIONAL INFORMATION NOT REQUIRED TO BE FILLED IN



GEN 00-003

HOT STANDBY TO MINIMUM LOAD

Responsible Manager

Manager Operations

Revision Number	62
Use Category	Continuous
Administrative Controls Procedure	No
Infrequently Performed Procedure	Yes
Program Number	21D

DC12 11/25/2003

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1.0 PURPOSE

- 1.1 This procedure provides instructions for taking the plant from Hot Standby at no-load conditions to greater than or equal to 30% of full power.

2.0 SCOPE

- 2.1 Provide sequential steps to place equipment in service to support plant startup.
- 2.2 Provide verification of system and equipment status during startup to meet Technical Specification operability requirements.
- 2.3 Provide administrative requirements to ensure operators are cognizant of Mode dependent Technical Specification applicability.
- 2.4 Provide management verification that procedural and administrative requirements have been satisfied to proceed with the next Mode change.

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3.0 REFERENCES AND COMMITMENTS

3.1 References

- 3.1.1 EER 90-MA-03 Disposition Revision 1, PMR 4203
- 3.1.2 PMR 3669 and 2946, Feedwater Preheating
- 3.1.3 PMR 3388, Reflash of Source Range Flux Doubling When Blocked
- 3.1.4 LER 86-042, Low-Low S/G Level Caused Reactor Trip
- 3.1.5 LER 85-042, Reactor Trip and ESFA - Shrink and Swell
- 3.1.6 SAP 89-138, RCCA Driveline Wear Recommendations
- 3.1.7 NRC GENERIC LETTER 93-04, Rod Control System Failure, ET 93-0094 (RCMS #93-175)
- 3.1.8 EER 89-BB-07, Pressurizer and RCS Operational Limits
- 3.1.9 PIR 96-1221, Extraction Valves Found Closed
- 3.1.10 T/S Amendment 148, Decalibration Effects Of Calorimetric On NIS High Power Reactor Trip At Reduced Power Levels. ESBV TB-92-14-R1, WESTINGHOUSE TECHNICAL BULLETIN
- 3.1.11 PIR 96-2860, NIS Scaler/Timer Nixie Tube Burn Out
- 3.1.12 ANSI/ANS - 19.6.1 - 1997, Reload Startup Physics Tests for Pressurized Water Reactors.
- 3.1.13 Westinghouse letter NF-SAP-02-10, WCNO 02-00088, Revised Limits and Conditions for Ramp Rate Limits MFRD-01-222 Rev. 1. Fuel Preconditioning Limits Raised From 20 % to 40% Power.
- 3.1.14 EER 88-SE-02/PMR 3459, Source Range High Voltage NOT Interlocked to P-6 Bistable
- 3.1.15 UFSAR SECTION 3.9.(N).1.1 MECHANICAL SYSTEMS AND COMPONENTS
- 3.1.16 CCP 09953, Reactor Vessel Simplified Head Assembly
- 3.1.17 ITIP 01654, Conduct of Infrequently Performed Tests or Evolution
- 3.1.18 ITIP 68, Potential Malfunction of Permissive P-10
- 3.1.19 ITIP 4313, OE 9822 "Administrative Limit (difference) Between Pressurizer and Reactor Coolant System Boron Concentration Exceeded"

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3.1.20 PIR 2001-0107, Westinghouse NSAL 00-016: Rod Withdrawal From Subcritical Protection In Lower Modes

3.1.21 CCP 011178, RVLIS Scaling

•

3.2 Commitments

3.2.1 Tech Spec Amendment No. 29, AFP ESFAS BLOC

3.2.2 EER 86-AF-04, Water Hammer Prevention

3.2.3 ITIP 00922/SER 06-89, Dropped Rods at Low Power

3.2.4 LER 89-5, Late Performance of Unit Vent Sample

3.2.5 LER 87-018/LER 86-008, Personnel Error While Placing AFAS Switch in Permit, WM 87-0143 (RCMS #87-312 & 86-042)

3.2.6 ITIP 1088 and ITIP 1420, SOER 90-03 R1.a, Miscalibration of Excore Nuclear Detectors

3.2.7 ITIP 00719, SOER 88-2 R6, Premature Criticality Events During Reactor Startup

3.2.8 LER 85-064, Reactor Trip and ESFA - Lack of Preheat, KMLNRC 85-223 (RCMS #85-428)

3.2.9 EER 92-GN-01, Rev. 1, CTMT Coolers & Hydrogen Mixing Fan Operations

3.2.10 LER 93-10, Mode Change With MDAFW Pumps in "Pull-To-Lock", ET 93-0087, WO 93-0114 (RCMS #93-180 & 93-188)

3.2.11 Letter WM 94-0068, Revision in Commitments for Operations Management Review Items Prior to Plant Mode Changes

3.2.12 PIR 96-3093, ITIP 03550, SOER 96-02 R4, Design and Operating Considerations for Reactor Cores

3.2.13 ET 88-0130, NOV 482/8821-04, Corrective Action Ineffective in Preventing Recurrence of ESFAS Actuation (RCMS # 88-278)

3.2.14 LER 85-072, Reactor Trip and ESFA - S/G Level Control (RCMS # 85-434)

3.2.15 LER 85-042, Reactor Trip and ESFA - Shrink and Swell (RCMS # 85-421)

3.2.16 PIR 2002-1180, Reactor Trip due to Failure of MFRV Manual Control

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- 3.2.17 PIR 2002-1293, Difficulties During Turbine Warming
- 3.2.18 PIR 2002-1104, Sequencing Turbine Testing and EHC Venting

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4.0 PRECAUTIONS/LIMITATIONS

- 4.1 Criticality must be anticipated whenever shutdown or control rods are being withdrawn or boron dilution operations are in progress.
- 4.2 Criticality shall not be achieved by boron dilution with the exception of initial criticality after refueling.
- 4.3 If at any point during the boron dilution, an unexpected increase in the count rate by a factor of two occurs, all operations involving positive reactivity must be terminated pending an evaluation.
- 4.4 A stable startup rate of 1 decade per minute (DPM) or a transient startup rate of 1.5 DPM shall not be exceeded.
- 4.5 When the reactor is subcritical, minimize addition of positive reactivity by more than one controlled method at a time.
- 4.6 Maintain RCS operating loop average temperature greater than or equal to 551°F when in Mode 1 or in Mode 2 with Keff • 1. TS 3.4.2.
- 4.7 If a dropped rod event occurs during the performance of this procedure which causes the reactor to go subcritical, all control banks shall be re-inserted and the startup re-performed. [3.2.3]
- 4.8 Maintain shutdown margin greater than or equal to 1.3% *k/k as required by TS 3.1.1.
- 4.9 Prior to withdrawing shutdown banks, shutdown margin shall be calculated for shutdown banks withdrawn.
- 4.10 When changing Reactor Coolant System boron concentration, maintain differential boron concentration between the pressurizer and RCS loops less than or equal to 50 ppm by having both groups of pressurizer backup heaters energized and leaving pressurizer spray control in automatic. (3.1.19)
- 4.11 When auxiliary spray is being used, the following criteria applies:
 - 4.11.1 Auxiliary spray *T (pressurizer temperature minus CVCS temperature) shall be plotted using STS BB-011, REACTOR COOLANT SYSTEM AND PRESSURIZER HEATUP/COOLDOWN SURVEILLANCE.
 - 4.11.2 Auxiliary spray *T shall be maintained less than or equal to 583°F to satisfy TR 3.4.3.
 - 4.11.3 If auxiliary spray *T exceeds 320°F, logging of this transient cycle should be made with reference to AP 23I-001, FATIGUE MANAGEMENT and TS 5.5.5.

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4.12 If the reactor is subcritical below P-6 setpoint, the following applies: (3.1.14)

NOTE

Alarm 00-057A, SR FLUX DOUBLED, cannot be reinstated until both intermediate range channels are less than P-6 setpoint and P-6 light is out.

4.12.1 If P-6 is NOT reset, THEN perform the following:

1. Manually reenergize source range channels as follows:

* Reset source range channels using SE HS-5 and SE HS-10

OR

* Place high voltage manual control switch in HV ON position

4.12.2 If only one source range channel is operable, refer to TS 3.3.1, Table 3.3.1-1, Function 5.

4.12.3 If both source range channels are inoperable, perform the following as required by TS 3.3.1, Table 3.3.1-1, Function 5 and ACTIONS A, I and J, refer also to ACTION K and TR 3.3.15:

1. Open reactor trip breakers.
2. Suspend all operations involving positive reactivity changes.
3. Verify shutdown margin is greater than or equal to 1.3% * k/k within one hour and every 12 hours thereafter.
4. Use gammametrics source range channels SE NI-60 and SE NI-61 to monitor neutron flux levels in the reactor.
5. Make all reasonable attempts to regain source range instrumentation as quickly as possible.

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NOTES

- o Placing the P-10 bistable in a non-tripped condition below 10% power is not possible with power range control power fuses removed. The following actions are adequate to ensure the margin for safety defined in Technical Specifications.
- o Technical Specification allowable value for the P-10 interlock is from 6.7% RTP to 13.3% RTP.

- 4.13 If in Mode 1 or Mode 2 and P-10 is not in the required state for current plant conditions, perform the following:
(3.1.18)
- 4.13.1 Stabilize the plant at the current power level.
- 4.13.2 Contact I&C to initiate trouble shooting and refer to OFN SB-008, INSTRUMENT MALFUNCTIONS.
- 4.13.3 Reference TS 3.3.1, Table 3.3.1-1, Function 18e; restore P-10 and verify the interlock is in the required state for existing plant conditions within 1 hour OR be in Mode 3 within 7 hours.
- 4.13.4 If power is less than 6.7% and the Power Range Low Power and the Intermediate Range Trips are blocked, then reference TS 3.3.1, Table 3.3.1-1, Functions 2b, 4 and 18e; immediately suspend operations involving positive reactivity additions and reduce Thermal Power to less than P-6 within 2 hours and reference LCO 3.0.3. (3.1.14)
- 4.13.5 If the P-6 setpoint is reached and source range indication is not restored, then refer to Step 4.12. (3.1.14)
- 4.14 Startups (except startup following core reload) will require all four power range channels to be operable independent of Technical Specification requirements until reactor power is greater than 10%.
- 4.15 If a nuclear instrumentation power range channel is in test, it should be re-instated prior to any planned power reduction to below the P-10 setpoint of 10%.
- 4.16 In Modes 1 and 2, all reactor coolant loops shall be in operation to satisfy TS 3.4.4.
- 4.17 Reactor Coolant System pressure shall not exceed 2735 psig as required by TS 2.1.2.

- 4.18 When the reactor is critical above the point of adding heat, loop *Ts should be monitored as well as nuclear instrumentation to determine reactor power output. [3.2.6]
- 4.19 Due to potential feed flow and steam flow measurement inaccuracies, RCS *T should be monitored and compared to nuclear instrumentation indication during power increases. [3.2.6]
- 4.20 There are no fuel conditioning restrictions below 40% power. (3.1.13)

NOTE

Limitations in step 4.21 are mechanical limitations of the Reactor Coolant System (RCS). (3.1.15)

- 4.21 The rate of power increase shall be limited to the following:
- 4.21.1 Unit loading between 0 and 15 percent power shall be limited to 0.5% (rated) per minute.
- 4.21.2 Unit loading between 15 and 40 percent power shall be limited to:
- * 5% (rated) per minute
- OR
- * A maximum step increase of 10% (rated) power.

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4.22 If any steam generator is isolated (MSIV and MFIV closed), the following applies:

- 4.22.1 No steam generator should be isolated in Mode 1.
- 4.22.2 Operation in Mode 2 with steam generator(s) isolated is permissible.
- 4.22.3 If operation with isolated steam generator(s) is anticipated for longer than 24 hours, Plant Manager (or designee's) approval is required.
- 4.22.4 Operation with isolated steam generator(s) for a prolonged period of time increases the concern for the following:
 - 1. Higher corrosion rates in the steam generators and feedwater train
 - 2. Uneven core power distribution
 - 3. Feedline cracking
 - 4. Nozzle thermal transient/fatigue stresses
 - 5. Increased feedwater cycling (slug flow)
- 4.22.5 If all four steam generators are isolated, heat removal should be performed by feeding one steam generator from the Auxiliary Feedwater System while steaming the same steam generator through its atmospheric relief valve.
- 4.22.6 While steaming an isolated steam generator, a small continuous feed flow should be provided to accommodate stable level control and prevent feedline cracking. Intermittent feed should be provided to non-steaming steam generators as required to maintain levels.
- 4.22.7 If it is desired to maintain water chemistry parameters in the power operation band, blowdown should be in operation on isolated steam generator(s). If it is not desired to maintain water chemistry in the power operation band, blowdown may be initiated to maintain heat-up chemistry parameters.
- 4.22.8 Chemistry samples of non-steaming isolated steam generators are not representative since little mixing occurs. Chemical additions to adjust chemistry without mixing is also not effective.
- 4.22.9 Prior to returning an isolated steam generator to normal operation, assure steamline draining and heating is provided.

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- 4.23 An isotopic analysis of reactor coolant for iodine must be performed between 2 hours and 6 hours following a thermal power change exceeding 15% of rated thermal power within a 1 hour period to satisfy SR 3.4.16.2.
- 4.24 Primary to Secondary Leakage Detection radiation monitors are not operable unless they can directly correlate activity to gpd leakage, and can detect leak rates greater than 30 gpd at existing RCS activity levels. Chemistry grab samples must be taken until sufficient RCS activity exists to provide adequate indication of tube leakage. Refer to TR 3.3.18 and BASES.
- 4.25 A grab sample and analysis of the unit vent is required following reactor shutdown, reactor startup, or thermal power change exceeding 15% of rated thermal power within a 1 hour period. Refer to AP 07B-003, OFFSITE DOSE CALCULATION MANUAL, Table 3-1 and AP 02-007, CHEMISTRY TURNOVER AND ABNORMAL CONDITIONS GUIDELINES. [3.2.4]
- 4.26 If a containment purge is in progress, a grab sample and analysis of containment is required following reactor shutdown, reactor startup, or a thermal power change exceeding 15% of rated thermal power within a 1 hour period. Refer to AP 07B-003, OFFSITE DOSE CALCULATION MANUAL, Table 3-1 and AP 02-007, CHEMISTRY TURNOVER AND ABNORMAL CONDITIONS GUIDELINES. [3.2.4]
- 4.27 Control rod drive mechanism (CRDM) cooling fans shall be operated as follows: (3.1.16)
- 4.27.1 When RCS temperature is greater than 350°F, the following applies:
1. At least two CRDM fans must be running.
 2. If only one CRDM fan is running, the following restrictions apply:
 - a. Nuclear Plant Information System (NPIS) points GNT0045 and GNT0046 shall be monitored and logged at least once per shift. If GNT0045 and GNT0046 are not available, local temperature monitoring can be performed.
 - b. Nuclear Plant Information System (NPIS) points GNT0045 and GNT0046 or local temperature monitoring shall not exceed 165°F.

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- 4.28 The minimum requirements for hydrogen mixing fan and containment cooler operation in Mode 1, Mode 2 and Mode 3 at normal operating pressure and temperature are as follows:
[3.2.9]
- 4.28.1 If containment temperature is greater than or equal to 95°F, all eight fans (four hydrogen mixing fans and four containment coolers) should be running in fast speed.
- 4.28.2 If containment temperature is less than 95°F, seven of the eight fans (four hydrogen mixing fans and four containment coolers) should be running in fast speed or slow speed.
- 4.28.3 If the minimum requirements for operating fans can NOT be met, a work request must be expedited to System Engineering within 48 hours for evaluation.
- 4.29 When the main turbine shaft is rotating, the Generator Seal Oil System shall be in operation.
- 4.30 One condenser vacuum pump is normally in service. If either of the following conditions are satisfied, a second condenser vacuum pump should be started:
- 4.30.1 Circulating water temperature is greater than 80°F.
- 4.30.2 Condenser in-leakage is greater than 35 scfm.
- 4.31 As service water cooling requirements change, monitor and maintain backpressure using SYS EA-120, SERVICE WATER SYSTEM STARTUP.
- 4.32 Operation of feedwater preheating through AB PCV-359 and AB PCV-360 is for use between 0% to 25% thermal power only. Valves AB-V353 through AB-V358 and AB PCV-359 and AB PCV-360 shall remain closed above 25% thermal power.
- 4.33 If Reactor Engineering provides recommendations that affect reactivity, then the Shift Manager shall approve the recommendations. Exceptions to this guidance are evolutions performed using an approved procedure, such as low-power physics testing. The Shift Manager is responsible for controlling the reactor core. [3.2.12]
- 4.34 The Shift Manager shall ensure clear communication of advice from Reactor Engineering to the Control Room Operators.
[3.2.12]
- 4.35 The Shift Manager shall ensure sufficient Reactor Engineering support during selected evolutions, such as reactor startups, power ascensions or other unexpected core behaviors.
[3.2.12]

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		<u>INIT/DATE</u>
5.0	<u>PREREQUISITES</u>	
5.1	At least one Senior and one Reactor Operator are present in the Control Room as required by Technical Specifications Administrative Controls 5.1.2 and 5.2.2 and TR 5.2.1.	____/____
5.2	The plant is in one of the following conditions:	
	* Mode 3 with Tav _g and RCS pressure at no-load values.	____/____
	<u>OR</u>	
	* Mode 2	____/____
	<u>OR</u>	
	* Mode 1 with power level less than or equal to 30%	____/____
5.3	<u>IF</u> containment has been opened, <u>THEN</u> containment final inspection has been completed using STN EJ-002, CONTAINMENT INSPECTION.	____/____
5.4	Both source range channel High Voltage Manual Control Switches are in the Normal position:	
	o SE NI-31 - NORMAL	____/____
	o SE NI-32 - NORMAL	____/____
5.5	Nuclear instrumentation is available as follows:	
5.5.1	NR-45 recorder is in service.	____/____
5.5.2	All indicators associated with the nuclear instrumentation system are in service.	____/____
5.5.3	Both source range channels are operable.	
	o SE NI-31 - OPERABLE	____/____
	o SE NI-32 - OPERABLE	____/____
5.5.4	Both intermediate range channels are operable.	
	o SE NI-35 - OPERABLE	____/____
	o SE NI-36 - OPERABLE	____/____

INIT/DATE

5.5.5 All power range channels are operable. (One channel may be marked N/A if used for Physics Testing). (3.1.20)

- SE NI-41 - OPERABLE
- SE NI-42 - OPERABLE
- SE NI-43 - OPERABLE
- SE NI-44 - OPERABLE

/
 /
 /
 /

5.5.5.6 IF this is the first startup after refueling OR power range NI gains have been adjusted down as a result of a part power calorimetric performed at less than 45% RTP, THEN ensure power range high flux level reactor trip setpoints have been reduced to • 80% per STS IC-932, POWER RANGE NEUTRON HIGH FLUX TRIP SETPOINT ADJUSTMENT. (3.1.10)

5.6 Performance of STS RE-004, SHUTDOWN MARGIN DETERMINATION, shows the following:

5.6.1 Shutdown margin is greater than 1.3%.

5.6.2 Shutdown rods may be withdrawn without reaching criticality.

CAUTION

If this is the initial startup after refueling, do not withdraw shutdown banks until directed by Reactor Engineering. Refer to RXE 01-002, RELOAD LOW POWER PHYSICS TESTING.

5.7 IF shutdown rods have NOT been withdrawn, THEN
perform the following:

5.7.1 Prior to closing the reactor trip breakers, ensure the following are current:

1. STS IC-211A, ACTUATION LOGIC TEST TRAIN
A SOLID STATE PROTECTION SYSTEM.
2. STS IC-211B, ACTUATION LOGIC TEST TRAIN
B SOLID STATE PROTECTION SYSTEM.
3. STS IC-215, TRIP ACTUATING DEVICE
OPERATIONAL TEST OF MANUAL REACTOR
TRIP, TRIP AND BYPASS BREAKER UV/SHUNT
TRIP, TURBINE TRIP ON REACTOR TRIP AND

/

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		<u>INIT/DATE</u>
	4. Ensure the RCS loop operability and operation requirements are met. TS 3.4.5.	____/____
	5. Ensure one of the following conditions is met: (3.1.20)	
	* All power range nuclear instrument channels are operable, <u>OR</u> three channels are operable with one being used for Physics Testing.	____/____
	<u>OR</u>	
	* RCS boron concentration is adequate to maintain the reactor shutdown under all rods out conditions.	____/____
	6. <u>IF</u> this is the first startup after refueling <u>OR</u> power range NI gains have been adjusted down as a result of a part power calorimetric performed at less than 45% RTP, <u>THEN</u> ensure power range high flux level reactor trip setpoints have been reduced to • 80% per STS IC-932, POWER RANGE NEUTRON HIGH FLUX TRIP SETPOINT ADJUSTMENT. (3.1.10, 3.1.20)	____/____
	7. Verify DRPI subsystem indicates all rods are on the bottom prior to making the Rod Control System capable of rod withdrawal. TR 3.1.7.	____/____
5.7.2	Ensure shutdown margin is calculated for shutdown banks withdrawn using STS RE-004, SHUTDOWN MARGIN DETERMINATION.	____/____
5.7.3	While withdrawing shutdown rods, ensure the following: (3.1.7)	
	1. The Digital Rod Position Indication (DRPI) System and the Demand Position Indication System are operable and individual rod position shall be within 12 steps of their group step counter demand position (except in the traveling region). TS 3.1.4 and TS 3.1.7. and TR 3.1.7.	____/____

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CAUTION

Criticality must be anticipated anytime shutdown or control rods are being withdrawn.

- 5.7.4 Place Rod Control System in operation using SYS SF-120, ROD CONTROL SYSTEM OPERATION. _____/
- 5.7.5 (•) Withdraw shutdown banks using SYS SF-120, ROD CONTROL SYSTEM OPERATION. _____/
- 5.8 Control rods are fully inserted and the shutdown rods are fully withdrawn _____/
- 5.9 Moveable incore detection system is operable as required by Reactor Engineering. _____/
- 5.10 IF it is desired to transfer loads to the unit auxiliary transformer, THEN align by performing CKL MA-132, UNIT AUXILIARY TRANSFORMER XMA02 LINEUP FOR OPERATION. _____/
- 5.11 The main transformers are aligned in accordance with CKL MA-131, MAIN TRANSFORMER XMA01A/B/C LINEUP OPERATION. _____/
- 5.12 Generator is properly aligned to switchyard as follows:
- 5.12.1 Generator output breakers are open.
- o 345-50 - OPEN _____/
- o 345-60 - OPEN _____/
- 5.12.2 Locally ensure main generator switchyard air break disconnects are closed.
- o 345-51 - CLOSED _____/
- o 345-53 - CLOSED _____/
- o 345-61 - CLOSED _____/
- o 345-63 - CLOSED _____/
- 5.12.3 Generator air break switch is closed.
- o 345-55 - CLOSED _____/

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5.12.4 Generator transformer primary and secondary
94 differential lockout relays in
switchyard are reset (amber lamp lit).

o GEN S/U XFMR PRIMARY DIFF MTR (Main Trip
Relay) - RESET

_____ / _____

o GEN S/U SECONDARY DIFF MTR (Main Trip
Relay) - RESET

_____ / _____

NOTE

Steam line drain valves automatically open and remain open on
high condensate level in the main steam low point drains. Normal
RCS temperature can be maintained by manually reclosing these
valves.

5.13 Maintain the following steam line drain valves
closed:

o AB LV-50, MAIN STM HDR TO STM DUMPS DR LEG ST-05
BYPASS VLV - CLOSED

_____ / _____

o AB LV-51, MAIN STM HDR TO STM DUMPS DR LEG ST-06
BYPASS VLV - CLOSED

_____ / _____

o AB LV-52, MAIN STM HDR TO STM DUMPS DR LEG ST-07
BYPASS VLV - CLOSED

_____ / _____

o AB LV-53, MAIN STM HDR TO STM DUMPS DR LEG ST-08
BYPASS VLV - CLOSED

_____ / _____

o FC HV-3, SG FWP TURB A MAIN STEAM LOW POINT DR VLV
- CLOSED

_____ / _____

o FC HV-103, MFW PUMP TURB B HIGH PRESS DRAIN -
CLOSED

_____ / _____

5.14 RCS temperature is being maintained between 552°F
and 562°F using steam dump control system or
atmospheric steam relief valves.

_____ / _____

5.15 RCS pressure is being maintained between 2220 psig
and 2250 psig by pressurizer heaters and spray
valves.

_____ / _____

5.16 Pressurizer level is being maintained between 25%
and 29% with normal letdown flow and charging flow
in auto.

_____ / _____

5.17 Feedwater preheating is in service using SYS AE-200,
FEEDWATER PREHEATING DURING PLANT STARTUP AND
SHUTDOWN. [3.2.8 and 3.2.15]

_____ / _____

INIT/DATE

5.18 Main feedwater regulating valves have been verified fully closed by performance of the following:

5.18.1 Direct I&C to perform the following:

1. On RL006, ensure main feedwater regulating valves indicate closed.

2. Monitor valve stem movement while isolating air to valve positioners.

3. Restore air to valve positioners.

5.18.2 IF valve stem movement occurred, THEN
direct I&C to perform a setup on the valve.

5.19 Reactor makeup is in auto and set at blended flow greater than or equal to existing RCS boron concentration using SYS BG-200, REACTOR MAKEUP CONTROL SYSTEM NORMAL OPERATION.

5.20 Auxiliary Steam System in service supplying miscellaneous plant loads.

5.21 IF reactor is being restarted following a reactor trip, THEN ensure appropriate sections of AP 20-002, POST-TRIP REVIEW, are complete and approval for restart has been granted.

5.22 Secondary corrosion removal is in progress as follows:

5.22.1 Maximum allowable flow through on line condensate demineralizers has been established as determined by Chemistry.

5.22.2 On line condensate demineralizer differential pressures are being monitored.

5.22.3 Condensate demineralizers are being swapped as required by Chemistry.

NOTE

- If directed by the SM or CRS, the Steam Generator Blowdown Regen Heat Exchanger may be bypassed to minimize iron transport to the Steam Generators.

5.23 Steam generator blowdown system is in service with the Regen Heat Exchanger Bypassed per SYS BM-128, SGBD COMPONENT OPERATIONS, as directed by the Shift

Manager or Control Room Supervisor.

_____/____

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5.24 IF required Primary to Secondary Leakage Detection Instrumentation is NOT operable, THEN verify that Chemistry is taking Steam Generator grab samples at least once per 24 hours until required instrumentation is operable. Refer to TR 3.3.18 and BASES.

INIT/DATE

_____ / _____

5.25 IF desired, THEN close BM-V185, SG BLOWDOWN REGENERATIVE HX CONDENSATE OUTLET TO HTR DRAIN TK ISO to prevent overfilling the Heater Drain Tank.

_____ / _____

5.26 RCS hydrogen concentration is greater than or equal to 15 cc/kg.

_____ / _____

NOTE

Step 5.27 is discretionary and shall be performed if directed by the SM or CRS to minimize iron transport.

CAUTION

The air supply valve shall be gradually closed in the next step to avoid potential water hammer. [3.2.2]

5.27 IF desired, THEN locally close/check closed instrument air supply isolation to high pressure feedwater heater's 6A and 6B level control valves.

o AF LV-013, HP HTR 6A TO HTR DRN TK LEV CV - FAILED CLOSED

_____ / _____

o AF LV-045, HP HTR 6B TO HTR DRN TK LEV CV - FAILED CLOSED

_____ / _____

5.28 An individual has been designated as Management Oversight of this procedure as required by AI 15C-006, CONDUCT OF INFREQUENTLY PERFORMED TESTS OR EVOLUTIONS. (3.1.17)

_____ / _____

5.29 An infrequently performed tests or evolutions briefing has been completed by Division Manager, Call Superintendent, Outage Shift Manager, or higher as required by AI 15C-006, CONDUCT OF INFREQUENTLY PERFORMED TESTS OR EVOLUTIONS. (3.1.17)

_____ / _____

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6.0 PROCEDURE

NOTES

- o A forced flow RVLIS indication outside of the band of 100% $\pm 4.0\%$ when the unit is at 0% RTP and NOP/NOT with 4 RCPs running requires that the channel be declared inoperable.
- o A forced flow RVLIS indication outside of the band of 100% $\pm 2\%$ when the unit is at 0% RTP and NOP/NOT with 4 RCPs running must be adjusted to read 100% $\pm 0.5\%$.

6.1 IF the unit is at 0% RTP, NOP/NOT with 4 RCPs running following a mid-cycle shutdown, THEN perform the following: (3.1.21)

6.1.1 Check RVLIS indications:

- o Verify BB LI-1312, REACTOR VESSEL WATER LEVEL FORCED FLOW RANGE is reading 100% $\pm 2.0\%$.

AND

- o Verify BB LI-1322, REACTOR VESSEL WATER LEVEL FORCED FLOW RANGE is reading 100% $\pm 2.0\%$.

6.1.2 IF either RVLIS channel is reading outside the allowed tolerance, THEN initiate corrective actions.

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NOTES

- o It is desired to delay operation of the Heater Drain Pumps until 60% power to minimize iron transport to the Steam Generators. However a heater drain pump may be operated as required to maintain heater drain tank level and minimize water hammer as directed by Shift Manager or Control Room Supervisor.
- o In order to minimize iron transport to the Steam Generators, the #6 HP Heaters Drains will be routed to the Condenser until approximately 60% power

6.2 IF this is NOT initial startup after refueling, THEN adjust RCS boron concentration as follows:

NOTE

If performing a startup with a positive moderator temperature coefficient, the estimated critical position (ECP) should be calculated for approximately 100 steps on control bank D.

6.2.1 Determine estimated critical boron concentration using STS RE-002, DETERMINATION OF ESTIMATED CRITICAL POSITION.

_____ /

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CAUTIONS

- o While subcritical, minimize the addition of positive reactivity by more than one controlled method at a time.
- o Criticality shall be anticipated anytime the shutdown or control rods are being withdrawn, or boron dilution operations are in progress.
- o If during any step involving boron dilution, the source range count rate increases by a factor of two, dilution shall be stopped immediately and suspended until core reactivity has been evaluated.

6.2.2 (•)IF RCS boron concentration is NOT within acceptable range from STS RE-002, DETERMINATION OF ESTIMATED CRITICAL POSITION, THEN perform the following:

1. Ensure both groups of PZR backup heaters are energized. _____/
2. Start boration or dilution to estimated critical concentration. _____/
3. Obtain boron samples every 30 minutes while adjusting boron concentration. _____/
4. WHEN boron concentration adjustment has been completed for at least 30 minutes, THEN obtain final boron sample and ensure boron concentration is within acceptable boron concentration range from STS RE-002, DETERMINATION OF ESTIMATED CRITICAL POSITION. _____/

6.3 Verify systems are operable for entry into Mode 2 as follows:

- 6.3.1 Contact Chemistry to determine if Lithium addition is required. _____/
- 6.3.2 Contact Health Physics to update Containment Radiation postings. _____/
- 6.3.3 Select both source range channels to record on NIS recorder NR-45.
 - o SE HS-1 _____/
 - o SE HS-2 _____/

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		<u>INIT/DATE</u>
6.3.4	Place NR-45 recorder speed in LO-9 (30"/hr).	____/____
6.3.5	Ensure Mode 2 requirements are complete for the following:	
	1. STS CR-001, SHIFT LOG FOR MODES 1, 2, & 3	____/____
	2. STS ML-001, MONTHLY SURVEILLANCE LOG	____/____
6.3.6	Contact Scaffold Group to ensure all scaffolding required to be removed prior to Mode 2 has been removed.	____/____
6.3.7	Ensure Shift Manager has reviewed the following for entry into Mode 2: [3.2.10 and 3.2.11]	
	1. Clearance Order Log	____/____
	2. AP 21G-001, CONTROL OF LOCKED COMPONENT STATUS	____/____
	3. Temporary Modification Log	____/____
	4. Breach Authorization Log	____/____
	a. Ensure all compensatory measures verified.	____/____
	5. Equipment Out-Of-Service Log	____/____
	6. Work Request and Work Order Mode restraints	____/____
	7. Mode Change Checklist - Mode 3 to 2	
	a. All surveillances on the checklist are current.	____/____
	b. Completed checklist attached to this procedure.	____/____
6.3.8	Ensure a Reactor Engineer is present in Control Room.	____/____
6.3.9	Ensure Shift Manager has briefed the operating shift on the additional Technical Specifications that will become applicable in Mode 2 using ATTACHMENT A, TECHNICAL SPECIFICATIONS WHICH BECOME APPLICABLE IN MODE 2. [3.2.10]	____/____

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6.3.10	Ensure Manager Operations or Designee has reviewed plant status and procedural requirements are satisfied to proceed with the Mode change. [3.2.11]	_____ / _____
<div style="border-top: 1px solid black; text-align: center; padding-top: 5px;"> Signature, Manager Operations or Designee </div>		
6.4	Inform NRC Resident Inspector that the reactor is being taken critical.	_____ / _____
<div style="border-top: 1px dotted black; border-bottom: 1px dotted black; height: 2px; margin: 10px 0;"></div>		
<div style="border: 1px dotted black; padding: 10px; margin: 10px auto; width: 80%;"> <p style="text-align: center;"><u>NOTE</u></p> <p>If a problem develops during the startup and the startup must be aborted, alarm 00-057A, SR FLUX DOUBLED, should be re-instated prior to returning to GEN 00-002, COLD SHUTDOWN TO HOT STANDBY, or GEN 00-006, HOT STANDBY TO COLD SHUTDOWN.</p> </div>		
<div style="border-top: 1px dotted black; border-bottom: 1px dotted black; height: 2px; margin: 10px 0;"></div>		
6.5	Block alarm 00-057A, SR FLUX DOUBLED as follows:	
6.5.1	Depress BLOCK button on red train SR Doubled Bypass/Reset switch.	
	o SE HS-11 - BLOCK DEPRESSED	_____ / _____
6.5.2	Check annunciator 00-057B, SR FLUX DOUBLED BYP/BLOC - LIT	_____ / _____
6.5.3	Depress BLOCK button on yellow train SR Doubled Bypass/Reset switch.	
	o SE HS-12 - BLOCK DEPRESSED	_____ / _____
6.5.4	Check annunciator 00-057B, SR FLUX DOUBLED BYP/BLOC - REFLASHES	_____ / _____
6.6	<u>IF</u> this is the initial startup after refueling, <u>THEN</u> direct Reactor Engineering to perform RXE 01-002, RELOAD LOW POWER PHYSICS TESTING.	_____ / _____
6.7	Ensure reactor coolant average temperature is greater than or equal to 551°F as required by TS 3.4.2.	_____ / _____
6.8	<u>IF</u> desired, <u>THEN</u> start main feedwater pump warmup using SYS AE-120, MAIN FEEDWATER PUMPS WARMUP AND PRESTART CHECKOUT, while continuing with this procedure.	_____ / _____

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NOTE

Main Turbine Warmup per SYS AC-120, MAIN TURBINE GENERATOR
STARTUP maybe suspended as necessary to support temperature
requirements for RXE 01-002, RELOAD LOW POWER PHYSICS TESTING.

6.9 IF desired, THEN start main turbine warmup using
SYS AC-120, MAIN TURBINE GENERATOR STARTUP, while
continuing with this procedure. _____/

6.10 (•)IF the reactor has been shut down for less than
48 hours AND the number of hours to actual
criticality differs from the estimated time of
criticality by more than 1 hour, THEN re-calculate
estimated critical position using STS RE-002,
DETERMINATION OF ESTIMATED CRITICAL POSITION, to
account for Xenon changes. _____/

NOTE

If this is the initial startup after refueling, the estimated
critical position will be determined by RXE 01-002, RELOAD LOW
POWER PHYSICS TESTING. TS 3.1.8 allows suspension of TS 3.1.6
during physics tests and Step 6.11 may be marked N/A.

6.11 To satisfy SR 3.1.6.1, verification that critical
control rod position is within insertion limits must
be completed within 4 hours prior to achieving
criticality by satisfactory completion of
STS RE-002, DETERMINATION OF ESTIMATED CRITICAL
POSITION. _____/

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NOTES

- o A 1/M plot will be generated for every startup. [3.2.7]
- o If this is the initial startup after refueling, Reactor Engineering will perform the 1/M plot per RXE 01-002, RELOAD LOW POWER PHYSICS TESTING, and section 6.12 may be N/A'd.

6.12 Establish initial conditions for 1/M plot as follows:

NOTE

NPIS computer points for source range flux may be used for plotting 1/M.

6.12.1 Record initial neutron flux levels:

1. Source range N-31 _____CPS _____/

2. Source range N-32 _____CPS _____/

6.12.2 Record the following information on 1/M plot (FIGURE 1):

1. Initial count rate (Ci) _____/

2. Maximum rod height from ECP _____/

3. Minimum rod height from ECP _____/

4. Estimated Critical Position from ECP _____/

6.13 Ensure activities that could distract the Supervisor and operators involved with reactor startup during approach to criticality, such as shift turnover and surveillance testing, are not in progress. [3.2.7] _____/

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6.14 During reactor startup, attempt to detect errors in estimated critical position and other instrumentation by monitoring the following indications: [3.2.6, 3.2.7] _____/_____

- o NIS recorder (NR-45)
- o Source range indication
- o Source range startup rate
- o Source range audio count rate
- o Intermediate range indication
- o Intermediate range startup rate
- o NIS alarms
- o NIS permissives
- o Other appropriate indications

6.15 Obtain permission from Shift Manager or Control Room Supervisor to commence withdrawal of control rod banks. _____/_____

CAUTIONS

- o Criticality must be achieved within 4 hours of completing STS RE-002, DETERMINATION OF ESTIMATED CRITICAL POSITION, to satisfy SR 3.1.6.1. During the initial startup after refueling, TS 3.1.8 allows suspension of this requirement during physics testing.
- o Criticality shall be anticipated anytime control rods are being withdrawn or boron dilution is in progress.
- o DO NOT EXCEED A STABLE STARTUP RATE of 1.0 decade per minute (DPM) or a transient startup rate of 1.5 DPM.
- o When the reactor is subcritical, minimize the addition of positive reactivity by more than one controlled method at a time.
- o When positioning control rods during startup, conservative actions and compliance with reactor startup instructions is required. [3.2.7]
- o Maintain all RCS loop Tavg temperature greater than or equal to 551°F, minimum temperature for criticality. TS 3.4.2.

6.16 Inform plant personnel by making the following announcement twice over plant public address system; "ATTENTION ALL PLANT PERSONNEL, COMMENCING A REACTOR STARTUP". _____/_____

6.17 Ensure LTDN DIVERT TO VCT & RHT is in auto.

o BG HIS-112A - AUTO

____/____

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6.18 Defeat source range high flux at shutdown as follows:

6.18.1 At NI cabinets, block high flux at shutdown alarm on both source range channels.

o N-31 High Flux At Shutdown - BLOCKED

____/____

o N-32 High Flux At Shutdown - BLOCKED

____/____

6.18.2 Check annunciator 00-065B, SR HI FLUX AT S/D BLOC - LIT.

____/____

NOTES

o Step 6.19 shall be reviewed prior to performance.

o If a dropped rod event occurs during the performance of this procedure which causes the reactor to go subcritical, all control banks shall be re-inserted and the startup re-performed. [3.2.3]

o Withdrawing control rod banks is a Mode change.

6.19 Commence a reactor startup:

6.19.1 Ensure Rod Bank Auto/Manual Selector switch is in manual.

o SE HS-9 - MANUAL

____/____

NOTE

If this is the initial startup following refueling, withdrawal of control banks is not expected to take the reactor critical, but criticality must be anticipated.

6.19.2 (•)Withdraw control rod banks in manual to take the reactor critical while continuing with this procedure.

____/____

6.19.3 WHEN Control Bank A starts to withdraw, THEN perform the following:

1. In Control Room log, record date and time the unit entered Mode 2.

____/____

2. Announce entry into Mode 2 on the plant
page system.

_____/____

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6.19.4 While withdrawing control rods, ensure the following: (3.1.7)

1. All individual indicated rod positions shall be within 12 steps of their group step counter demand position and shall be within the insertion, sequence and overlap limits specified in the COLR in accordance with TS 3.1.4, 3.1.5 and 3.1.6.

_____ / _____

6.19.5 Stop every 50 steps during rod withdrawal and perform the following:

1. Check for proper rod alignment and bank overlap.

_____ / _____

NOTE

If this is the initial startup after refueling, Reactor Engineering will perform the 1/M plot per RXE 01-002, RELOAD LOW POWER PHYSICS TESTING, and Step 6.19.5.2 may be N/A'd.

2. Estimate critical rod position based on 1/M plot using FIGURE 1, 1/M PLOT.

_____ / _____

NOTE

If this is the initial startup after refueling, the minimum and maximum rod heights are not applicable and steps 6.19.5.3)a through 6.19.5.3)d may be N/A'd.

3. IF neutron flux has more than doubled its initial value AND 1/M plot predicts criticality below minimum rod height or above maximum rod height from ECP, THEN perform the following: [3.2.7]

a. Inform Reactor Engineering.

_____ / _____

b. Maintain stable reactor conditions.

_____ / _____

c. Ensure control rod positions and RCS boron concentration are correct.

_____ / _____

d. Recalculate estimated critical

position using STS RE-002,
DETERMINATION OF ESTIMATED CRITICAL
POSITION.

_____ / _____

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e. <u>IF</u> Reactor Engineering determines that the reactor will go critical below zero power rod insertion limit (Bank C at 46 steps), <u>THEN</u> perform the following:		
1)	(●)Immediately insert all control banks.	_____ / _____
2)	(●)Emergency borate to reestablish required shutdown margin using OFN BG-009, EMERGENCY BORATION.	_____ / _____
3)	<u>WHEN</u> reactor power is stable in the source range, <u>THEN</u> perform the following:	
a)	At NI cabinets, unblock high flux at shutdown alarm on both source range channels.	
	o N-31 High Flux At Shutdown - NORMAL	_____ / _____
	o N-32 High Flux At Shutdown - NORMAL	_____ / _____
b)	Check annunciator 00-065B, SR HI FLUX AT S/D BLOC - CLEAR	_____ / _____
c)	Depress RESET button on SR Doubled Bypass/Reset switch for both trains.	
	o SE HS-11 - RESET DEPRESSED	_____ / _____
	o SE HS-12 - RESET DEPRESSED	_____ / _____
d)	Check annunciator 00-057B, SR FLUX DOUBLED BYP/BLOC - CLEAR	_____ / _____
e)	Record a detailed description in Control Room log.	_____ / _____
f)	Proceed as directed by Reactor Engineering.	_____ / _____
6.19.6	(●) <u>IF</u> this is the initial startup after refueling, <u>THEN</u> dilute to criticality per RXE 01-002, RELOAD LOW POWER PHYSICS TESTING.	_____ / _____

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NOTE

Steps 6.20, 6.21 and 6.22 should be performed concurrently.

6.20 WHEN the reactor is critical, THEN perform the following:

CAUTION

If criticality was achieved above the zero power rod insertion limit but subsequent plant conditions require control banks to be inserted below the rod insertion limit, then emergency borate as necessary to restore control banks above the rod insertion limit using OFN BG-009, EMERGENCY BORATION.

6.20.1 IF criticality is inadvertently achieved below zero power rod insertion limit (Bank C at 46 steps), THEN perform the following:

1. (●) Immediately insert all control banks. _____/
2. (●) Emergency borate to reestablish required shutdown margin using OFN BG-009, EMERGENCY BORATION. _____/
3. WHEN reactor power is stable in the source range, THEN perform the following:
 - a. At NI cabinets, unblock high flux at shutdown alarm on both source range channels.
 - o N-31 High Flux At Shutdown - UNBLOCKED _____/
 - o N-32 High Flux At Shutdown - UNBLOCKED _____/
 - b. Check annunciator 00-065B, SR HI FLUX AT S/D BLOC - CLEAR _____/
 - c. Depress RESET button on SR Doubled Bypass/Reset switch for both trains.

○ SE HS-11 - RESET DEPRESSED

____/____

○ SE HS-12 - RESET DEPRESSED

____/____

DO NOT EXCEED A STABLE STARTUP RATE of 1.0 decade per minute (DPM) or a transient startup rate of 1.5 DPM.

/

/

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CAUTION

There is only one-half decade overlap between the P-6 permissive block and source range high flux reactor trip. Delay in blocking the source range could initiate a reactor trip at 10^5 CPS.

NOTE

P-6 status light is located on SB069, 16 down, 4 across.

6.22 WHEN intermediate range permissive P-6 light is lit, THEN block source range high flux trip as follows:
(3.1.14)

6.22.1 Simultaneously depress both source range A and source range B block pushbuttons.

o SE HS-5

_____ /

o SE HS-10

_____ /

6.22.2 Ensure source range trip is blocked:

1. SR trip A block lit.

o SB069, 15 down, 1 across - LIT

_____ /

2. SR trip B block lit.

o SB069, 15 down, 2 across - LIT

_____ /

3. Annunciator 00-077E, SR HI VOLT FAIL - LIT.

_____ /

6.22.3 WHEN source range trip is blocked, THEN select the second intermediate range channel for recording on NIS recorder NR-45.

_____ /

6.23 WHEN Intermediate range permissive P-6 light is lit, THEN perform the following:

6.23.1 At NI cabinets, unblock high flux at shutdown alarm on both source range channels.

o N-31 High Flux At Shutdown - NORMAL

_____ /

o N-32 High Flux At Shutdown - NORMAL

____/____

6.23.2 Check annunciator 00-065B, SR HI FLUX AT
S/D BLOC - CLEAR.

____/____

If this is the initial startup after refueling, the estimated critical position will be determined by RXE 01-002, RELOAD LOW POWER PHYSICS TESTING. TS 3.1.8 allows suspension of TS 3.1.6 during physics tests and Step 6.25.5 may be marked N/A.

6.25.6 IF annunciator 00-081D, ROD BANK LO LIMIT, is lit AND critical RCS boron concentration sample has been taken, THEN borate and withdraw control rods, as necessary, to

establish critical rod height above rod
bank low limit.

_____ / _____

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6.26 WHEN all shutdown and control rods have been withdrawn at least 10 steps, THEN completion of SR 3.1.4.2 may be documented as follows:

6.26.1 Complete a Surveillance Procedure Credit Cross-Reference And Review sheet for STS SF-001, CONTROL AND SHUTDOWN ROD OPERABILITY VERIFICATION, as required by AP 29B-003, SURVEILLANCE TESTING.

_____/

6.26.2 Use a surveillance commenced time corresponding to the time shutdown banks were withdrawn.

_____/

6.26.3 Route to Surveillance Coordinator.

_____/

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CAUTIONS

- o The motor driven startup main feed pump capability is limited to around 230,000 lbs/hr (about 1.0% power). Steam generator levels and blowdown rates should be carefully monitored until a steam driven main feed pump is in service.
- o To minimize S/G level transients, reactor power changes should be made slowly until main feedwater regulating valves are in automatic. [3.2.14]

NOTES

- o With a negative MTC, as reactor power increases to the point of adding heat, startup rate indication will decrease to zero as steam dumps open to maintain pressure.
- o With a positive MTC, as reactor power increases to the point of adding heat, startup rate indication will remain constant and power will continue to increase as steam dumps open to maintain pressure.
- o All individual indicated rod positions shall be within 12 steps of their group step counter demand position and shall be within the insertion, sequence and overlap limits specified in the COLR in accordance with TS 3.1.4, 3.1.5 and 3.1.6.
- o When the reactor is critical above the point of adding heat, loop *Ts should be monitored as well as nuclear instrumentation to determine reactor output. [3.2.6]

6.27 Increase reactor power to 0.5% as follows:

6.27.1 Ensure steam dump valves being used for heat sink are adjusted to maintain Tav_g between 552°F and 562°F:

* Steam header pressure control, AB PK-507 _____/_____

OR

* Atmospheric relief valve controllers _____/_____

INIT/DATE

CAUTION

DO NOT EXCEED A STABLE STARTUP RATE of 1.0 decade per minute (DPM) or a transient startup rate of 1.5 DPM.

6.27.2 (•)Adjust control rod height, as necessary, to establish desired startup rate. _____/

6.27.3 Allow steam dumps or atmospheric relief valves to open until reactor power reaches 0.5%. _____/

6.27.4 Reduce or stop steam generator blowdown, as necessary, to maintain sufficient feedwater flow capability. _____/

6.27.5 (•)Adjust control rod height, as necessary, to maintain reactor power stable between 0.5% and 1.0%. _____/

6.27.6 WHEN reactor power is stable, THEN perform the following:

1. Select highest reading power range channel for recording on NIS recorder NR-45. _____/

2. Place NR-45 recorder speed in LO-0 (1"/hr). _____/

6.28 Place one main feedwater pump in service as follows:

6.28.1 Start a second condensate pump using SYS AD-120, CONDENSATE SYSTEM STARTUP AND CLEANUP. _____/

NOTE

When main feedwater pumps are reset, startup drains will open requiring increased feed flow to the steam generators.

6.28.2 Ensure both main feedwater pumps are reset: [3.2.5 and 3.2.13]

1. FC HIS-18 - WHITE LIGHT LIT

Verified _____/

2. FC HIS-118 - WHITE LIGHT LIT

Verified /
 /

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		INIT/DATE
6.28.3	Start one main feedwater pump using SYS AE-121, TURBINE DRIVEN MAIN FEEDWATER PUMP STARTUP.	____/____
6.28.4	<u>WHEN</u> one main feedwater pump is in service, <u>THEN</u> shutdown startup feedwater source as follows:	
	1. <u>IF</u> startup feedwater pump is running, <u>THEN</u> shut down startup feedwater pump using SYS AE-321, STARTUP MAIN FEEDWATER PUMP SHUTDOWN.	____/____
	2. <u>IF</u> any auxiliary feedwater pumps are running, <u>THEN</u> perform the following:	
	a. Shutdown auxiliary feedwater pumps using SYS AL-120, FEEDING STEAM GENERATORS WITH A MOTOR DRIVEN OR TURBINE DRIVEN AFW PUMP.	____/____
	b. <u>IF</u> turbine driven AFW pump was previously running, <u>THEN</u> ensure turbine driven AFW pump governor setting is between 3850 rpm and 3900 rpm.	____/____
<div style="border: 1px dashed black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">NOTE</p> <p>When the limitorque operators on motor driven AFW pump discharge valves are in the closed position, the motor field remains energized causing unnecessary wear on the valve actuator. To prolong the life of these valves, it is necessary to maintain the valves open as much as possible.</p> </div>		
	3. Ensure all motor driven AFW pump discharge valves are full open with joystick in detent open position.	
	o AL HK-7A for S/G A - DETENT OPEN	____/____
	o AL HK-9A for S/G B - DETENT OPEN	____/____
	o AL HK-11A for S/G C - DETENT OPEN	____/____
	o AL HK-5A for S/G D - DETENT OPEN	____/____
	4. Ensure all turbine driven AFW pump discharge valves are full open with joystick in detent open position.	
	o AL HK-8A for S/G A - DETENT OPEN	____/____
	o AL HK-10A for S/G B - DETENT OPEN	____/____
	o AL HK-12A for S/G C - DETENT OPEN	____/____

o AL HK-6A for S/G D - DETENT OPEN

____/____

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		<u>INIT/DATE</u>
6.28.5	Ensure both AFP ESFAS BLOC switches are placed in permit. [3.2.1, 3.2.5 and 3.2.13]	
	1. FC HS-25 - IN PERMIT	_____/_____ Verified
	2. FC HS-26 - IN PERMIT	_____/_____ Verified
6.28.6	Ensure all main feedwater bypass valves in auto.	
	o AE LK-550 - AUTO	_____/_____
	o AE LK-560 - AUTO	_____/_____
	o AE LK-570 - AUTO	_____/_____
	o AE LK-580 - AUTO	_____/_____
6.28.7	Trip non-running main feedwater pump using its trip/reset control to allow AFAS actuation in the event the running main feedwater pump is lost.	
	* FC HIS-18 for MFWP A - TRIPPED	_____/_____
	<u>OR</u>	
	* FC HIS-118 for MFWP B - TRIPPED	_____/_____
6.28.8	Open the non-running Main Feedwater Pump Discharge Valve.	
	* AE HIS-16 for MFP A - OPEN	_____/_____
	<u>OR</u>	
	* AE HIS-15 for MFP B - OPEN	_____/_____
6.29	<u>WHEN</u> Shift Manager or Control Room Supervisor desires to transfer steam seals from auxiliary steam to main steam, <u>THEN</u> transfer steam seal supply using SYS CA-120, TURBINE STEAM SEAL SYSTEM STARTUP.	_____/_____
6.30	<u>IF</u> hot well temperature is less than 100°F <u>OR</u> Shift Manager or Control Room Supervisor desires condenser sparging, <u>THEN</u> place steam sparging to condenser in service using SYS AD-120, CONDENSATE SYSTEM STARTUP AND CLEANUP.	_____/_____
6.31	Ensure steam generator blowdown is established at the proper flow rate for the number of demineralizer vessels specified by Chemistry to be in service.	_____/_____

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6.32	Roll the main turbine using SYS AC-120, MAIN TURBINE GENERATOR STARTUP, up to the point of synchronizing the turbine generator to the grid while continuing with this procedure.	____/____
6.33	<u>IF</u> STS AC-001, MAIN TURBINE VALVE CYCLE TEST, has not been performed within the last 31 days, <u>THEN</u> make an Action Statement Summary Log entry to require completion of STS AC-001, MAIN TURBINE VALVE CYCLE TEST, within 78 hours of placing the turbine in operation and prior to exceeding P-9.	____/____
6.34	Verify systems are operable for entry into Mode 1 as follows:	
6.34.1	Ensure steam generator chemistry is within specification using AP 02B-001, SECONDARY CHEMISTRY CONTROL.	____/____
6.34.2	Ensure Mode 1 requirements are complete for the following:	
	1. STS CR-001, SHIFT LOG FOR MODES 1, 2, & 3	____/____
	2. STS ML-001, MONTHLY SURVEILLANCE LOG	____/____
6.34.3	Contact Scaffold Group to ensure all scaffolding required to be removed prior to Mode 1 has been removed.	____/____
6.34.4	Ensure Shift Manager has reviewed the following for entry into Mode 1: [3.2.10 and 3.2.11]	
	1. Clearance Order Log	____/____
	2. AP 21G-001, CONTROL OF LOCKED COMPONENT STATUS	____/____
	3. Temporary Modification Log	____/____
	4. Breach Authorization Log	____/____
	a. Ensure all compensatory measures verified.	____/____
	5. Equipment Out-Of-Service Log	____/____
	6. Work Request and Work Order Mode restraints	____/____

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7. Mode Change Checklist - Mode 2 to 1

a. All surveillances on the checklist
are current.

____/____

b. Completed checklist attached to this
procedure.

____/____

6.34.5 Ensure Shift Manager has briefed the
operating shift on the additional Technical
Specifications that will become applicable
in Mode 1 using ATTACHMENT B, TECHNICAL
SPECIFICATIONS WHICH BECOME APPLICABLE IN
MODE 1. [3.2.10]

____/____

6.34.6 Ensure Manager Operations or Designee has
reviewed plant status and procedural
requirements are satisfied to proceed with
the Mode change. [3.2.11]

____/____

Signature, Manager Operations or Designee

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CAUTION

DO NOT EXCEED A STABLE STARTUP RATE of 1.0 decade per minute (DPM) or a transient startup rate of 1.5 DPM.

NOTES

- o All individual indicated rod positions shall be within 12 steps of their group step counter demand position and shall be within the insertion, sequence and overlap limits specified in the COLR in accordance with TS 3.1.4, 3.1.5 and 3.1.6.
- o Exceeding 5% power is a Mode change.

6.35 Enter Mode 1 as follows:

6.35.1 (•) Withdraw control rods in manual, as necessary, to establish reactor power stable between 5% and 15% while continuing with this procedure. _____/_____

NOTE

If steam flow oscillations are observed, manual control of steam dump controllers may be required.

6.35.2 Ensure steam dumps open to control steam header pressure. _____/_____

NOTE

If steam generator level oscillations are observed, manual control of main feedwater bypass valves may be required.

6.35.3 Ensure main feedwater bypass valves maintain steam generator levels between 40%

and 60%.

_____ / _____

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6.35.4 WHEN 2 of 4 power range channels indicate greater than 5% power, THEN perform the following:

1. In Control Room log, record date and time the unit entered Mode 1. _____ / _____
2. Announce entry into Mode 1 on the plant page system. _____ / _____

6.36 IF main turbine warming is not complete, THEN stabilize reactor power below 10% until turbine warming is complete. [3.2.17] _____ / _____

6.37 WHEN reactor power is greater than 10%, THEN perform the following:

.....

NOTE

If P-10 fails to properly change state, refer to Step 4.13.
 (3.1.18)

6.37.1 Check P-10 permissive properly changes state by observation of the following:

1. Bistable status lights lit
 - o SB069, 14 down, 1 across - LIT _____ / _____
 - o SB069, 14 down, 2 across - LIT _____ / _____
 - o SB069, 14 down, 3 across - LIT _____ / _____
 - o SB069, 14 down, 4 across - LIT _____ / _____
2. Permissive status light lit
 - o SB069, 15 down, 4 across - LIT _____ / _____

6.37.2 Check annunciator 00-077E, SR HI VOLT FAIL - CLEAR _____ / _____

6.37.3 Block intermediate range low power trips:

1. Depress both IR TRIP BLOC pushbuttons.
 - o SE HS-4 - DEPRESSED _____ / _____
 - o SE HS-7 - DEPRESSED _____ / _____
2. Ensure intermediate range reactor trips are blocked.
 - o SB069, 13 down, 1 across - LIT _____ / _____

o SB069, 13 down, 2 across - LIT

____/____

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6.37.4 Block power range low power trips:

1. Depress both PR LO Ø Trip Bloc pushbuttons.

o SE HS-3 - DEPRESSED

_____ /

o SE HS-6 - DEPRESSED

_____ /

2. Ensure power range low setpoint reactor trips are blocked.

o SB069, 13 down, 3 across - LIT

_____ /

o SB069, 13 down, 4 across - LIT

_____ /

NOTE

When P-7 bistable is de-energized (P-7 permissive light energizes), the following reactor trips are automatically unblocked:

- o Pressurizer low pressure
- o Pressurizer high level
- o Loss of flow - two loop logic
- o RCP underfrequency
- o RCP undervoltage

6.37.5 WHEN P-10 permissive has changed state, THEN ensure that P-7 permissive light has energized.

o SB069, 12 down, 4 across - LIT

_____ /

6.37.6 Transfer NR-45 pen that is recording intermediate range to a delta flux channel.

_____ /

6.38 WHEN reactor power is stable between 10% and 15%, THEN synchronize main generator to the grid using SYS AC-120, MAIN TURBINE GENERATOR STARTUP.

_____ /

6.39 Position the following valves:

6.39.1 Close main steam drain trap bypasses.

o AB HIS-23 - CLOSED

_____ /

6.39.2 Close Main Turbine Stop And Control Valve Startup Drains.

o AC HIS-134 - CLOSED

_____ /

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6.39.3 Ensure the following turbine extraction valves to high pressure feedwater heaters are open:

- o AF HIS-24, FW HP Htr 5A Extraction Vlvs - OPEN /
- o AF HIS-64, FW HP Htr 5B Extraction Vlvs - OPEN /
- o AF HS-12, FW HP Htr 6A Extraction Vlvs - OPEN /
- o AF HS-44, FW HP Htr 6B Extraction Vlvs - OPEN /
- o AF HS-7, FW HP Htr 7A Extraction Vlvs - OPEN /
- o AF HS-58, FW HP Htr 7B Extraction Vlvs - OPEN /

CAUTIONS

- o The rate of power increase shall be limited to the following:
 - Unit loading between 0 and 15 percent power shall be limited to 0.5% (rated) power per minute. (3.1.15)
 - Unit loading between 15 and 40 percent power shall be limited to 5% (rated) power per minute OR a maximum step change of 10% (rated) power. (3.1.15)
- o DO NOT EXCEED A STABLE STARTUP RATE of 1.0 decade per minute (DPM) or a transient startup rate of 1.5 DPM.

NOTES

- o All individual indicated rod positions shall be within 12 steps of their group step counter demand position and shall be within the insertion, sequence and overlap limits specified in the COLR in accordance with TS 3.1.4, 3.1.5 and 3.1.6.
- o If steam flow oscillations are observed, manual control of steam dump controllers may be required.

6.40 WHEN turbine load is being increased, THEN use the following techniques:

6.40.1 IF moderator temperature coefficient is positive, THEN perform the following:

1. (•)Adjust control rods as necessary to

maintain T_{avg} greater than T_{ref} .

_____ / _____

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	2. Perform turbine load increase using Load Limit Potentiometer in a slow controlled manner.	____/____
	3. As turbine load increases, adjust steam dump controllers as necessary to maintain cooldown valves or atmospheric relief valves between 80% and 100% open.	
	* Steam header pressure control, AB PK-507	____/____
	<u>OR</u>	
	* Atmospheric relief valve controllers	____/____
6.40.2	(●) <u>IF</u> moderator temperature coefficient is negative or zero, <u>THEN</u> perform the following:	
	1. <u>IF</u> automatic turbine loading is desired, <u>THEN</u> control turbine load using automatic turbine-generator loading selected to 1/2% per minute.	____/____
	2. <u>IF</u> automatic turbine loading is <u>NOT</u> desired, <u>THEN</u> perform turbine load increase using Load Limit Potentiometer in a slow controlled manner.	____/____
	3. <u>WHEN</u> steam dumps are open, <u>THEN</u> adjust control rods as needed to maintain Tav _g constant.	____/____
	4. <u>WHEN</u> steam dumps are closed, <u>THEN</u> adjust control rods, as necessary, to maintain Tav _g within 1.5°F of T _{ref} .	____/____
6.41	(●) Increase reactor power by increasing turbine load while continuing with this procedure.	____/____
6.41.1	Make Equipment Out of Service Log and Action Statement Summary Log entries to reflect the requirement to complete STS SE-001, POWER RANGE ADJUSTMENT TO CALORIMETRIC within 24 hours after power is greater than or equal to 15% to satisfy SR 3.3.1.2.	____/____

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NOTE

This step may be performed during the 3 hour warmup required for overspeed testing.

6.42 WHEN first stage pressure is greater than 139 psig (20% of 692 psig), THEN ensure air is vented from the EHC system by performing the following:
[3.2.18]

6.42.1 SYS AC-140, MAIN TURBINE VALVE EXERCISE FOR AIR REMOVAL, Section 6.3. _____/_____

6.42.2 SYS AC-140, MAIN TURBINE VALVE EXERCISE FOR AIR REMOVAL, Section 6.4. _____/_____

6.43 IF performing Turbine Overspeed test, THEN stabilize Reactor Power at 15% to 17% AND perform STN AC-007, TURBINE OVERSPEED TRIP TEST. _____/_____

6.44 IF operating with a negative MTC AND turbine load is sufficient such that steam dump valves are closed, THEN perform the following:

6.44.1 Ensure all steam dump valves indicate closed.

o Condenser steam dumps - CLOSED _____/_____

o Atmospheric relief valves - CLOSED _____/_____

6.44.2 Momentarily place condenser steam dump control mode selector switch to reset.

o AB US-500Z - RESET _____/_____

6.44.3 Ensure loss of load interlock C-7 is reset. _____/_____

6.44.4 Place steam dump mode controller in Tavg mode.

o AB US-500Z - TAVG _____/_____

6.44.5 Ensure all atmospheric relief valve controllers are set to maintain 1125 psig in automatic.

o AB PIC-1A - IN AUTO AT 1125 PSIG _____/_____

o AB PIC-2A - IN AUTO AT 1125 PSIG _____/_____

o AB PIC-3A - IN AUTO AT 1125 PSIG _____/_____

o AB PIC-4A - IN AUTO AT 1125 PSIG

_____/____

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NOTE

Steam Generator level controllers should be left in auto for level deviations of 10% or less.

6.45 WHEN reactor power is between 15% and 20%, THEN perform the following:

6.45.1 (•)Stop turbine loading and stabilize reactor power. _____/_____

6.45.2 Check permissive P-13 has actuated.

o SB069, 12 down, 3 across - LIT _____/_____

6.45.3 Ensure the following feedwater low pressure heater extraction valves are open. (3.1.9)

* AF HS-106, FW LP HTR 3A Extraction VLV - OPEN _____/_____

* AF HS-136, FW LP HTR 3B Extraction VLV - OPEN _____/_____

* AF HS-165, FW LP HTR 3C Extraction VLV - OPEN _____/_____

* AF HS-113, FW LP HTR 4A Extraction VLV - OPEN _____/_____

* AF HS-144, FW LP HTR 4B Extraction VLV - OPEN _____/_____

* AF HS-173, FW LP HTR 4C Extraction VLV - OPEN _____/_____

NOTE

It is preferred to leave the Condensate pump miniflow valves closed to minimize iron transports to the Steam Generators.

6.45.4 IF desired, THEN open condensate pump miniflow valves to prevent heater drain tank dump valves from opening. _____/_____

INIT/DATE

NOTE

It is imperative for stable S/G level control that feedwater temperature be kept as high as possible.

6.45.5 (•)Adjust control rods, as necessary, to maintain Tav_g stable while adjusting feedwater flow. _____/

6.45.6 Adjust feedwater *P, as necessary, to establish one of the following conditions:

* All main feedwater regulating bypass valves are between 60% and 80% open. _____/

OR

* IF significant variation in main feedwater regulating bypass valve position exists, THEN most open main feedwater regulating bypass valve is less than 90% open. _____/

6.45.7 WHEN feedwater *P has been adjusted AND steam generator levels are stable, THEN unisolate main feedwater regulating valves as follows:

1. Cycle each main feedwater regulating valve full open and return to closed position. [3.2.16]

o AE FK-510 - CYCLED AND CLOSED _____/

o AE FK-520 - CYCLED AND CLOSED _____/

o AE FK-530 - CYCLED AND CLOSED _____/

o AE FK-540 - CYCLED AND CLOSED _____/

2. Unisolate main feedwater regulating valves one at a time as follows:

a. Monitor feedwater flow to prevent overfeeding due to leakage past valve seats. _____/

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b. <u>IF</u> feedwater flow increases while unisolating feedwater regulating valves, <u>THEN</u> perform the following:		
1) Control associated feedwater regulating bypass valve in manual to re-establish the feedwater flow that existed prior to unisolating main feedwater regulating valve.		_____ / _____
2) <u>WHEN</u> main feedwater regulating valve has been unisolated, <u>THEN</u> return main feedwater regulating bypass valve controller to auto.		_____ / _____
c. Establish stable steam generator level prior to unisolating the next main feedwater regulating valve.		_____ / _____
d. DO NOT CONTINUE until all main feedwater regulating valves are unisolated.		
o AE FK-510 - UNISOLATED		_____ / _____
o AE FK-520 - UNISOLATED		_____ / _____
o AE FK-530 - UNISOLATED		_____ / _____
o AE FK-540 - UNISOLATED		_____ / _____
3. Ensure "ISOLATED" magnetic information pads for main feedwater regulating valves have been removed from RL005.		_____ / _____
4. <u>IF</u> main feedwater regulating bypass valves are <u>NOT</u> open the same amount, <u>THEN</u> jog open main feedwater regulating valves whose bypass valves are most open to re-establish all bypass valves open approximately the same amount.		_____ / _____
6.46 Obtain required samples as follows while continuing with this procedure:		
6.46.1 <u>IF</u> thermal power change has exceeded 15% within a 1 hour period, <u>THEN</u> direct Chemistry to sample RCS for Iodine within 2 to 6 hours after the power change has been completed as required by SR 3.4.16.2.		_____ / _____
6.46.2 Direct Chemistry to obtain sample from unit vent as required by AP 07B-003, OFFSITE DOSE CALCULATION MANUAL, Table 3-1.		_____ / _____

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6.46.3	<u>IF</u> a containment purge is in progress, <u>THEN</u> direct Chemistry to obtain sample from containment as required by AP 07B-003, OFFSITE DOSE CALCULATION MANUAL, Table 3-1.	____/____
6.47	Increase reactor power as follows:	
6.47.1	Review turbine loading techniques in Step 6.40 including all notes and cautions.	____/____
6.47.2	Ensure steam generator levels are stable.	____/____
6.47.3	(•)Increase reactor power to 25% by increasing turbine load while continuing with this procedure.	____/____
6.47.4	Adjust feedwater *P, as necessary, to establish one of the following conditions:	
	* All main feedwater regulating bypass valves are between 60% and 80% open.	____/____
	<u>OR</u>	
	* <u>IF</u> significant variation in main feedwater regulating bypass valve position exists, <u>THEN</u> most open main feedwater regulating bypass valve is less than 90% open.	____/____
6.48	<u>WHEN</u> reactor power is greater than 20%, <u>THEN</u> on nuclear instrumentation cabinet, ensure intermediate range control rod stop bistable is illuminated. [3.2.6]	
	o High Level Rod Stop - LIT	____/____
6.49	Prior to exceeding 25% reactor power, secure feedwater heating using SYS AE-200, FEEDWATER PREHEATING DURING PLANT STARTUP AND SHUTDOWN.	____/____
6.50	<u>WHEN</u> feedwater heating has been secured, <u>THEN</u> transfer auxiliary steam system to auxiliary steam reboiler using SYS FB-200, PLACING THE AUX STEAM REBOILER IN SERVICE.	____/____

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6.51	<u>WHEN</u> reactor power is greater than 25%, <u>THEN</u> perform the following: [3.2.6]	
6.51.1	On nuclear instrumentation cabinet, ensure intermediate range high flux trip bistable is illuminated.	
	o High Level Trip - LIT	_____ / _____
6.51.2	Check low power reactor trip bistables properly change state by observation of the following:	
	1. Intermediate range hi level reactor trip status lights lit	
	o SB069, 6 down, 1 across - LIT	_____ / _____
	o SB069, 6 down, 2 across - LIT	_____ / _____
	2. Power range, low setpoint reactor trip status lights lit	
	o SB069, 5 down, 1 across - LIT	_____ / _____
	o SB069, 5 down, 2 across - LIT	_____ / _____
	o SB069, 5 down, 3 across - LIT	_____ / _____
	o SB069, 5 down, 4 across - LIT	_____ / _____
6.51.3	<u>IF</u> any reactor trip bistable did <u>NOT</u> trip, <u>THEN</u> contact Reactor Engineering and I&C.	_____ / _____
6.52	<u>IF</u> this is the Initial Power Ascension of a New Core, <u>THEN</u> stabilize Reactor Power between 25% and 30% and Hold for Flux Map and Satisfactory Data Analysis prior to exceeding 30% Power. (3.1.12)	_____ / _____
6.53	<u>WHEN</u> reactor power is between 25% and 30%, <u>THEN</u> perform the following:	
6.53.1	(●) Stop turbine loading and stabilize reactor power.	_____ / _____
6.53.2	Ensure S/G levels are greater than or equal to 50% with positive indication of steam and feedwater flows.	_____ / _____
6.53.3	(●) Adjust control rods as necessary to maintain Tav _g stable while adjusting feedwater flow.	_____ / _____
6.53.4	Place main feedwater regulating valves in service as follows:	

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NOTE

Manual jogging of main feedwater regulating valves may be necessary to optimize stable feedwater flows.

1. Place main feedwater regulating valve in AUTO.
2. Jog close on associated bypass valve in manual.
3. Ensure main feedwater regulating valve is controlling in AUTO.
4. Continue jogging close on associated bypass valve until bypass valve is fully closed.
5. Establish stable steam generator level prior to placing next main feedwater regulating valve in service.
6. DO NOT CONTINUE until all main feedwater regulating valves are in service.
 - o AE FK-510 - IN SERVICE _____/_____
 - o AE FK-520 - IN SERVICE _____/_____
 - o AE FK-530 - IN SERVICE _____/_____
 - o AE FK-540 - IN SERVICE _____/_____

6.54 Increase reactor power as follows:

- 6.54.1 Review turbine loading techniques in Step 6.40 including all notes and cautions. _____/_____
- 6.54.2 Ensure steam generator levels are stable. _____/_____
- 6.54.3 (●) Increase reactor power to 30% by increasing turbine load while continuing with this procedure. _____/_____
- 6.54.4 As turbine-generator load is increased, maintain feedwater *P close to programmed value. Refer to OA-93-18 on RL005. _____/_____

Revision: 62	HOT STANDBY TO MINIMUM LOAD	GEN 00-003
Continuous Use		Page 54 of 61

		<u>INIT/DATE</u>
6.55	<u>WHEN</u> reactor power is greater than 30%, <u>THEN</u> shift main feedwater pump speed control to auto as follows:	
6.55.1	<u>IF</u> main feedwater pump is at minimum speed, <u>THEN</u> allow reactor power to increase until actual feedwater *P is less than or equal to programmed feedwater *P.	_____ / _____
6.55.2	Adjust main feedwater pump speed as necessary to match programmed feedwater *P and actual feedwater *P. Refer to OA-93-18 on RL005.	_____ / _____
6.55.3	<u>WHEN</u> programmed feedwater *P and actual feedwater *P are matched, <u>THEN</u> shift main feedwater pump turbine speed control to automatic as follows:	
	1. Place running feedwater pump speed control in manual. (Mark idle pump speed control N/A)	
	* FC SK-509B - IN MANUAL	_____ / _____
	<u>OR</u>	
	* FC SK-509C - IN MANUAL	_____ / _____
	2. Place master speed control in automatic.	
	o FC SK-509A - IN AUTO	_____ / _____
	3. Match running feedwater pump speed control with master speed control and place in automatic. (Mark idle pump speed control N/A)	
	* FC SK-509B - IN AUTO	_____ / _____
	<u>OR</u>	
	* FC SK-509C - IN AUTO	_____ / _____

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Continuous Use		Page 55 of 61

INIT/DATE

NOTE

- Performing portions of STN AC-008, STEAM DRAIN VALVE
- OPERABILITY, may be required in conjunction with SYS AC-130,
- OPERATION OF MOISTURE SEPARATOR REHEATERS.

6.56 WHEN reactor power is greater than 30% power, THEN commence placing first and second stage reheaters in service using SYS AC-130, OPERATION OF MOISTURE SEPARATOR REHEATERS. _____/

6.57 IF SG BLOWDOWN REGENERATIVE HX CONDENSATE OUTLET TO HTR DRAIN TK ISO was closed in Step 5.25, THEN open SG BLOWDOWN REGENERATIVE HX CONDENSATE OUTLET TO HTR DRAIN TK ISO.

o BM-V185 - OPEN _____/

6.58 IF the S/G Blowdown Regen Heat Exchanger was bypassed in step 5.23, THEN realign the S/G Blowdown Regen Heat Exchanger per SYS BM-128, SGBD COMPONENT OPERATIONS. _____/

6.59 Maintain turbine load as directed by Shift Manager or Control Room Supervisor and System Operations. _____/

6.60 IF the plant has been in Mode 3 AND STS AC-001, MAIN TURBINE VALVE CYCLE TEST, has not been performed within the last 31 days, THEN perform STS AC-001, MAIN TURBINE VALVE CYCLE TEST. _____/

6.61 Transfer loads from the startup transformer to the auxiliary transformer, by performing the following:

6.61.1 Place 13.8 KV Source Select Switch to auxiliary transformer position.

o PA HS-7 - UNIT AUX _____/

6.61.2 Close unit auxiliary 13.8 KV breaker PA0101.

o PA HIS-1 - CLOSED _____/

6.61.3 Match flags on startup transformer 13.8 KV breaker PA0110.

o PA HIS-6 - FLAGS MATCHED _____/

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Continuous Use		Page 56 of 61

		<u>INIT/DATE</u>
6.61.4	Close unit auxiliary 13.8 KV breaker PA0211. o PA HIS-13 - CLOSED	 _____/____
6.61.5	Match flags on startup transformer 13.8 KV breaker PA0202. o PA HIS-8 - FLAGS MATCHED	 _____/____
6.61.6	Place 13.8 KV Source Select Switch in off position. o PA HS-7 - OFF	 _____/____
6.62	<u>IF</u> Reactor Engineering desires to change control rod park position, <u>THEN</u> perform STN SF-001, CONTROL ROD PARKING.	_____/____
6.63	Close the following turbine drain valves: o AC HIS-72, HP TURB S/U DRNS JOG CTRL - CLOSED o AC HIS-131, COLD REHEAT DRNS JOG CTRL - CLOSED o AC HIS-119, MSR SHELL DRNS JOG CTRL - CLOSED	 _____/____ _____/____ _____/____
6.64	Ensure service water system parameters, including backpressure, are within the normal band per SYS EA-120, SERVICE WATER SYSTEM STARTUP.	_____/____
6.65	Go to GEN 00-004, POWER OPERATION.	_____/____

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Continuous Use		Page 57 of 61

INIT/DATE

7.0 FINAL CONDITIONS

- 7.1 The unit is operating at greater than or equal to 30% of full power.
- 7.2 Main generator is synchronized and supplying the grid.
- 7.3 The 13.8 kV buses PA01 and PA02 are being supplied from either the unit auxiliary or startup transformer.

8.0 RECORDS

- 8.1 The following QA records are generated by this procedure:
 - 8.1.1 Section 5.0
 - 8.1.2 Section 6.0
 - 8.1.3 FIGURE 1

-END-

Revision: 62	HOT STANDBY TO MINIMUM LOAD	GEN 00-003
Continuous Use		Page 58 of 61

ATTACHMENT A

(Page 1 of 2)

TECHNICAL SPECIFICATIONS WHICH BECOME APPLICABLE IN MODE 2

A.1 Safety Limits

A.1.1 TS 2.1.1 - REACTOR CORE

1. The combination of thermal power, pressurizer pressure, and the highest operating loop coolant temperature (Tavg) shall not exceed the limits shown in FIGURE 2.1.1-1 for four loop operation.

A.1.2 TS 2.1.2 - REACTOR COOLANT SYSTEM PRESSURE

1. The time limit for taking action if RCS pressure exceeds 2735 psig is relaxed at higher RCS temperatures.

A.2 Reactivity Control Systems

A.2.1 TS 3.1.3 - MODERATOR TEMPERATURE COEFFICIENT

1. MTC now applies for less positive at beginning of life (BOL) as well as less negative at end of life (EOL) as specified in Figure 3.1.3-1. (N/A when TS 3.1.8 is in effect)

A.2.2 TS 3.1.4 - ROD GROUP ALIGNMENT LIMITS

1. All shutdown and control rods shall be operable. Individual indicated rod positions shall be within 12 steps of their group step counter demand positions.

A.2.3 TS 3.1.5 - SHUTDOWN BANK INSERTION LIMITS

1. Each shutdown bank shall be within insertion limits specified in the COLR. Applicable when in Mode 1 and Mode 2 with any control bank not fully inserted.

A.2.4 TS 3.1.6 - CONTROL BANK INSERTION LIMITS

1. Control banks shall be within the insertion, sequence and overlap limits specified in the COLR. Applicable when in Mode 1 and Mode 2 with Keff • 1.0.

A.2.5 TS 3.1.7 - ROD POSITION INDICATION

1. The Digital Rod Position Indication (DRPI) System and the Demand Position Indication System shall be operable.

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Continuous Use		Page 59 of 61

ATTACHMENT A
(Page 2 of 2)
TECHNICAL SPECIFICATIONS WHICH BECOME APPLICABLE IN MODE 2

A.2.6 TS 3.1.8 - PHYSICS TEST EXCEPTIONS - MODE 2

1. During the performance of PHYSICS TESTS, the requirements of TS 3.1.3, 3.1.4, 3.1.5, 3.1.6 and 3.4.2 may be suspended, provided the following remain satisfied:
 - o RCS lowest operating loop average temperature is • 541°F;
 - o SDM is within the limits provided in the COLR; and
 - o THERMAL POWER is less than or equal to 5% RTP.

A.2.7 TS 3.4.2 - MINIMUM TEMPERATURE FOR CRITICALITY

1. The RCS lowest operating loop temperature (Tavg) shall be greater than or equal to 551°F. (N/A when TS 3.1.8 is in effect)

A.3 Instrumentation

A.3.1 TS 3.3.1 - REACTOR TRIP SYSTEM INSTRUMENTATION

1. Most reactor trip instrumentation are required to be operable. Refer to Table 3.3.1-1.

A.3.2 TS 3.3.2 - ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

1. ESFAS for turbine trip and feedwater isolation are required to be operable.

A.3.3 TR 3.3.13 - LOOSE-PART DETECTION SYSTEM

1. Loose Parts Monitoring System shall be operable.

A.4 Reactor Coolant System

A.4.1 TS 3.4.4 - REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

1. All reactor coolant pumps shall be in operation.

A.5 Containment Systems

A.5.1 TS 3.6.8 - HYDROGEN RECOMBINERS

1. Two hydrogen recombiners shall be operable.

-END-

Revision: 62	HOT STANDBY TO MINIMUM LOAD	GEN 00-003
Continuous Use		Page 60 of 61

ATTACHMENT B

(Page 1 of 1)

TECHNICAL SPECIFICATIONS WHICH BECOME APPLICABLE IN MODE 1

B.1 Power Distribution Limits

B.1.1 TS 3.2.3 - AXIAL FLUX DIFFERENCE (AFD)

1. AFD is applicable in Mode 1 greater than or equal to 50%.

B.1.2 TS 3.2.1 - HEAT FLUX HOT CHANNEL FACTOR - FQ(X,Y,Z)

1. Heat Flux Hot Channel Factor-FQ(X,Y,Z) becomes applicable.

B.1.3 TS 3.2.2 - NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR - F*H(X,Y)

1. Nuclear Enthalpy Rise Hot Channel Factor F*H(X,Y) becomes applicable.

B.1.4 TS 3.2.4 - QUADRANT POWER TILT RATIO

1. QPTR is applicable in Mode 1 above 50%.

B.1.5 TS 3.4.1 - DNB PARAMETERS

1. RCS DNB parameters for pressurizer pressure, RCS average temperature and RCS total flow rate shall be with the specified limits.

B.2 Instrumentation

B.2.1 TS 3.3.1 - REACTOR TRIP SYSTEM INSTRUMENTATION

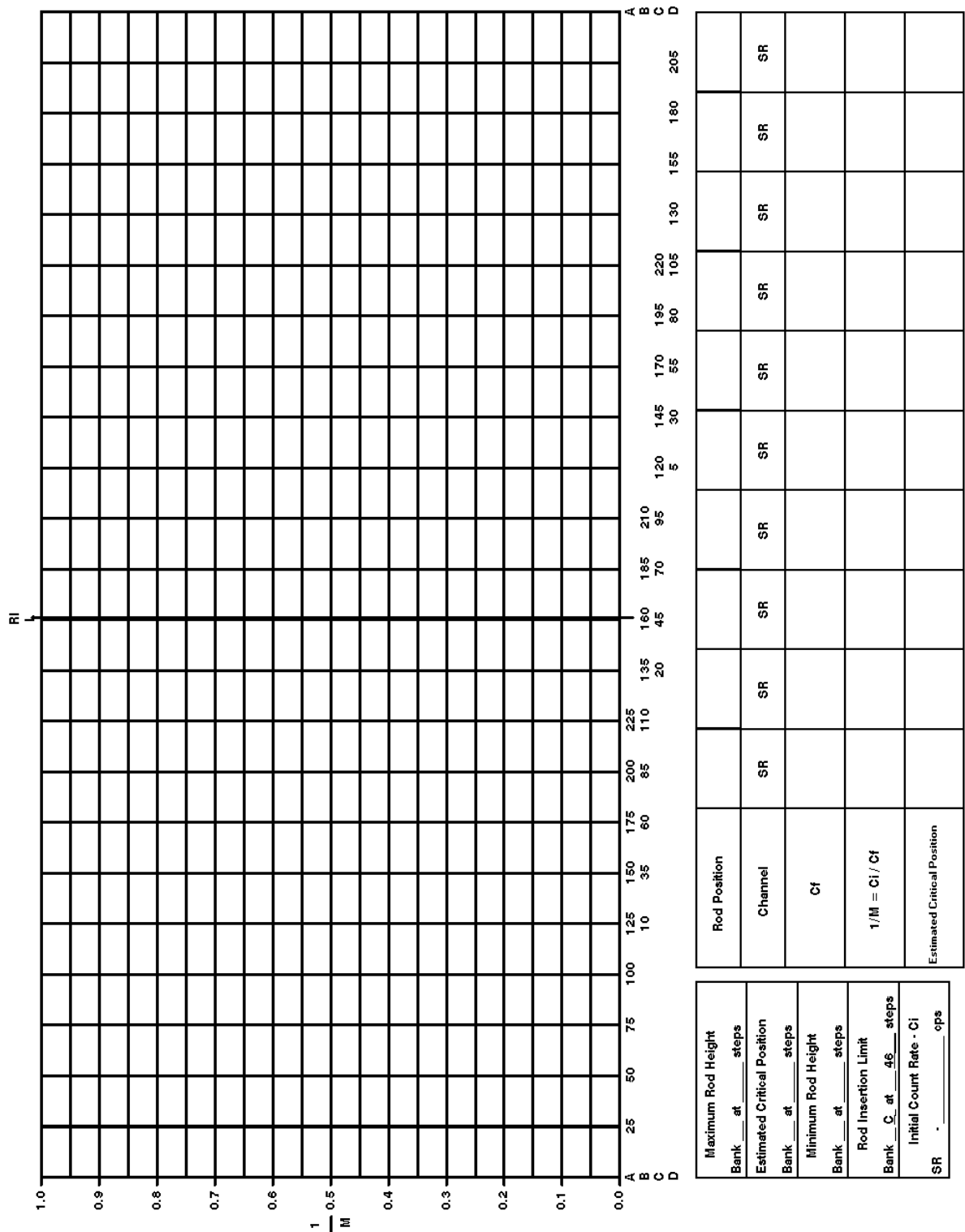
1. All reactor trip instrumentation are required to be operable. Refer to Table 3.3.1-1.

B.2.2 TS 3.3.2 - ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

1. Auto start of motor driven AFW pumps on trip of all main feedwater pumps is required to be operable. Refer to Table 3.3.2-1 FUNCTION 6.g.

-END-

FIGURE 1
1/M PLOT



RO A1b

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

☐ SATISFACTORY ☐ UNSATISFACTORY

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

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 L. 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, initiate the 1/M Plot per step 6.12 and complete the 1/M Plot. Estimate the critical position per steps 6.19.5.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: Provide the Candidate with an information only copy of GEN 00-003, Step 6.19.5.

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**NUMBER - ELEMENT****CUE****STANDARD****SCORE**

<p>1. * Estimate Critical Rod Position</p> <p>STEP 6.19.5.2</p>		<p>Enter the supplied data on Figure 1</p> <p>Calculate 1/M for each rod withdrawal sequence</p> <p>Note estimated critical position for each rod withdrawal sequence</p> <p>Note when rods are withdrawn to Bank B at 185 steps that flux is more than double its initial value and the ECP is Bank D at 162 steps</p> <p>Note this is higher than the max height supplied by Reactor Engineering of Bank D at 81 steps</p>	<p>S U</p> <p>Comments:</p>
<p>2. * Inform Reactor Engineering and maintain reactor stable</p> <p>STEP 6.19.5.3</p>	<p>Acknowledge Report</p> <p>THE JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Note the requirement to maintain the reactor stable and notify reactor engineering</p>	<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: 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, initiate the 1/M Plot per step 6.12 and complete the 1/M Plot. Estimate the critical position per steps 6.19.5.

THE FOLLOWING DATA IS PROVIDED

From Reactor Engineering

Maximum rod height for criticality: Bank D at 81 steps

Minimum rod height for criticality: Bank C at 72 steps

Estimated critical position: Bank D at 29 step

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		

JPM 003-A Data Sheet

STS AB-201D

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

STEP	STROKE TEST PARAMETERS	MEASURED
8.4.7	AB PV-4 opening stroke time*	15.4 sec
8.4.9	AB PV-4 closing stroke time*	16.1 sec
8.4.15	AB PV-4 Complete Cycle**	SAT
8.4.17.4	AB PV-4 Steam Trap Inspection	1650 ml
8.4.19	AB PV-4 Complete Cycle	SAT

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 003-A	K/A NO: 2.2.12
COMPLETION TIME:	K/A RATING: 3.0
JOB TITLE: RO	REVISION: 0
TASK TITLE: Given Data, Complete the Surveillance Test Data sheet identifying and documenting any out of spec readings.	
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:

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

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED X

REFERENCES: STS AB201D, Atmospheric Relief Valve Inservice Valve Test

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

Initiating Cues: Given data observed, complete Attachment A for AB PV-4 only and document any required actions if applicable. 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 Attachment A 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**

<p>1. * Complete Attachment A</p> <p>STEP: Attachment A</p>		<p>Record supplied data on Attachment A as on Attachment Key</p>	<p>S U</p> <p>Comments:</p>
<p>2. * Complete Surveillance Test Routing Sheet</p> <p>STEP : Routing Sheet</p>	<p>THE JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Comple block 3 of the STRS as on the attached Key.</p> <p>May report directly to CRS that several deficiencies exist and that the valve is inoperable</p>	<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: STS AB-201D, Atmospheric Relief Valve Inservice Valve Test, is being performed in Mode 1 for AB PV-4 only.

Initiating Cues: Given data observed, complete Attachment A for AB PV-4 only and document any required actions if applicable. 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	SAT/UNSAT/NA
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

SURVEILLANCE TEST ROUTING SHEET (STRS)

DOCUMENT NUMBER: STS AB-201D

**TEST FREQ. 2 Years

**DUE DATE/TIME: 03/26/2004 00:00

DOCUMENT TITLE:

**LATE DATE/TIME: 11/08/2004 19:27

ATMOSPHERIC RELIEF VALVE INSERVICE VALVE TEST

**T/S REQUIRED MODE: 1 2 3

**REQUIRED PLANT MODE: 1 2 3 4 5 6

**INITIATING DOCUMENT #(S):

**SUPPORTING CLEARANCE ORDER(s) [Commitment Step 3.2.29]

**RESPONSIBLE GROUP: OPS

**SUPPORT GROUP(S):

**PRE-TEST COMMENTS: PIT Not required

1) PROCEDURE VERIFIED TO BE CORRECT REVISION WITH ALL
TEMPORARY CHANGES ATTACHED AND INCORPORATED.

_____/_____
INIT/DATE

TEST PERFORMERS:

PRINT NAME

INIT/DATE

PRINT NAME

INIT/DATE

_____/_____/____
_____/_____/____
_____/_____/____
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_____/_____/____

_____/_____/____
_____/_____/____
_____/_____/____
_____/_____/____
_____/_____/____
_____/_____/____

2) PRE-TEST REVIEWS:

SIGNATURE

DATE

TIME

SM/CRS/DESIGNEE

AUTH/NOTIF/NI

(CIRCLE AS APPLICABLE)

____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____

3) *TEST DEFICIENCY DESCRIPTION:

4) *T/S OR TRM FAILURE?

☐ YES☐ NO

TP INIT / DATE

SM/CRS/DESIGNEE SIGNATURE

DATE

IF NO - JUSTIFICATION:

5) *ACTION TAKEN:

EOL #

WR/WO#

TEST SUSPENDED ☐ YES☐ NO

SM/CRS/DESIGNEE SIGNATURE

DATE

*SECTIONS 3, 4, AND 5 ARE COMPLETED IF A TEST DEFICIENCY OCCURS. OTHERWISE MARK N/A.

6) POST TEST REVIEWS: (GROUP SUP. CHECK ONE)

☐ COMPLETE☐ PARTIAL☐ N/ATOTAL MAN HOURS:

SIGNATURE

DATE

TIME

TEST PERFORMER

SM/CRS/DESIGNEE REVIEW/NOTIF:

GROUP SUPERVISOR:

SC/SURV. TECHNICIAN

7) ADDITIONAL COMMENTS**:

**OPTIONAL INFORMATION NOT REQUIRED TO BE FILLED IN

SURVEILLANCE TEST ROUTING SHEET (STRS)

DOCUMENT NUMBER: STS AB-201D

**TEST FREQ. 2 Years

**DUE DATE/TIME: 03/26/2004 00:00

DOCUMENT TITLE: Manual/Auto Start, Synch
& Loading of Emergency DG
NE01

**LATE DATE/TIME: 11/08/2004 19:27

**T/S REQUIRED MODE: 1 2 3 4 5 6

**REQUIRED PLANT MODE:

**INITIATING DOCUMENT #(S):

**SUPPORTING CLEARANCE ORDER(s) [Commitment Step 3.2.29]

**RESPONSIBLE GROUP: OPS

**SUPPORT GROUP(S):

**PRE-TEST COMMENTS:

1) PROCEDURE VERIFIED TO BE CORRECT REVISION WITH ALL
TEMPORARY CHANGES ATTACHED AND INCORPORATED._____/_____
INIT/DATE

TEST PERFORMERS:

PRINT NAME

INIT/DATE

PRINT NAME

INIT/DATE

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	/	/
	/	/
	/	/

2) PRE-TEST REVIEWS:

SIGNATURE

DATE

TIME

SM/CRS/DESIGNEE

AUTH/NOTIF/NI

(CIRCLE AS APPLICABLE)

		/			/				
		/			/				
		/			/				

3) *TEST DEFICIENCY DESCRIPTION:

4) *T/S OR TRM FAILURE?

☐ YES☐ NO

TP INIT / DATE

SM/CRS/DESIGNEE SIGNATURE

DATE

IF NO - JUSTIFICATION:

5) *ACTION TAKEN:

EOL #

WR/WO#

TEST SUSPENDED ☐ YES ☐ NO

SM/CRS/DESIGNEE SIGNATURE

DATE

*SECTIONS 3, 4, AND 5 ARE COMPLETED IF A TEST DEFICIENCY OCCURS. OTHERWISE MARK N/A.

6) POST TEST REVIEWS:

(GROUP SUP. CHECK ONE)

☐ COMPLETE☐ PARTIAL☐ N/A

TOTAL MAN HOURS:

SIGNATURE

DATE

TIME

TEST PERFORMER

SM/CRS/DESIGNEE REVIEW/NOTIF:

GROUP SUPERVISOR:

		/			/				
		/			/				

SC/SURV. TECHNICIAN

7) ADDITIONAL COMMENTS**:

**OPTIONAL INFORMATION NOT REQUIRED TO BE FILLED IN

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/drainage 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 L. 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: _____

Rev 0

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

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

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. * Estimate your stay time in the lowest dose area of the room	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>	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:

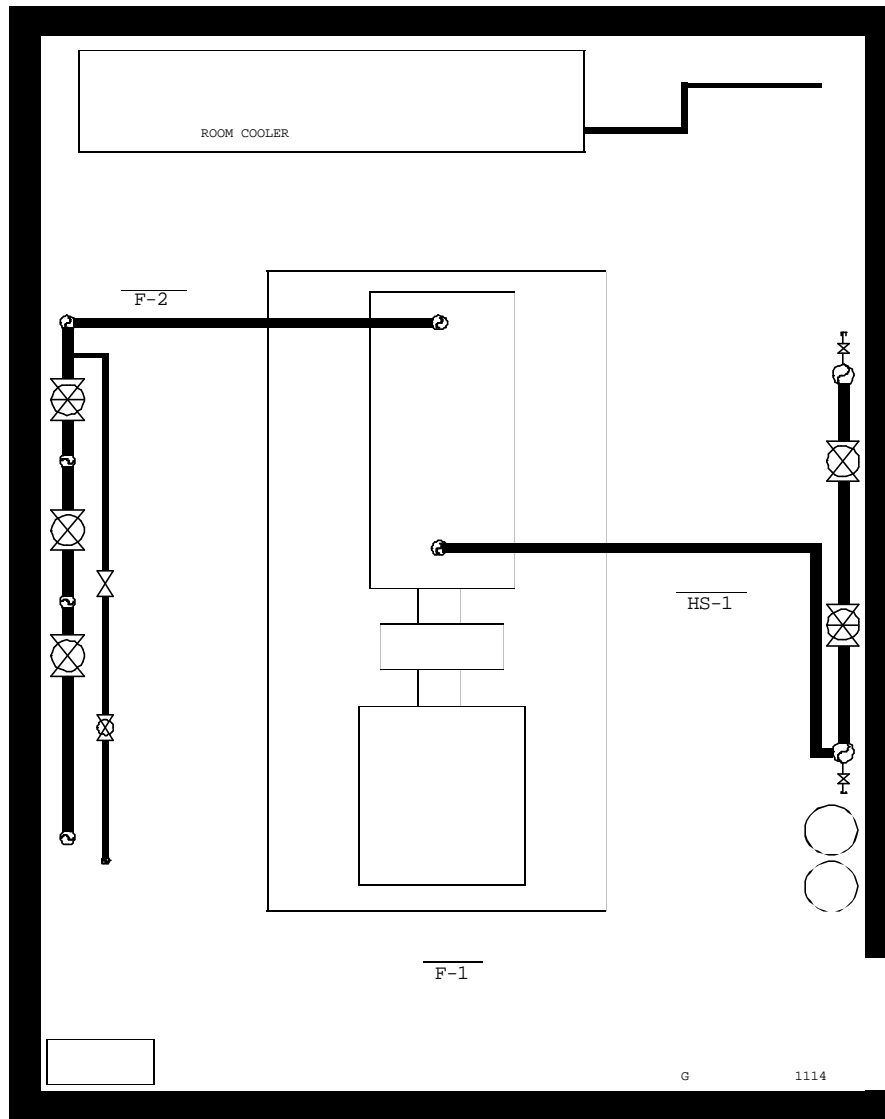
- identify the correct RWP.
- describe the dress out requirements.
- identify the dosimetry settings .
- consider that you have received 1830 MR dose this calendar year, and estimate your stay time in the lowest dose area of the room.

WCGS RADIOLOGICAL SURVEY MAP

RPF02-210-1(Q)REV 3

Page _____ of _____ Date _____ Time _____

1974' AUX BLDG "A" CENTRIFUGAL CHARGING PUMP RM #1114



- * All Dose Rates in mrem/hr
unless specified.

- ☐ All Dose Rates <2 mRem/hr
unless specified.

- ☐ All Smears which were counted for Beta/Gamma <1000 dpm/100cm unless specified. 2

- ☐ All Smears which were counted for
Alpha <20 dpm/100cm²
unless specified.

- ☐ All Large Area Smears (LAS)
<1000 dpm/LAS, unless specified.

STATUS BOARD UPDATED:

- ☐
- YES

- ☐
- NO CHANGE













[illegible]

SURVEY REASON		RWP#		% POWER	
INST(S)/WC#	/	/	/	/	/
REMARKS					
<div style="text-align: right;"> HP Dose for Survey mRem </div>					

Performed By: _____ HP Technician _____ ACAD _____

Reviewed By: _____ HP Supervisor Operations _____ Date _____

G = GAITRONICS P = PHONE LR = LADDER RACK

- | | | | | | | | |
|---|------------------------------|---|-------------------------------|---|-------------------------------|---|---|
|  | = RADIATION AREA |  | = CONTAMINATED AREA |  | = HOT PARTICLE AREA |  | = AIRBORNE RADIOACTIVITY AREA, DUE TO NOBLE GAS |
|  | = HIGH RADIATION AREA |  | = HIGHLY CONTAMINATED AREA |  | = HOT PARTICLE STORAGE AREA |  | = RADIOACTIVE MATERIALS AREA |
|  | = LOCKED HIGH RADIATION AREA |  | = POTENTIAL HOT PARTICLE AREA |  | = AIRBORNE RADIOACTIVITY AREA |  | = RADIOLOGICALLY CONTROLLED AREA |

(REF RPP 02-210)

RWP: 040045
REV: 000
STATUS: ACTIVE
TYPE: SPECIFIC

WORK DESCRIPTION:
OPERATIONS PERSONNEL ACCESS TO THE RCA FOR CONTAMINATED
SYSTEMS VENTING AND
DRAINING ACTIVITIES.

LOCATION/ROOM: 10
BUILDING: RCA ELEVATION: ALL

LOCATION/ROOM DESC: ALL RADIOLOGICAL CONTROLLED AREAS -
EXCLUDING CONTAINMEN

SYSTEM/COMPONENT: N/A
DESCRIPTION:

RADIOLOGICAL CONDITIONS

Work Activity		* Radiation mR/Hr	* Contamination Dpm/100 cm2	Airborne Activity Expected
RCA & RADIATION AREAS		>2 G/A	SEE CONTAM.	NO
		<100 ME	WORK ACTIVITY	
HP COVERAGE: START OF JOB /INTERMITTENT PC'S: PC'S PER THE ALLOWED CONTAMINATED AREA WORK ACTIVITIES				
HIGH RADIATION AREAS		<200 MA	SEE CONTAM.	NO
		WORK ACTIVITY		
HP COVERAGE: START OF JOB / INTERMITTENT PC'S: PC'S PER THE ALLOWED CONTAMINATED AREA WORK ACTIVITIES				
CONTAMINATED & POTENT.		SEE DOSE RATE	>1K G/A	NO
HOT PARTICLE AREAS		WORK ACTIVITY		
HP COVERAGE: START OF JOB / INTERMITTENT PC'S: FULL SET				

| HIGHLY CONTAMINATED & | SEE DOSE RATE | >99K G/A | YES |
| HOT PARTICLE AREAS | WORK ACTIVITY | | |

HP COVERAGE: START OF JOB / INTERMITTENT
PC'S: DOUBLE SET

* G/A = GENERAL AREA CON = CONTACT ME = MAXIMUM
EXPECTED

* ME = MAXIMUM EXPECTED MA = MAXIMUM ALLOWED 1K = 1000

SPECIAL INSTRUCTIONS: 1) MEDIUM RISK- YELLOW RWP 2) DISCUSS
ALL

ACTIVITIES TO BE COMPLETED AND ALL AREAS TO BE ENTERED WITH
HP SHIFT

TECHNICIAN PRIOR TO COMMENCING WORK. 3) NOTIFY HP PRIOR TO
AND AFTER

THE VENTING/DRAINING OF CONTAMINATED SYSTEMS. 4)
CONSIDERATION SHALL

BE GIVEN TO USE BAGS WITH ABSORBENTS (NOT HOSES) FOR STS /
VENTING

AND DRAINING. EXAMPLE STS BG-002 DUE TO DOSE REDUCTION FOR
ALARA. 5)

NO ENTRY INTO LOCKED HIGH RADIATION AREAS. 6) NO ENTRY TO
AIRBORNE

RADIOACTIVITY AREAS > 2 DAC (EXCEPT FOR ONES POSTED DUE TO
NOBLE GAS)

7) CONTACT HP SHIFT TECH PRIOR TO ENTRY TO HIGHLY
CONTAMINATED, HOT

PARTICLE AREAS 2 & 3, OR WHEN ACCESSING AIRBORNE
RADIOACTIVITY AREAS (

EXCEPT FOR NOBLE GAS) 8) FULL HOOD AND/OR FACE SHIELD MAY BE
REQUIRED

BY HP, BASED ON JOB TASK AND CURRENT WORK AREA CONDITIONS,
PER RPP

03-505. 9) CONTACT HP SHIFT TECHNICIAN PRIOR TO ENTERING HIGH
RADIATION AREAS OR WHEN PERFORMING SURVEILLANCES WHERE
RADIATION LEVELS

ARE EXPECTED TO CHANGE. 10) NO PRIMARY RESIN TRANSFERS
PERMITTED ON

THIS RWP.

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: Ralph L. Ewy DATE: 3/09/04

Simulator Setup

IC 173

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: Your are the Reactor Operator, an ATWT has occurred, The Control Room Supervisor has entered EMG FR-S1, Safety Injection is not in progress.

Initiating Cues: The Control Room Supervisor directs you to complete steps 5-7 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**

			S U
<p>1. Initiate Emergency Boration of RCS:</p> <ul style="list-style-type: none"> • Ensure one charging pump running • *Align boration flowpath <ul style="list-style-type: none"> a. Ensure boric acid pumps – AT LEAST ONE RUNNING b. Open emergency borate to charging pump suction valve <p>STEP 5.</p>		<p>Note that BG HIS-3 for the NCP has a red lite only and flow is indicated on BG FI-121a</p> <p>Rotate handswitch BG HIS-5a and/or BG HIS - 6a clockwise and note red lite only illuminated.</p> <p>Depress the open button on BG HIS-8104 and note red lite only illuminated.</p>	<p>Comments:</p>

* CRITICAL STEP

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

<p>2. Verify Charging Flowpath</p> <ul style="list-style-type: none"> • Ensure Charging Pumps to Regen HX Containment Iso Vlv's - OPEN • Ensure Regen HX to Loop Cold Leg valves – ONLY ONE OPEN • Adjust Charging flow to maintain pressurizer level • *Adjust back pressure control to establish between 8-13 gpm seal injection flow to each RCP <p>STEP 6</p>	<p>NOTE: When the candidate gets to this step, cue them that Pressurizer level is satisfactory (Prevents interference with the other ongoing JPM)</p> <p>NOTE: When the candidate gets to this step, cue them that seal flow is satisfactory (Prevents interference with the other ongoing JPM)</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>
<p>3. *Check Emergency Borate Flow Greater Than 30 GPM</p> <p>STEP 7</p>		<p>Note flow on BG FI-183A is <30 GPM and recognize need to perform the RNO for Step 7</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK		CUE	STANDARD	SCORE
NUMBER	ELEMENT			

NUMBER	ELEMENT	CUE	STANDARD	SCORE
4.	<p>Perform the following:</p> <ul style="list-style-type: none"> *Align RWST to charging pump suction Check RWST flow through charging system - GREATER THAN 90 GPM IF RWST flow through charging system is less than 90 gpm THEN establish alternate boration flowpath using Attachment A <p>STEP 7 RNO</p>	<p>Control Room Supervisor acknowledges the report</p> <p>This completes this JPM</p> <p><u>RECORD STOP TIME</u> <u>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. Report to the Control Room Supervisor that Immediate Borate flow of greater than 90 GPM has been established via the RWST</p>	<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 Reactor Operator, an ATWT has occurred, The Control Room Supervisor has entered EMG FR-S1, Safety Injection is not in progress.

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

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO:301-S	K/A NO: 006 A2.03
COMPLETION TIME:15 Minutes	K/A RATING: 3.3/3.7
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: OFN BB-31 S/D LOCA, Isolate RHR Leak	
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 X PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED X

REFERENCES: OFN BB-031, Shutdown LOCA

TOOLS/EQUIPMENT: NONE

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

Simulator Setup

IC 173
Malfunction mRHR07A and tie to event 1
Ensure Digital Displays are selected to
Top BBT0413A and place sticky note on label
BottomBBP0403 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 . The crew has entered OFN BB-31 and performed steps 1 thru 26 a.

Initiating Cues: Per Step 26a RNO, the Control Room Supervisor directs you to perform Attachment C to transfer RHR suction to the RWST. 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
1. Check at least one RHR Pump – OPERATING IN COOLDOWN MODE STEP C1		Determine that red lite only is illuminated on EJ HIS-1 with EJ PI-614 indicating discharge pressure and EJ FI-618 indicating flow.	S U Comments:
2. * Check operating RHR Pump discharge temperature – GREATER THAN 260°F STEP C2		Check EJ TR-612 and determine that temperature is greater than 260°F	S U Comments:
3. Isolate flow through operating RHR train <ul style="list-style-type: none"> * Close RHR HX flow control valve * Place RHR HX bypass controls in manual and close the valves STEP C3		Operate EJ HIC-606 clockwise until scale indicates closed Depress the Man pushbutton on EJ FK-618 and depress the close pushbutton until the scale indicates 0 output	S U Comments:

* 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 CVCS. NOTE: This was part of initial conditions	S U Comments

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
			S U
7. Check RHR pump A for leakage			Comments
<ul style="list-style-type: none"> * Stop RHR Pump A 		<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>	
<ul style="list-style-type: none"> * RCS leakage stopped or reduced 		<p>Note wide range pressure increasing.</p>	
<ul style="list-style-type: none"> * Isolate RHR Train A from the RCS by closing RCS hot leg to RHR Pump A suction valves 		<p>Depress the close pushbutton on BB HIS-8702A and EJ HIS-8701A and note green lites only illuminated.</p>	
<ul style="list-style-type: none"> * Check RCS leakage isolated 		<p>Note wide range pressure increasing.</p>	
<ul style="list-style-type: none"> Align RHR Train B for RCS cooldown per SYS EJ-120 		<p>Announce that the leak has been isolated and next intended action is to perform SYS EJ-120</p>	
STEP C7	<p>Control Room Supervisor acknowledges the report</p> <p><u>This completes this JPM 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 . The crew has entered OFN BB-31 and performed steps 1 thru 26 a.

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

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

Simulator Setup

IC 174

Run

Override annuns 60E and 60F ON

Insert transformer lockout mEPS05A

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*.

NOTE: The simulator may or may not match all conditions expected.

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. Try to identify unexpected source of water to sump</p> <ul style="list-style-type: none"> * Check Essential Service Water – NOT LEAKING <p>STEP 1</p>		<p>Check EF FI-53 and 54. Note that EF FI-53 is indicating significantly higher than EF FI-54.</p>	<p>S U</p> <p>Comments:</p>
<p>2. * Close valves and stop pumps as necessary to limit containment flooding.</p> <p>STEP 1 RNO</p>		<p>Depress the close pushbutton on EF HIS-31 and note green lite only illuminated.</p> <p>NOTE: Closing EF HV31 isolates the leak. EF HV33, 45, and 49 are isolation valves that are downstream of the break.</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. Sample Containment Sumps <ul style="list-style-type: none"> Request Chemistry to sample containment sumps STEP 2	 Acknowledge request. CRS will contact Chemistry.	 Notify Control Room Supervisor to order Chemistry to sample the Containment sumps for activity, chlorides, and boron.	S U Comments:
4. Notify Plant Engineering of sump level and activity level and obtain a recommended action. STEP 3	 Control Room Supervisor acknowledges the report This completes this JPM <u>RECORD STOP TIME ON PAGE 1.</u>	 Notify the Control Room Supervisor that the procedure is on hold until the sample results have been obtained.	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 recovering from a reactor trip. An Orange Path exists for *Critical Safety Function –Containment*.

NOTE: The simulator may or may not match all conditions expected.

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: 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: Ralph L. Ewy DATE: 3/09/04

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 NR levels are less than 42% on narrow range instruments The Motor Driven Feed Pump has been lost.

Initiating Cues: The Control Room Supervisor directs you to start the Turbine Driven Auxiliary Feed Water Pump (TDAFWP) and increase SG levels to clear the SG level deviation alarms using Section 6.2 of SYS AL-120. Feed at 75,000 to 100,000 LBM/HR per SG. Stabilize level at $\approx 50\%$, do not exceed 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 $\approx 50\%$ narrow range using the Turbine Driven Auxiliary Feedwater Pump.

START TIME: _____

STOP TIME: _____

Rev 0

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
			S U
3. * Open at least one steam supply valve to TDAFWP <ul style="list-style-type: none"> • Open loop 2 steam supply And/Or <ul style="list-style-type: none"> • Open loop 3 steam supply STEP 6.2.3		Depress the open pushbutton on AB HIS-5A and verify red lite only is lit And/Or Depress the open pushbutton on AB HIS-6A and verify red lite only is lit	Comments:
4. Start TDAFWP <ul style="list-style-type: none"> • * Open trip/throttle valve • Time valve opened • Verify discharge pressure greater than 1625 psig STEP 6.2.4		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). Record time opened in blank on 6.2.4.2 Note pressure on AL PI-21A is >1625 psig and record in blank on 6.2.4.3	S U Comments:

* CRITICAL STEP

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>5. * Throttle flow to desired steam generators</p> <ul style="list-style-type: none"> • SG A • SG B • SG C • SG D <p>STEP 6.2.5</p>		<p>Operate the controller on AL HK-8A to the open position until 75,00-100,000 LBM is indicated on AL FI-2A</p> <p>Operate the controller on AL HK-10A to the open position until 75,00-100,000 LBM is indicated on AL FI-3A</p> <p>Operate the controller on AL HK-12A to the open position until 75,00-100,000 LBM is indicated on AL FI-4A</p> <p>Operate the controller on AL HK-6A to the open position until 75,00-100,000 LBM is indicated on AL FI-1A</p>	<p>S U</p> <p>Comments:</p>

* 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

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
8. *When desired SG level is obtained, then adjust the flow control valve controllers to 25% demand position STEP 6.2.8		<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>	<div>S U</div> <div>Comments:</div>

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
			S U
9. Stop the TDAFWP: <ul style="list-style-type: none"> If running after auto start then ensure all activation signals are reset/blocked *Close Trip/Throttle valve Time valve closed *Close steam supply valves to TDAFWP 		<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>	Comments:
STEP 6.2.9			

* CRITICAL STEP

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
			S U
10. *Return TDAFWP discharge throttle valves to safeguards lineup. <ul style="list-style-type: none"> • AL HK-8A for SG A • AL HK-10A for SG B • AL HK-12A for SG C • AL HK-6A for SG D STEP 6.2.10		<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>	S U Comments:
11. If stopping the TDAFWP after auto start, then perform the following STEP 6.2.11		Realize this step is NA	S U Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
12. Section 6.2 complete STEP 6.2.12	ACKNOWLEDGE THE REPORT THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>	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 NR levels are less than 42% on narrow range instruments. The Motor Driven Feed Pump has been lost.

Initiating Cues: The Control Room Supervisor directs you to start the Turbine Driven Auxiliary Feed Water Pump (TDAFWP) and increase SG levels to clear the SG level deviation alarms using Section 6.2 of SYS AL-120. Feed at 75,000 to 100,000 LBM/HR per SG. Stabilize level at $\approx 50\%$, do not exceed 55%. Return the TDAFWP to standby conditions when finished. The procedure prerequisites are satisfied.

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 L. 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 will be transferred by the balance of 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"> • Turn off the motor space heater supply breaker. • * Start desired CCW Pump • Verify operating CCW Pump discharge flow is greater than 1.5 E6 LBM/HR • If operating CCW Pump discharge flow is less than 1.5 E6 LBM/HR then refer to step 4.4 <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>If local operator is contacted they will report that flow is 1.6 E6 LBM/HR.</p>	<p>Contact the local operator and direct that breaker PG19N118 be turned off</p> <p>Actuate EG HIS-21 to the right. Note that the red light 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**

2. Locally verify CCW Train A Pump Room Cooler running.

STEP 6.1.2

When called, the local operator will report the cooler is running.

Contact local operator

Comments:

3. If CCW Pump A was started, then verify proper room cooler damper alignment:

- GL-D156 – OPEN
- GL-D157 – CLOSED

STEP 6.1.3

When called, the local operator will report GL-D156 open and GL-D157 is closed.

Contact local operator and ask them to verify that GL-D156 is open

Contact local operator and ask them to verify that GL-D157 is closed

S U

Comments:

* 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"> EG HIS-9 EG HIS-10 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
7. * Open CCW Train A Supply/Return Valves STEP 6.1.7	If candidate mentions reactivity briefing is required, cue them the briefing was already conducted. Thermal Barriers will isolate at his point. When candidate announces the alarms, the Control Room Supervisor will acknowledge the report.	Actuate the EG HS-15 open pushbutton and note red lites only illuminted for the Train A Supply and Return Valves.	S U Comments:
8. * Close CCW Train B Supply/Return Valves STEP 6.1.8		Actuate the EG HS-16 close pushbutton and note green lite only on the Train B Supply and Return Valves.	S U Comments:

* 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 • EG HIS-9 • EG HIS-10 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
			S U
11. * Ensure CCW from RCP Thermal Barriers are open <ul style="list-style-type: none"> • BB HIS-13 – OPEN • BB HIS-14 – OPEN • BB HIS-15 – OPEN • BB HIS-16 – OPEN 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	Will be performed by spare RO.	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 the CCW Pump is turned on. STEP 6.3.4	The local operator will acknowledge the request and report the breaker is closed.	Contact the local operator and direct that breaker PG20GBR240 be closed	S U Comments:
16. Section 6.3 complete STEP 6.3.5	Acknowledge the report THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</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 will be transferred by the balance of the crew.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 701-S	K/A NO: 015 A1.03
COMPLETION TIME:	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 X PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED X

REFERENCES: GEN 00-003, Hot Standby to Minimum Load

TOOLS/EQUIPMENT: NONE

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

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. The reactor is critical at 10^{-8} AMPS, and the crew is holding at step 6.28 of GEN 00-003.

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%.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: Provide an information only copy of Step 28 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 between .5 to 2.0% and reported the NI failure to the CRS.

START TIME: _____

STOP TIME: _____

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. *Increase reactor power</p> <ul style="list-style-type: none"> • Ensure dump valves are adjusted to maintain Tavg between 552°F and 562°F • Adjust control rod height, as necessary, to establish desired startup rate • Reduce or stop steam generator blowdown, as necessary to maintain sufficient feedwater flow capability 	<p>NOTE: JPM is complete when power is stabilized.</p> <p>Acknowledge report.</p> <p>THE JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>Adjust the pot on AB PK-507 to 7.18 turns for 557°F. ARVs not required.</p> <p>Pull control rods per CRS instructions until a steady startup of rate between 0.5 and 0.8 DPM is achieved on SE NI 35D and 36D</p> <p>Determine that SG level is being maintained without reducing blowdown.</p> <p>Determine that power range nuclear instrumentation is not responding on channel A, C, or D. Stabilize power and report to CRS.</p>	<p>S U</p> <p>Comments:</p>
STEP 6.28			

* 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. The reactor is critical at 10^{-8} AMPS, and the crew is holding at step 6.28 of GEN 00-003.

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%.

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 201-S	K/A NO: 013 A4.01
COMPLETION TIME: 20 Minutes	K/A RATING: 4.5/4.8
JOB TITLE: RO/SRO	REVISION: 0
TASK TITLE: Manually align one train of CREVS	
DUTY: Engineered Safety Features Actuation 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:

TOOLS/EQUIPMENT: NONE

PREPARER: Ralph L. 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: Maintenance is planned on the Control Building Normal Supply Fan.

Initiating Cues: The Control Room Supervisor directs you to perform SYS GK-122, Attachment C, to manually align both trains of Control Room Emergency Ventilation.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: Provide an information only copy of SYS GK-122 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 manually placed both trains of Control Room Emergency Ventilation in service.

START TIME: _____

STOP TIME: _____

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>1. Place Control Room in CRVIS Lineup</p> <ul style="list-style-type: none"> Inform Chemistry the Hot Lab fume hoods will not have flow Inform Health Physics the exhaust path for the clothes dryers will be unavailable * Align Control Room Emergency Ventilation as desired. <p>STEP 6.1</p>	<p>Acknowledge the call.</p> <p>Acknowledge the call</p>	<p>Call Chemistry and inform them the Access Control Exhaust Fans are being secured</p> <p>Call HP and inform them the Access Control Exhaust Fans are being secured</p> <p>Transition to Attachment C</p>	<p>S U</p> <p>Comments:</p>
<p>2. GK HIS-19 – RUN/OPEN</p> <p>STEP: Attachment C</p>		<p>Actuate GK HIS-19 to run and note red lite only on GK ZL19B, C, and D.</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
3. GK HIS-160 - OPEN STEP: Attachment C		Actuate GK HIS-160 to open and note red lite only illuminated.	S U Comments:
4 *GK HIS-29 – RUN/OPEN <u>OR</u> *GK HIS-40 – RUN/OPEN STEP: Attachment C		Actuate GK HIS-29 to the right and note red lite only illuminated <u>OR</u> Actuate GK HIS-40 to the right and note red lite only illuminated	S U Comments:
5. *GK HIS-75 – RUN/OPEN STEP: Attachment C		Actuate GK HIS-75 to the right and note red lite only illuminated	S U Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>6. GK HIS-100 - RUN</p> <p>STEP: Attachment C</p>		Actuate GK HIS-100 to open and note Note red lite only lit.	<p>S U</p> <p>Comments:</p>
<p>7. GK HIS-13 - CLOSED</p> <p>STEP: Attachment C</p>		Actuate GK HIS-13 to close and note green lite only lit on	<p>S U</p> <p>Comments:</p>
<p>8. GK HIS-172 - CLOSED</p> <p>STEP: Attachment C</p>		Actuate GK HIS-172 to close and note green lite only illuminated.	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
9. GK HIS-174 - CLOSED STEP: Attachment C		Actuate GK HIS-174 to close and note green lite only illuminated.	S U Comments:
10. GK HIS-8 - STOP STEP: Attachment C		Actuate GK HIS-8 to stop and note green lite only illuminated.	S U Comments:
11. *GK HIS-16 – STOP/CLOSED STEP: Attachment C		Actuate GK HIS-16 to the left and note green lites only for the fan and the damper	S U Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
12. *GK HIS-47 - STOP STEP: Attachment C		Actuate GK HIS-47 to the left and note green lite only illuminated	S U Comments:
13. GK HIS-59 - CLOSED STEP: Attachment C		Actuate GK HIS-59 to close and note green lite only illuminated.	S U Comments:
14. *GK HIS-83 - RUN/OPEN STEP: Attachment C		Actuate GK HIS-83 to the right and note red lite only lit for the fan and the damper	S U Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
15. *GK HIS-30 - RUN/OPEN STEP: Attachment C		Actuate GK HIS-30 to the right and note red lite only lit for the fan and the damper	S U Comments:
16. *GK HIS-161 - OPEN STEP: Attachment C		Actuate GK HIS-161 open pushbutton and note red lite only lit.	S U Comments:
17. *GK HIS-103 - RUN STEP: Attachment C		Actuate GK HIS-103 to run and note red lite only lit.	S U Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
18. *GK HIS-98 - CLOSED STEP: Attachment C		Note red lite only lit on Actuate GK HIS-98 to close and note green lite only illuminated.	S U Comments:
19. *GK HIS-57 - CLOSED STEP: Attachment C		Actuate GK HIS-57 close button and note green lite only lit.	S U Comments:
20. *GK HIS-55 - CLOSED STEP: Attachment C		Actuate GK HIS-55 close button and note green lite only lit	S U Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
21. *GK HIS-184 - CLOSED STEP: Attachment C		Actuate GK HIS-184 close button and note green lite only lit	S U Comments:
22. *GK HIS-173 - CLOSED STEP: Attachment C		Actuate GK HIS-173 close button and note green lite only lit	S U Comments:
23. *GK HIS-175 - CLOSED STEP: Attachment C		Actuate GK HIS-175 close button and note green lite only lit	S U Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
24. *GK HIS-122 - CLOSED STEP: Attachment C		Actuate GK HIS-122 close button and note green lite only lit	S U Comments:
25. *GK HIS-123 - CLOSED STEP: Attachment		Actuate GK HIS-123 close button and note green lite only lit	S U Comments:
26. GK HIS-17 – STOP/CLOSED STEP: Attachment C		Check GK HIS-17 and note green lite only lit for the fan and the damper	S U Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
27. GK HIS-49 - STOP STEP: Attachment C		Check GK HIS-49 and note green lite only illuminated	S U Comments:
28.			S U Comments:
29. Attachment C complete STEP: 6.1.5	Acknowledge report THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>	Initial and date the completion and report CRVIS manually aligned.	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: Maintenance is planned on the Control Building Normal Supply Fan..

Initiating Cues: The Control Room Supervisor directs you to perform SYS GK-122, Attachment C, to manually align both trains of Control Room Emergency Ventilation.

Administrative SRO A1a

WOLF CREEK JOB PERFORMANCE MEASURE

Administrative SRO A1a

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 005-A	K/A NO: 2.1.33
COMPLETION TIME:	K/A RATING: 4.0
JOB TITLE: SRO	REVISION: 0
TASK TITLE: Review Surveillance Test for AFD and based on results determine any required actions.	
DUTY: Conduct of Operations	

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: STS SF-002, Axial Flux Differential
Core Operating Limits Report
Technical Specification 3.2.3

TOOLS/EQUIPMENT: NONE

PREPARER: Ralph L. 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: The Plant has been stable at 100% power. The AFD Monitor Alarm is inoperable. You are a spare Senior Reactor Operator.

Initiating Cues: The Shift Manager has directed you to perform STS SF-002 and determine T/S actions as appropriate.

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 THE FOLLOWING DATA IS PROVIDED ON THE CUE SHEET

	N41	N42	N43	N44
% Power	100	100	100	100
% Flux Difference	-13	-16	-16	-14

Task Standard: Upon completion of this JPM, the Candidate will have determined that the Plant is in Technical Specification 3.2.3, Action A, and power must be reduced below 50% within 30 minutes.

START TIME: _____

STOP TIME: _____

Rev 0

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

<p>1. * Record data as required on Attachment A</p> <ul style="list-style-type: none"> Compare % flux Δ for each channel to COLR limits <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>S U</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>THE JPM IS COMPLETE</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 <50% within 30 minutes.</p>	<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: The Plant has been stable at 100% power. The AFD Monitor Alarm is inoperable. You are a spare Senior Reactor Operator.

Initiating Cues: The Shift Manager has directed you to perform STS SF-002 and determine T/S actions as appropriate.

THE FOLLOWING DATA IS PRESENT ON PLANT INSTRUMENTATION

	N41	N42	N43	N44
% Power	100	100	100	100
% Flux Difference	-13	-16	-16	-14

CORE AXIAL FLUX DIFFERENCE

Manager Operations

Revision Number	7	
Use Category		Continuous
Administrative Controls Procedure	No	
Infrequently Performed Procedure	No	
Program Number	21D	

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Continuous Use		Page 1 of 6

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1.0 PURPOSE

- 1.1 The purpose of this procedure is to monitor and log Axial Flux Difference (AFD) at least once per hour when the AFD Monitor Alarm (NPIS Computer) is inoperable.

2.0 SCOPE

- 2.1 This procedure satisfies the requirements of Technical
- Requirements Manual TR 3.3.17 and Technical Specification
 - SR 3.2.3.1 if/when the NPIS Computer is inoperable for
 - more than 7 days.
 -

3.0 REFERENCES AND COMMITMENTS

3.1 References

- 3.1.1 WCGS Technical Specifications
- 3.1.2 COLR, Core Operating Limits Report
- 3.1.3 WCGS Technical Requirements Manual
-

3.2 Commitments

- 3.2.1 None
-

4.0 PRECAUTIONS/LIMITATIONS

- 4.1 Report any irregularities or component malfunctions to the
- Shift Manager immediately, and reference Technical
 - Specification LCO 3.2.3.
 -
- 4.2 The Control Rods should not be moved when the AFD is being monitored.
- 4.3 The AFD Monitor Alarm is an NPIS Computer generated alarm. It is considered operable by the performance of STN RJ-001, VERIFICATION OF OPERABILITY OF COMPUTER PROCESSES, whenever the NPIS Computer is operable, and is inoperable whenever the NPIS Computer is down.

5.0 TEST EQUIPMENT

- 5.1 None

6.0 ACCEPTANCE CRITERIA

- 6.1 AFD is monitored to be within the limits specified in the COLR.
- 6.2 The AFD shall be considered outside limits when two or more OPERABLE excore channels indicate AFD to be outside limits.

Revision: 7	CORE AXIAL FLUX DIFFERENCE	STS SF-002
Continuous Use		Page 3 of 6

7.0 PREREQUISITES

INIT/DATE

- 7.1 The plant is in Mode 1 with thermal power greater
• than or equal to 50% rated thermal power.

_____/____

- 7.2 The AFD Monitor Alarm is inoperable.

_____/____

INIT/DATE

8.0 PROCEDURE

NOTE

The recorded values of indicated FLUX DIFF shall be assumed to exist during the interval preceding each logging.

8.1 At RL004, record data as required on ATTACHMENT A, at least once per hour for each operable power range channel. (Mark inoperable channel(s) N/A) ☐

8.1.1 Compare the % FLUX DIFF from each operable power range channel to the limits of COLR, Figure 2.5. ☐

1. Designate whether the indicated % FLUX DIFF is within the acceptable operation range of COLR, Figure 2.5 for each operable channel by placing a check mark in yes (Y) or no (N) column. ☐

NOTE

The AFD shall be considered outside the limits when two or more operable excore channels indicate AFD to be outside the limits.

8.1.2 IF the indicated FLUX DIFF is outside the acceptable limits of COLR, Figure 2.5 on two or more operable power range channels, THEN perform the actions required by Technical Specification 3.2.3. ☐

8.2 IF additional copies of ATTACHMENT A are needed, THEN attach copies as necessary and sequentially number each sheet in the space provided. ☐

9.0 RESTORATION

9.1 None

9.2 Comments: _____

Revision: 7	CORE AXIAL FLUX DIFFERENCE	STS SF-002
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10.0 RECORDS

10.1 The following QA records are generated by this procedure:

10.1.1 Sections 7, 8 and 9

10.1.2 ATTACHMENT A

-END-

SURVEILLANCE TEST ROUTING SHEET (STRS)

DOCUMENT NUMBER: STS SF-002 **TEST FREQ. Contingent
 **DUE DATE/TIME: N/A
 DOCUMENT TITLE: CORE AXIAL FLUX DIFFERENCE **LATE DATE/TIME: N/A
 **T/S REQUIRED MODE: 1
 **REQUIRED PLANT MODE: 1

**INITIATING DOCUMENT #(S): _____

**SUPPORTING CLEARANCE ORDER(s) [Commitment Step 3.2.29] _____

**RESPONSIBLE GROUP: OPS **SUPPORT GROUP(S): _____

**PRE-TEST COMMENTS: _____

1) PROCEDURE VERIFIED TO BE CORRECT REVISION WITH ALL _____/_____
 TEMPORARY CHANGES ATTACHED AND INCORPORATED. INIT/DATE

TEST PERFORMERS:

PRINT NAME	INIT/DATE	PRINT NAME	INIT/DATE
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____

2) PRE-TEST REVIEWS: SIGNATURE DATE TIME

SM/CRS/DESIGNEE	_____	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>
AUTH/NOTIF/NI	_____	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>
(CIRCLE AS APPLICABLE)	_____	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>

3) *TEST DEFICIENCY DESCRIPTION: _____

4) *T/S OR TRM FAILURE? _____ TP INIT / DATE
☐ YES ☐ NO

SM/CRS/DESIGNEE SIGNATURE _____ DATE _____

IF NO - JUSTIFICATION: _____

5) *ACTION TAKEN: _____

TEST SUSPENDED ☐ YES ☐ NO EOL # _____ WR/WO# _____

SM/CRS/DESIGNEE SIGNATURE _____ DATE _____

*SECTIONS 3, 4, AND 5 ARE COMPLETED IF A TEST DEFICIENCY OCCURS. OTHERWISE MARK N/A.

6) POST TEST REVIEWS: (GROUP SUP. CHECK ONE) ☐ COMPLETE ☐ PARTIAL ☐ N/A

TOTAL MAN HOURS:

	SIGNATURE	DATE	TIME				
TEST PERFORMER	_____	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>
SM/CRS/DESIGNEE REVIEW/NOTIF:	_____	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	/	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>
GROUP SUPERVISOR:	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

SC/SURV. TECHNICIAN

7) ADDITIONAL COMMENTS**:

**OPTIONAL INFORMATION NOT REQUIRED TO BE FILLED IN

Administrative**SRO A1b****WOLF CREEK JOB PERFORMANCE MEASURE**

JPM NO: 006-A	K/A NO: 2.1.20
COMPLETION TIME:	K/A RATING: 4.2
JOB TITLE: SRO	REVISION: 0
TASK TITLE: Given initial plant conditions of a SG tube leak, determine from the OFN the required actions.	
DUTY: Conduct of Operations	

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: OFN BB-07A, Steam Generator Tube Leakage

TOOLS/EQUIPMENT: NONE

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: The Plant is in Mode 1. SG tube leakage of 45 gallons per day has been detected and the crew is performing OFN BB-07A, Steam Generator Tube Leakage. Radiation Monitor BM RE-25 is not calibrated.

Initiating Cues: You are the Control Room Supervisor. Beginning at step 9 of OFN 7A, document the procedure flowpath and actions to be taken.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: Provide and information only copy of OFN 7A, When the candidate indicates they will perform Attachment C, Steps C1 and C4, cue them that EG RE-92 is now inoperable.

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.

START TIME: _____

STOP TIME: _____

Rev 0

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

<p>1. * Monitor SG Tube Leakage</p> <ul style="list-style-type: none"> • Monitor Attachment C action level table and take appropriate action <p>STEP 9</p>		<p>Go to Attachment C, action level table</p>	<p>S U</p> <p>Comments:</p>
<p>2. * Action Level Table</p> <ul style="list-style-type: none"> • Action Level 1 <p>STEP C1</p>		<p>Determine that 45 gpd is Action Level 1 and go to step C4</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

Rev 0

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
			S U
3. * IF SG leakage is greater than or equal to 30 gpd and less than 75 gpd <ul style="list-style-type: none"> Establish NPIS time trend Direct Chemistry to obtain grab samples WHEN leak rate stabilizes, THEN reset radiation monitors Review procedures associated with leakage and rupture STEP C4	<p>At this point, cue the candidate the Radiation Monitor GE RE-92 is now inoperable.</p>	<p>Identify the trend and the need to monitor at least once per 15 minutes</p> <p>Identify that Chemistry would be notified to take 4 hour grab samples</p> <p>Identify that when the leak is stable for 1 hour, the rad monitors will be reset so an increase in the rate will cause an alert reflash</p> <p>Indicate that they will 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>	Comments:

* CRITICAL STEP

TASK

NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. * Action Level Table <ul style="list-style-type: none"> No Operable Continuous Rad Monitors STEP C1		Document that Step C2 is required	S U Comments:
5. * IF both GE RE-92 and BM RE-25 are unavailable for continuous monitoring <ul style="list-style-type: none"> Return them to service rapidly Direct Chemistry to analyze the off gas IF leak rate was unstable or increasing THEN consider more frequent sampling Temporary radiation monitors may be used STEP C2	The JPM is Complete <u>RECORD STOP TIME</u> <u>ON PAGE 1</u>	Indicate that actions would be taken to restore the radiation monitors to service rapidly. Direct Chemistry to analyze off gas grab samples once per 4 hours IAW C2 b. table Indicate consideration of increased frequency of sampling and consideration of performing step C5. Indicate consideration of directing that temporary radiation monitors be used IAW Step C2 d.	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 of 45 gallons per day has been detected and the crew is performing OFN BB-07A, Steam Generator Tube Leakage. Radiation Monitor BM RE-25 is not calibrated.

Initiating Cues: You are the Control Room Supervisor. Beginning at step 9 of OFN 7A, document the procedure flowpath and actions to be taken.

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:

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: 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**

			S U
<p>1. The “A” train SI pump has been declared inoperable. The time of discovery is 1000 on 12/08/2001. The “B” train SI is OPERABLE.</p> <ul style="list-style-type: none"> Twelve (12) hours after the “A” train SI was declared inoperable, the “B” train RHR pump is declared inoperable *Twelve (12) hours after the “A” train SI was declared inoperable, the “B” train RHR pump is declared inoperable 	<p>THE JPM IS COMPLETE</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>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. Eury

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**

			S U
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		Note that the reading for GTG 313 exceeds the allowable value for restart of the purge	
	THE JPM IS COMPLETE		
	<u>RECORD STOP TIME ON PAGE 1</u>		

* 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

CONTAINMENT PURGE RELEASE PERMIT

Wolf Creek Nuclear Operating Corporation

GRP No. _____

Date _____

K04-008

RELEASE CONDITIONS

Containment Atmosphere Activity Containment Monitor Gas Reading

Gas _____ $\mu\text{Ci/cc}$ Particulate _____ $\mu\text{Ci/cc}$ GTG313 _____ $\mu\text{Ci/cc}$

Tritium _____ $\mu\text{Ci/cc}$ Iodine _____ $\mu\text{Ci/cc}$ GTG323 _____ $\mu\text{Ci/cc}$

Expected Monitor Response (GTG 223/333): _____ $\mu\text{Ci/cc}$

NOTE: Refer to Section 6.6 of SYS SP-121 for setpoint changes.

Containment Purge (GT RE-22/33)	SP056A Number GTG223/GTG333	High Setpoint (Channel Item 009) _____ $\mu\text{Ci/cc}$	Low Setpoint (Channel Item 010) _____ $\mu\text{Ci/cc}$
------------------------------------	--------------------------------	--	---

Containment Atmos. (GTRE-31/32)	SP056A Number GTG313/GTG323	High Setpoint (Channel Item 009) _____ $\mu\text{Ci/cc}$	Low Setpoint (Channel item 010) _____ $\mu\text{Ci/cc}$
------------------------------------	--------------------------------	--	---

SPECIAL INSTRUCTIONS

Initiate release prior to: (Date/Time) _____/_____/_____

Permit Expiration (Date/Time) _____/_____/_____

Comments:

AUTHORIZATION SECTION

Release Permit Initiated by: _____/_____ Chemistry Technician

Release Permit Verified by: _____/_____ Chemistry Tech. or Supervisor

Check Source, per STN SP-001: _____/_____ Operator

Supervisor RM-80 Database Setpoints Entered by: _____/_____ Operator

Supervisor RM-80 Database Setpoints Verified by: _____/_____ Operator

Release Approved by: _____/_____ Shift Manager

RELEASE DATA:

	Time/Date		Time/Date
Exhaust Dampers	_____/____/____	Exhaust Fan STARTED	_____/____/____
OPENED			
Exhaust Dampers	_____/____/____	Exhaust Fan STOPPED	_____/____/____
CLOSED			
Supply Dampers OPENED	_____/____/____	Supply Fan STARTED	_____/____/____
Supply Dampers CLOSED	_____/____/____	Supply Fan STOPPED	_____/____/____
Mini-Purge Flow Rate=	_____ cfm	Full Purge Flow Rate=	_____ cfm

GRP # _____

NOTE: Refer to Section 6.6 of SYS SP-121 for setpoint changes.

<u>Limit</u>	<u>Reading</u>	<u>Restart</u>
Cont. Atmos. Noble Gas Monitor	* (GTG 313) _____ $\mu\text{Ci/cc}$	_____ $\mu\text{Ci/cc}$
	* (GTG 323) _____ $\mu\text{Ci/cc}$	_____ $\mu\text{Ci/cc}$

Check Source, per STN SP-001: _____/_____ Operator

Supervisor RM-80 Database Setpoints Entered by: _____/_____ Operator

Supervisor RM-80 Database Setpoints Verified _____/_____ Operator
Release Approved by: _____/_____ Shift Manager

PART V RELEASE DATA:

Date / Time	Date / Time
Exhaust Dampers OPENED _____/_____	Exhaust Fan STARTED _____/_____
Exhaust Dampers CLOSED _____/_____	Exhaust Fan STOPPED _____/_____
Supply Dampers OPENED _____/_____	Supply Fan STARTED _____/_____
Supply Dampers CLOSED _____/_____	Supply Fan STOPPED _____/_____
Mini-Purge Flow Rate = _____ cfm	Full Purge Flow Rate = _____ cfm

*If Noble Gas Monitor reading is greater than Restart Limit DO NOT restart the purge.
Contact Chemistry for sample required prior to restart.

CONTINUATION SHEET : CONTAINMENT PURGE

NOTE: Refer to Section 6.6 of SYS SP-121 for setpoint changes.

	<u>Reading</u>	<u>Restart Limit</u>
Cont. Atmos. Noble Gas Monitor	* (GTG 313) _____ $\mu\text{Ci/cc}$	_____ $\mu\text{Ci/cc}$
	* (GTG 323) _____ $\mu\text{Ci/cc}$	_____ μ

Ci/cc

Check Source, per STN SP-001: _____/_____ Operator

Supervisor RM-80 Database Setpoints Entered by: _____/_____ Operator

Supervisor RM-80 Database Setpoints Verified _____/_____ Operator
Release Approved by: _____/_____ Shift Manager

PART V RELEASE DATA:

Date / Time	Date / Time
Exhaust Dampers OPENED _____/_____	Exhaust Fan STARTED _____/_____
Exhaust Dampers CLOSED _____/_____	Exhaust Fan STOPPED _____/_____
Supply Dampers OPENED _____/_____	Supply Fan STARTED _____/_____
Supply Dampers CLOSED _____/_____	Supply Fan STOPPED _____/_____
Mini-Purge Flow Rate = _____ cfm	Full Purge Flow Rate = _____ cfm

*If Noble Gas Monitor reading is greater than Restart Limit DO NOT restart the purge.
Contact Chemistry for sample required prior to restart.

Release Packet Data Reviewed by Chemistry Supervisor or
designee/Date: _____/_____

Containment Purge Checklist

GRP# _____

		1st Initial	2nd Initial
A.	Count		
1.	Sample volume	_____	_____
2.	Sample date/time	_____	_____
3.	Live time	_____	_____
4.	Dead time (<15%)	_____	_____
5.	Geometry and Geometry shelf	_____	_____
6.	>95% of the gamma lines identified	_____	_____
7.	Check Ar-41 trend	_____	_____
8.	Check H-3 numbers	_____	_____
9.	H-3 LLD requirements	_____	_____
B.	Pre-Release/Permit		
1.	Release point/permit number	_____	_____
2.	Check isotopes	_____	_____
3.	Check isotopes added/deleted	_____	_____
4.	Check setpoints	_____	_____
5.	Check restart limits	_____	_____
6.	Permit initiation times	_____	_____
7.	Permit expiration time	_____	_____
C.	Related Paperwork		
1.	Check isotopes on lowset calculation	_____	_____
2.	CDM data	_____	_____
3.	Whole Body Dose Rate <1mR/yr	_____	_____
4.	Skin Dose Rate<1mR/yr	_____	_____
5.	Organ Dose Rate (use highest organ) <1mR/yr	_____	_____
6.	Estimated Curies Released <25 Ci	_____	_____
D.	Post Release		
1.	Release Point	_____	_____
2.	Release Permit Number	_____	_____
3.	Start date/time	_____	_____
4.	End date/time	_____	_____
5.	Verify minutes calculated are correct	_____	_____
6.	Permit started within initiation time	_____	_____
7.	Permit expiration time	_____	_____
8.	Check restart limits	_____	_____
9.	Waste flow rate/total volume	_____	_____
10.	Check each isotope	_____	_____
11.	Check setpoints	_____	_____



EPP 06-006

PROTECTIVE ACTION RECOMMENDATIONS

Responsible Manager

Superintendent Emergency Planning

Revision Number	3
Use Category	Reference
Administrative Controls Procedure	No
Infrequently Performed Procedure	No
Program Number	06

DC2 04/25/03

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1.0 PURPOSE{ tc \1 1 "1.0 PURPOSE" }

1.1 This procedure provides guidelines for Wolf Creek Generating Station to formulate and recommend protective action measures to the State of Kansas and Coffey County authorities.

2.0 SCOPE{ tc \1 1 "2.0 SCOPE" }

2.1 This procedure is implemented to determine recommendations for protective action(s).

3.0 REFERENCES AND COMMITMENTS{ tc \1 1 "3.0 REFERENCES AND COMMITMENTS" }

3.1 References

3.1.1 EPA-400-R-92-001, May 1992, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

3.1.2 Kansas Protective Action Guides

3.1.3 RADIOLOGICAL EMERGENCY RESPONSE PLAN (RERP)

3.1.4 U.S. Food and Drug Administration, Federal Register, Vol. 47, No. 205 - October 22, 1982

3.1.5 USNRC IE Information Notice No. 83-28: Criteria for Protective Action Recommendations for General Emergencies - May 4, 1983

3.2 Commitments

3.2.1 None

4.0 DEFINITIONS{ tc \1 1 "4.0 DEFINITIONS" }

4.1 Projected Dose

4.1.1 Dose to persons from ionizing radiation which could be received if no protective actions were implemented.

4.2 Protective Actions

4.2.1 Emergency measures taken for preventing or minimizing radiological exposures to affected population groups.

4.3 Protective Action Guides (PAG)

4.3.1 Projected radiological dose to the public that warrant the implementation of protective actions. Protective actions would be warranted if the expected reduction in individual dose is not offset by risks to individual safety caused by implementing the protective action.

4.4 Protective Action Recommendation (PAR)

4.4.1 A recommendation from WCGS based on an analysis of plant and/or radiological parameters to the State of Kansas and Coffey County, to implement protective measures for the public.

4.5 Emergency Planning Zone (EPZ)

4.5.1 Area for which planning is needed to assure that prompt and effective actions can be taken to protect the public in the event of an accidental release of radioactive material from WCGS.

5.0 RESPONSIBILITIES{ tc \l 1 1 "5.0 RESPONSIBILITIES" }

5.1 Emergency Managers

5.1.1 For acquiring plant operational and radiological assessments to evaluate and recommend protective action(s) to the State of Kansas and Coffey County.

6.0 PRECAUTIONS/LIMITATIONS{ tc \l 1 1 "6.0 PRECAUTIONS/LIMITATIONS" }

6.1 The authority to transmit protective action recommendations to the State of Kansas and Coffey County shall not be delegated by the Emergency Manager.

6.2 Protective actions outlined in this procedure shall be presented to off-site authorities as recommendations only.

6.3 The final decision-making authority regarding protective action(s) shall be Coffey County for State of Local Disaster Emergencies, and the State of Kansas for State of Disaster Emergencies.

6.4 Recommendations shall be timely in order to achieve the desired degree of protection for the public.

6.5 IF projected doses exceed the EPA PAGs past the 10-mile EPZ, THEN an immediate notification for a PAR for the distance from the plant, as indicated on the Estimated Dose Calculation Program (EDCP), should be made. The Emergency Manager should coordinate with the State Radiological Assessment Manager to have Joint Radiological Monitoring Teams determine the actual dose beyond 10-miles. The State has the authority to develop and implement protective actions outside the 10-mile EPZ.

7.0 PROCEDURE{ tc \1 1 "7.0 PROCEDURE" }

7.1 Making Protective Action Recommendations

- 7.1.1 Upon declaration of an Alert or higher emergency, evaluate the need for making protective action recommendation(s) based on the following:
- o Actual or potential radiological releases based on plant conditions
 - o Evaluate actual or potential radiological releases in accordance with EPP 06-012, DOSE ASSESSMENT

NOTES

- o Ingestion Exposure Pathway PARs are developed by the State of Kansas.
- o Subzones are based on stability Class A, the most unstable class, and may have to be adjusted by using appropriate isopleths for other stability classes.

- 7.1.2 Determine the protective action recommendation(s) based on one of the following:
- o Affected subzones identified on the EDCP printout.
 - o ATTACHMENT A, PROTECTIVE ACTION RECOMMENDATION CHART OR the PROTECTIVE ACTION RECOMMENDATION CHART located in the emergency facilities.
 - o ATTACHMENT B, SUBZONES AFFECTED BY WIND DIRECTION
 - o ATTACHMENT C, 10-MILE EVACUATION TIME ESTIMATES
 - o ATTACHMENT D, POPULATION BY SUBZONE
 - o FIGURE 1, EFFECTIVE 10-MILE EMERGENCY PLANNING ZONE, which identifies the subzone areas on a County map.
- 7.1.3 Indicate the protective action recommendation on EPF 06-007-01, WOLF CREEK GENERATING STATION EMERGENCY NOTIFICATION.
1. Once a PAR has been made, that PAR remains in effect until the event is terminated. All PARs made should be indicated on all notification forms once they are made.

CAUTION

The authority to transmit protective action recommendations to the State of Kansas and Coffey County shall not be delegated by the Emergency Manager.

7.1.4 Ensure transmittal of EPF 06-007-01, WOLF CREEK GENERATING STATION EMERGENCY NOTIFICATION, to State of Kansas and Coffey County officials.

7.1.5 Continue to monitor plant and radiological conditions. IF changes occur, THEN re-evaluate the adequacy of the protective action recommendations.

NOTES

- o The State has the authority to develop and implement protective actions outside the 10-mile EPZ.
- o Positioning of teams beyond ten miles is determined by the State Radiological Assessment Manager.

7.1.6 IF dose projections on EDCP indicate the need for protective actions beyond the 10-mile EPZ, THEN make an immediate notification of the PAR for the distance from the plant as indicated on the EDCP printout.

8.0 RECORDS{ tc \1 1 "8.0 RECORDS" }

8.1 None

9.0 FORMS{ tc \1 1 "9.0 FORMS" }

9.1 None

- END -

ATTACHMENT A

(Page 1 of 1)

PROTECTIVE ACTION RECOMMENDATION CHART

{ tc \l 5 "ATTACHMENT A PROTECTIVE ACTION RECOMMENDATION CHART"}ATTACHMENT A"

- INSTRUCTIONS
1. These protective actions recommendations are for planning purposes only. Practical decisions must take existing conditions into consideration. Conditions to consider are actual threat to the public based on plant conditions, weather, evacuation routes, evacuation times etc. Discussions, taking these conditions into account, with the appropriate State, County, NRC, and FEMA officials may yield recommendations different than those specified by this flow chart.

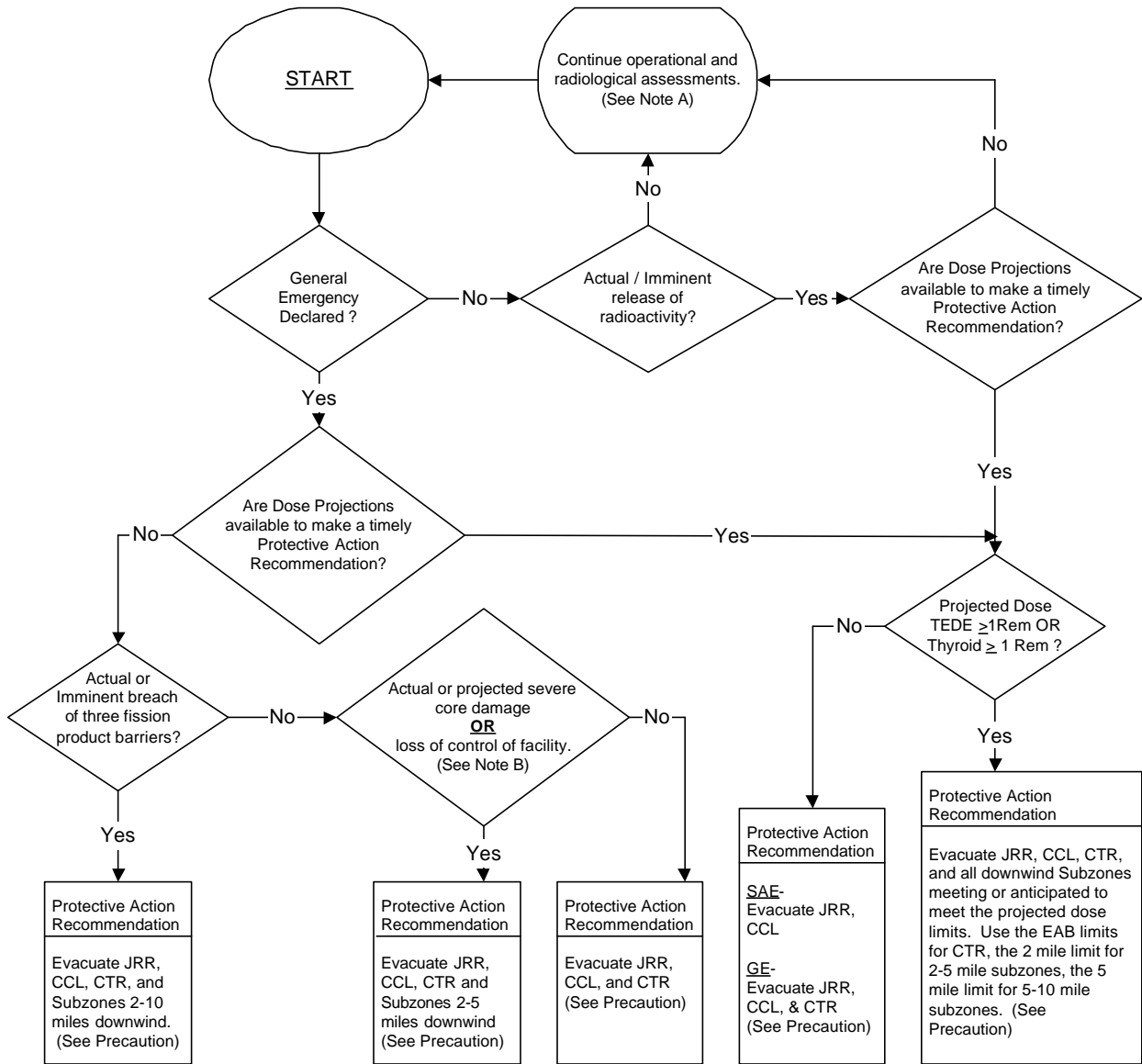
2. Protective action recommendations should include all subzones meeting or anticipated to meet the projected dose limits.

PRECAUTION

Sheltering of the public should be considered as an alternative to evacuation if the dose received during evacuation might be greater than the dose received remaining indoors or the expected risk from radiation is offset by safety risks involved in carrying out the protective action.

- NOTES:
- A. John Redmond Reservoir (JRR) and Coffey County Lake (CCL) are recommended for evacuation as a precautionary measure upon declaration of a Site Area Emergency.

B. Projected severe core damage is indicated by core cooling orange path, or core cooling red path, or heat sink red path. Actual severe core damage is indicated by GTRE59 or 60 reading ≥ 2500 R/Hr.



ATTACHMENT B

(Page 1 of 7)

SUBZONES AFFECTED BY THE WIND DIRECTION
 { tc \l 5 "ATTACHMENT B SUBZONES AFFECTED BY THE WIND DIRECTION"}ATTACHMENT B"

NOTE

The data in this Attachment is based on Stability Class A. For other stability classes adjust by using appropriate isopleths.

WIND DIRECTION IN DEGREES (NPIS)		DOWNWIND SECTOR	AFFECTED SUBZONES		
FROM	TO		0-2 MILES	2-5 MILES	5-10 MILES
0 (360)	180	J	CTR, CCL	SE-1, S-1, JRR	SE-3, SE4, S-2, SW-2
1	181				
2	182				
3	183				
4	184				
5	185				
6	186				
7	187	J	CTR, CCL	SE-1, S-1, SW-1, JRR	SE-3, SE-4, S-2, SW-2
8	188				
9	189				
10	190				
11	191				
12	192	K	CTR, CCL	SE-1, S-1, SW-1, JRR	SE-3, SE-4, S-2, SW-2
13	193				
14	194				
15	195				
16	196				
17	197	K	CTR, CCL	S-1, SW-1, JRR	SE-3, S-2, SW-2
18	198				
19	199				
20	200				
21	201				
22	202				
23	203				
24	204				
25	205				
26	206				
27	207				
28	208	K	CTR, CCL	S-1, SW-1, W-1, JRR	SE-3, S-2, SW-2, W-2
29	209				
30	210				
31	211				
32	212				
33	213				
34	214	L	CTR, CCL	S-1, SW-1, W-1, JRR	SE-3, S-2, SW-2, W-2
35	215				
36	216				
37	217				
38	218				
39	219				

ATTACHMENT B (Page 2 of 7)					
SUBZONES AFFECTED BY THE WIND DIRECTION					
40	220				
41	221				
42	222	L	CTR, CCL	S-1, SW-1, W-1, JRR	S-2, SW-2, W-2
43	223				
44	224				
45	225				
46	226				

ATTACHMENT B
(Page 3 of 7)
SUBZONES AFFECTED BY THE WIND DIRECTION

WIND DIRECTION IN DEGREES (NPIS)		DOWNWIND SECTOR	AFFECTED SUBZONES		
FROM	TO		0-2 MILES	2-5 MILES	5-10 MILES
47	227	L	CTR, CCL	S-1, SW-1, W-1, JRR	S-2, SW-2, W-2
48	228				
49	229				
50	230				
51	231				
52	232				
53	233				
54	234				
55	235				
56	236				
57	237	M	CTR, CCL	S-1, SW-1, W-1, JRR	S-2, SW-2, W-2
58	238				
59	239				
60	240				
61	241				
62	242	M	CTR, CCL	S-1, SW-1, W-1, JRR	S-2, SW-2, W-2
63	243				
64	244				
65	245				
66	246				
67	247				
68	248	M	CTR, CCL	SW-1, W-1, JRR	SW-2, W-2
69	249				
70	250				
71	251				
72	252				
73	253				
74	254	M	CTR, CCL	SW-1, W-1, NW-1, JRR	SW-2, W-2
75	255				
76	256				
77	257				
78	258				
79	259	N	CTR, CCL	SW-1, W-1, NW-1, JRR	SW-2, W-2
80	260				
81	261				
82	262				
83	263				
84	264				
85	265	N	CTR, CCL	SW-1, W-1, NW-1, JRR	W-2
86	266				
87	267				
88	268				
89	269				
90	270				
91	271				
92	272				
93	273				
94	274				
95	275				

ATTACHMENT B

(Page 4 of 7)

SUBZONES AFFECTED BY THE WIND DIRECTION

96	276				
97	277				
98	278				
99	279	N	CTR, CCL	SW-1, W-1, NW-1, N-1, JRR	W-2, NW-2
100	280				
101	281				

ATTACHMENT B
(Page 5 of 7)
SUBZONES AFFECTED BY THE WIND DIRECTION

WIND DIRECTION IN DEGREES (NPIS) FROM TO		DOWNWIND SECTOR	AFFECTED SUBZONES		
			0-2 MILES	2-5 MILES	5-10 MILES
102	282	P	CTR, CCL	SW-1, W-1, NW-1, N-1, JRR	W-2, NW-2
103	283				
104	284				
105	285				
106	286				
107	287	P	CTR, CCL	W-1, NW-1, N-1, JRR	W-2, NW-2
108	288				
109	289				
110	290				
111	291				
112	292				
113	293				
114	294				
115	295				
116	296				
117	297				
118	298				
119	299	P	CTR, CCL	W-1, NW-1, N-1, JRR	W-2, NW-2, N-2
120	300				
121	301				
122	302				
123	303				
124	304	Q	CTR, CCL	W-1, NW-1, N-1, JRR	W-2, NW-2, N-2
125	305				
126	306				
127	307				
128	308				
129	309	Q	CTR, CCL	W-1, NW-1, N-1, JRR	NW-2, N-2
130	310				
131	311				
132	312				
133	313				
134	314				
135	315				
136	316				
137	317				
138	318				
139	319				
140	320				
141	321				
142	322				
143	323				
144	324				
145	325				
146	326				
147	327				
148	328				
149	329				
150	330				

ATTACHMENT B

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SUBZONES AFFECTED BY THE WIND DIRECTION					
151	331	R	CTR, CCL	W-1, NW-1, N-1, JRR	NW-2, N-2
152	332				
153	333				
154	334				
155	335				
156	336				

ATTACHMENT B
(Page 7 of 7)
SUBZONES AFFECTED BY THE WIND DIRECTION

WIND DIRECTION IN DEGREES (NPIS) FROM TO		DOWNWIND SECTOR	AFFECTED SUBZONES		
			0-2 MILES	2-5 MILES	5-10 MILES
157	337	R	CTR, CCL	W-1, NW-1, N-1, JRR	NW-2, N-2
158	338				
159	339				
160	340				
161	341				
162	342				
163	343	R	CTR, CCL	W-1, NW-1, N-1, NE-1, JRR	NW-2, N-2, NE-2
164	344				
165	345				
166	346				
167	347				
168	348				
169	349	A	CTR, CCL	W-1, NW-1, N-1, NE-1, JRR	NW-2, N-2, NE-2
170	350				
171	351				
172	352				
173	353				
174	354				
175	355	A	CTR, CCL	NW-1, N-1, NE-1, JRR	NW-2, N-2, NE-2
176	356				
177	357				
178	358				
179	359				
180	360 (0)				
181	1				
182	2				
183	3				
184	4				
185	5	A	CTR, CCL	NW-1, N-1, NE-1, JRR	NW-2, N-2, NE-2, NE-3
186	6				
187	7				
188	8				
189	9				
190	10				
191	11	B	CTR, CCL	NW-1, N-1, NE-1, JRR	NW-2, N-2, NE-2, NE-3
192	12				
193	13				
194	14				
195	15				
196	16				
197	17	B	CTR, CCL	N-1, NE-1, JRR	N-2, NE-2, NE-3
198	18				
199	19				
200	20				
201	21				
202	22				
203	23				
204	24				
205	25				

ATTACHMENT B

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SUBZONES AFFECTED BY THE WIND DIRECTION

206	26				
207	27				
208	28				
209	29	B	CTR, CCL	N-1, NE-1, E-1, JRR	N-2, NE-2, NE-3
210	30				
211	31				

ATTACHMENT B
(Page 9 of 7)
SUBZONES AFFECTED BY THE WIND DIRECTION

WIND DIRECTION IN DEGREES (NPIS) FROM TO		DOWNWIND SECTOR	AFFECTED SUBZONES		
			0-2 MILES	2-5 MILES	5-10 MILES
212	32	B	CTR, CCL	N-1, NE-1, E-1, JRR	N-2, NE-2, NE-3
213	33				
214	34	C	CTR, CCL	N-1, NE-1, E-1, JRR	N-2, NE-2, NE-3
215	35				
216	36				
217	37				
218	38				
219	39				
220	40				
221	41				
222	42				
223	43				
224	44				
225	45				
226	46	C	CTR, CCL	N-1, NE-1, E-1, JRR	NE-2, NE-3, E-2
227	47				
228	48				
229	49				
230	50				
231	51				
232	52				
233	53				
234	54				
235	55				
236	56				
237	57	D	CTR, CCL	N-1, NE-1, E-1, JRR	NE-2, NE-3, E-2
238	58				
239	59				
240	60				
241	61				
242	62				
243	63				
244	64				
245	65				
246	66				
247	67				
248	68				
249	69	D	CTR, CCL	NE-1, E-1, JRR	NE-3, E-2
250	70				
251	71				
252	72				
253	73				
254	74	D	CTR, CCL	NE-1, E-1, JRR	NE-3, E-2, SE-2
255	75				
256	76				
257	77				
258	78				
259	79				
260	80				

ATTACHMENT B
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SUBZONES AFFECTED BY THE WIND DIRECTION					
261	81	E	CTR, CCL	NE-1, E-1, JRR	NE-3, E-2, SE-2
262	82				
263	83				

ATTACHMENT B
(Page 11 of 7)
SUBZONES AFFECTED BY THE WIND DIRECTION

WIND DIRECTION IN DEGREES (NPIS)		DOWNWIND SECTOR	AFFECTED SUBZONES		
FROM	TO		0-2 MILES	2-5 MILES	5-10 MILES
264	84	E	CTR, CCL	NE-1, E-1, JRR	NE-3, E-2, SE-2
265	85				
266	86				
267	87				
268	88				
269	89				
270	90				
271	91				
272	92				
273	93				
274	94				
275	95				
276	96	E	CTR, CCL	NE-1, E-1, SE-1, JRR	NE-3, E-2, SE-2, SE-4
277	97				
278	98				
279	99				
280	100				
281	101				
282	102	F	CTR, CCL	E-1, SE-1, JRR	NE-3, E-2, SE-2, SE-4
283	103				
284	104				
285	105				
286	106				
287	107				
288	108				
289	109				
290	110				
291	111				
292	112				
293	113	F	CTR, CCL	E-1, SE-1, JRR	E-2, SE-2, SE-3, SE-4
294	114				
295	115				
296	116				
297	117				
298	118				
299	119	F	CTR, CCL	E-1, SE-1, S-1, JRR	E-2, SE-2, SE-3, SE-4
300	120				
301	121				
302	122				
303	123				
304	124	G	CTR, CCL	E-1, SE-1, S-1, JRR	E-2, SE-2, SE-3, SE-4
305	125				
306	126				
307	127				
308	128				
309	129				
310	130				
311	131				
312	132				

ATTACHMENT B
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SUBZONES AFFECTED BY THE WIND DIRECTION

313	133				
314	134				
315	135				
316	136				
317	137	G	CTR, CCL	E-1, SE-1, S-1, JRR	E-2, SE-2, SE-3, SE-4, S-2
318	138				
319	139				

ATTACHMENT B
(Page 13 of 7)
SUBZONES AFFECTED BY THE WIND DIRECTION

WIND DIRECTION IN DEGREES (NPIS)		DOWNWIND SECTOR	AFFECTED SUBZONES		
FROM	TO		0-2 MILES	2-5 MILES	5-10 MILES
320	140	G	CTR, CCL	E-1, SE-1, S-1, JRR	E-2, SE-2, SE-3, SE-4, S-2
321	141				
322	142				
323	143				
324	144				
325	145				
326	146				
327	147	H	CTR, CCL	E-1, SE-1, S-1, JRR	E-2, SE-2, SE-3, SE-4, S-2
328	148				
329	149				
330	150				
331	151				
332	152	H	CTR, CCL	E-1, SE-1, S-1, JRR	SE-2, SE-3, SE-4, S-2
333	153				
334	154				
335	155				
336	156				
337	157				
338	158				
339	159				
340	160				
341	161				
342	162				
343	163				
344	164	H	CTR, CCL	E-1, SE-1, S-1, JRR	SE-2, SE-3, SE-4, S-2, SW-2
345	165				
346	166				
347	167				
348	168				
349	169	J	CTR, CCL	E-1, SE-1, S-1, JRR	SE-2, SE-3, SE-4, S-2, SW-2
350	170				
351	171				
352	172				
353	173				
354	174	J	CTR, CCL	SE-1, S-1, JRR	SE-3, SE-4, S-2, SW-2
355	175				
356	176				
357	177				
358	178				
359	179				

ATTACHMENT B
(Page 14 of 7)
SUBZONES AFFECTED BY THE WIND DIRECTION

- END -

ATTACHMENT C

(Page 8 of 2)

10-MILE EVACUATION TIME ESTIMATES

{ tc \l 5 "ATTACHMENT C 10-MILE EVACUATION TIME ESTIMATES"}ATTACHMENT C"

NOTES

- o For all transportation-dependent people, including the non-ambulatory occupants of the Life Care Center of Burlington, Sunset Manor Nursing Home and the Coffey County Hospital, an evacuation time of 2.5 hours is estimated using area resources. An evacuation time of 2.5 hours is also estimated for John Redmond Reservoir and Coffey County Lake.
- o These evacuation times are based on population figures from the 1980 census. The 1980 figures were larger than the numbers presented in the 2000 census. Because the evacuation times are based on a greater population than what is presently in Coffey County, and because the condition of some of the evacuation routes has improved (e.g. paving), the times are considered to be conservative.

AVERAGE WEATHER CONDITIONS

<u>Subzone</u>	<u>Effective 2-mile</u>	<u>Effective 5-mile</u>	<u>Effective 10-mile</u>
CTR	42 min	54 min	1 hour, 6 min
N-1	-	48 min	1 hour, 6 min
NE-1	-	54 min	1 hour, 6 min
E-1	-	54 min	54 min
SE-1	-	48 min	1 hour
S-1	-	54 min	1 hour, 12 min
SW-1	-	1 hour, 24 min	1 hour, 30 min
W-1	-	1 hour	1 hour, 6 min
NW-1	-	48 min	1 hour
N-2	-	-	54 min
NE-2	-	-	1 hour
NE-3	-	-	54 min
E-2	-	-	48 min
SE-2	-	-	54 min
SE-3	-	-	1 hour
SE-4	-	-	42 min
S-2	-	-	54 min
SW-2	-	-	54 min
W-2	-	-	48 min
NW-2	-	-	42 min

ATTACHMENT C
(Page 9 of 2)
10-MILE EVACUATION TIME ESTIMATES

NOTES

- o For all transportation-dependent people, including the non-ambulatory occupants of the Life Care Center of Burlington, Sunset Manor Nursing Home and the Coffey County Hospital, an evacuation time of 2.5 hours is estimated using area resources. An evacuation time of 2.5 hours is also estimated for John Redmond Reservoir and Coffey County Lake.
- o These evacuation times are based on population figures from the 1980 census. The 1980 figures were larger than the numbers presented in the 2000 census. Because the evacuation times are based on a greater population than what is presently in Coffey County, and because the condition of some of the evacuation routes has improved (e.g. paving), the times are considered to be conservative.

ADVERSE WEATHER CONDITIONS

<u>Subzone</u>	Effective <u>2-mile</u>	Effective <u>5-mile</u>	Effective <u>10-mile</u>
CTR	42 min	1 hour	1 hour, 18 min
N-1	-	54 min	1 hour, 18 min
NE-1	-	1 hour	1 hour, 6 min
E-1	-	1 hour	1 hour, 6 min
SE-1	-	54 min	1 hour, 6 min
S-1	-	54 min	1 hour, 24 min
SW-1	-	1 hour, 42 min	1 hour, 48 min
W-1	-	1 hour, 6 min	1 hour, 18 min
NW-1	-	54 min	1 hour, 6 min
N-2	-	-	1 hour
NE-2	-	-	1 hour, 6 min
NE-3	-	-	1 hour
E-2	-	-	54 min
SE-2	-	-	1 hour
SE-3	-	-	1 hour, 6 min
SE-4	-	-	48 min
S-2	-	-	1 hour
SW-2	-	-	54 min
W-2	-	-	54 min
NW-2	-	-	1 hour

- END -

ATTACHMENT D
(Page 8 of 1)
POPULATION BY SUBZONE
{ tc \l 5 "ATTACHMENT D POPULATION BY SUBZONE"}ATTACHMENT D"

Evacuation Subzone	Evacuation Zone	Population
Center (CTR)	0 - 2	75
North-1 (N-1)	2 - 5	65
Northeast-1 (NE-1)	2 - 5	82
East-1 (E-1)	2 - 5	53
Southeast-1 (SE-1)	2 - 5	40
South-1 (S-1)	2 - 5	40
Southwest-1 (SW-1)	2 - 5	2,866
West-1 (W-1)	2 - 5	463
Northwest-1 (NW-1)	2 - 5	82
North-2 (N-2)	5 - 10	121
Northeast-2 (NE-2)	5 - 10	721
Northeast-3 (NE-3)	5 - 10	144
East-2 (E-2)	5 - 10	71
Southeast-2 (SE-2)	5 - 10	138
Southeast-3 (SE-3)	5 - 10	650
Southeast-4 (SE-4)	5 - 10	56
South-2 (S-2)	5 - 10	88
Southwest-2 (SW-2)	5 - 10	88
West-2 (W-2)	5 - 10	142
Northwest-2 (NW-2)	5 - 10	114

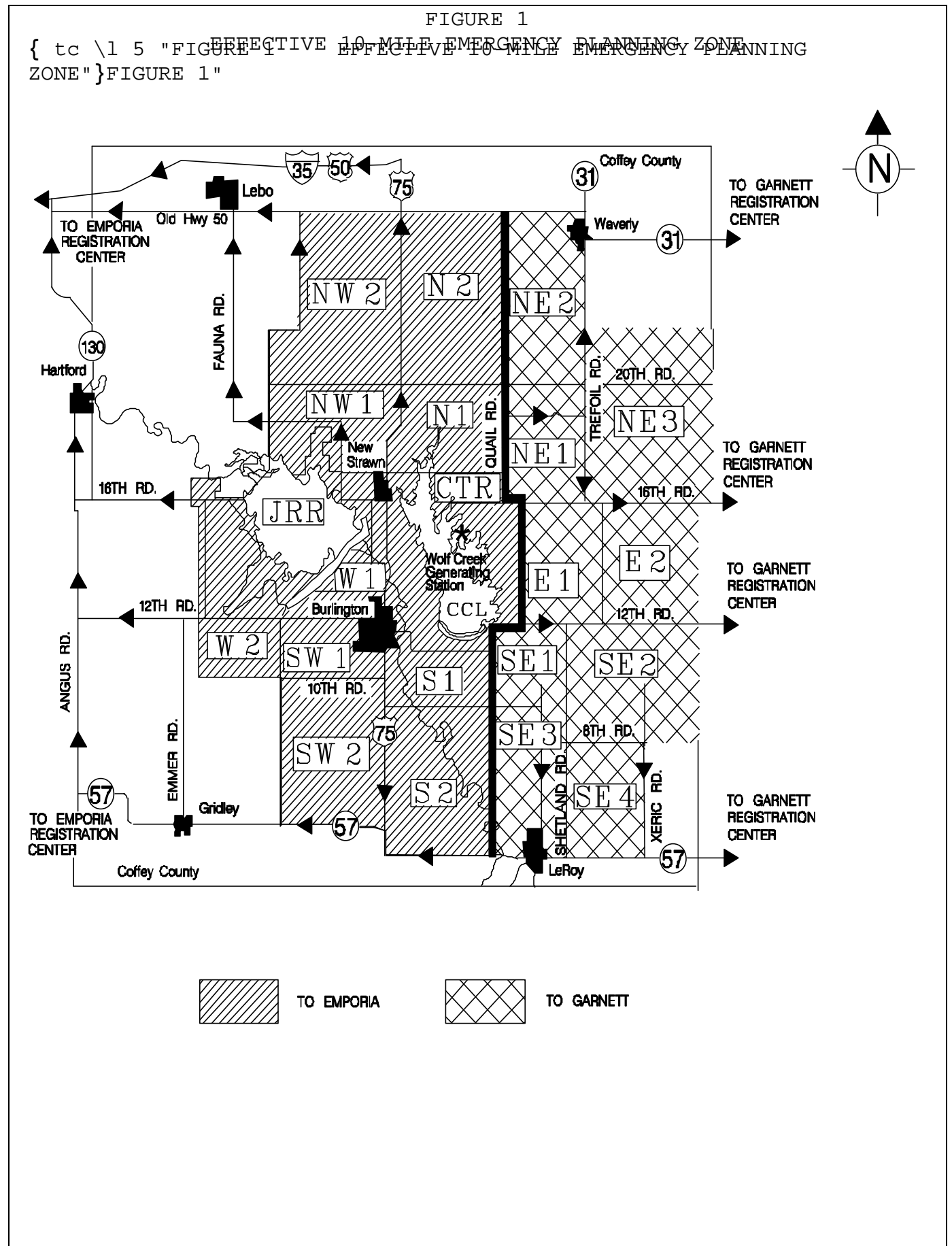
Effective 10-Mile Emergency Planning Zone Subtotals:

Effective 0 - 2-mile zone = 75 persons
Effective 2 - 5-mile zone = 3,691 persons
Effective 5 - 10-mile zone = 2,333 persons
Effective 0 - 10-mile zone = 6,099 persons

Total Coffey County population = 8,865 persons

* The Effective 0 - 2-mile zone encompasses all of CTR and CCL subzones

- END -



EPF 06-007-01 Rev 7

MESSAGE NO.:

WOLF CREEK GENERATING STATION EMERGENCY NOTIFICATION

1. **STATUS:** ☐ ACTUAL ☐ DRILL

2. **CODE WORD** (County/State only): _____

3. **NOTIFICATION TYPE:**
☐ IMMEDIATE (Steps 1-8, & 13) ☐ FOLLOWUP (ALL)

4. **EMERGENCY CLASSIFICATION:**
TIME: _____ DATE: ____/____/____
☐ UNUSUAL EVENT ☐ ALERT ☐ SITE AREA
☐ GENERAL ☐ RECOVERY ☐ TERMINATION

5. **REASON FOR CLASSIFICATION:** (EAL)
☐ 1-RER ☐ 2-SGTF ☐ 3-LRCB ☐ 4-MSLB
☐ 5-FEF ☐ 6-LEP/AC ☐ 7-FHA ☐ 8-SSFM
☐ 9-LPC/SC ☐ 10-FR ☐ 11-NP ☐ 12-OH
☐ 13-ADM
EAL Step Numbers _____

6. **METEOROLOGICAL DATA:**
WIND: AT: ____ MPH, FROM: ____ TOWARDS: ____ Degrees
STABILITY CLASS: ____ PRECIPITATION: ☐ YES ☐ NO

7. **RADIOLOGICAL RELEASE STATUS:**
☐ NONE ☐ PLANNED ☐ MONITORED
☐ TERMINATED ☐ UNPLANNED ☐ UNMONITORED
(If NONE, N/A steps 10, 11, & 12 for Follow-up Notifications)

8. **PROTECTIVE ACTION RECOMMENDATION:** ☐ NONE
IF making a PAR only, TIME OF PAR: _____

☐ CCL & JRR 0-2 MILES: ☐ CTR

2-5 MILES: ☐ N-1 ☐ NE-1 ☐ E-1 ☐ SE-1
☐ S-1 ☐ SW-1 ☐ W-1 ☐ NW-1

5-10 MILES: ☐ N-2 ☐ NE-2 ☐ NE-3 ☐ E-2
☐ SE-2 ☐ SE-3 ☐ SE-4 ☐ S-2
☐ SW-2 ☐ W-2 ☐ NW-2

> 10 MILES: ☐ DISTANCE FROM PLANT: _____ MILES

9. **CURRENT PLANT CONDITION:** ☐ IMPROVING ☐ STABILIZED ☐ DEGRADING TIME REACTOR TRIPPED _____

10. **FIELD TEAM DATA:** ☐ Not Available; Time Collected: _____ At _____ Miles From CTMT = _____
_____ mR/hr GAMMA, _____ (uCi/cc) IODINE, _____ (uCi/cc) PART.

11. **RELEASE RATE:** Release Start Time: _____ Estimated Total Release Time In Hours: _____
At (Time) _____ Release Rate = _____ Ci/Sec NOBLE GAS and _____ Ci/Sec RADIOIODINE

12. **CENTERLINE DOSES (Based on):**
☐ RAD MONITORING SYSTEM ☐ USAR SOURCE TERM ESTIMATE ☐ FIELD TEAM MONITORING DATA

	INTEGRATED DOSES PROJECTED (TIME): RELEASE START		RELEASE STOPPED
	TEDE (REM)		THYROID (REM)
EAB			
2 MI			
5 MI			
10 MI			

COMMENTS: [Commitment Step 3.2.1] _____

13. **NOTIFICATION APPROVAL:** _____ / _____
Signature Title

(FOR WCNOG USE ONLY)	PRIMARY CONTACT	ALTERNATE CONTACTS		PERSON/TIME
COFFEY COUNTY SHERIFF	620-364-2123	STATION RADIO	KHP 785-827-4437	
KANSAS DIVISION OF EMERGENCY MANAGEMENT	785-296-3176 LEAVE MESSAGE	STATE RADIO	STATE EOC ACTIVATED 785-274-1422	
NRC RESIDENT INSPECTOR	OFFICE EXT. 4574	FRANK BRUSH Cell: 620-343-0577 Home: 620-364-3631 NRC PAGER 816-466-5209		
TOPEKA SYSTEM DISPATCH	785-575-6078			

ANI (ALERT OR HIGHER)	860-561-3433; OFF HOURS LEAVE MESSAGE	
INPO (ALERT OR HIGHER)	800-321-0614	

EPF 06-007-01 Rev 7

MESSAGE NO.:

WOLF CREEK GENERATING STATION EMERGENCY NOTIFICATION1. **STATUS:** ☐ ACTUAL ☐ DRILL2. **CODE WORD** (County/State only): _____3. **NOTIFICATION TYPE:**☐ IMMEDIATE (Steps 1-8, & 13) ☐ FOLLOWUP (ALL)4. **EMERGENCY CLASSIFICATION:**

TIME: _____ DATE: ____/____/____

☐ UNUSUAL EVENT ☐ ALERT ☐ SITE AREA
☐ GENERAL ☐ RECOVERY ☐ TERMINATION5. **REASON FOR CLASSIFICATION:** (EAL)☐ 1-RER ☐ 2-SGTF ☐ 3-LRCB ☐ 4-MSLB
☐ 5-FEF ☐ 6-LEP/AC ☐ 7-FHA ☐ 8-SSFM
☐ 9-LPC/SC ☐ 10-FR ☐ 11-NP ☐ 12-OH
☐ 13-ADM

EAL Step Numbers _____

6. **METEOROLOGICAL DATA:**

WIND: AT: _____ MPH, FROM: _____ TOWARDS: _____ Degrees

STABILITY CLASS: _____ PRECIPITATION: ☐ YES ☐ NO7. **RADIOLOGICAL RELEASE STATUS:**☐ NONE ☐ PLANNED ☐ MONITORED
☐ TERMINATED ☐ UNPLANNED ☐ UNMONITORED
(If NONE, N/A steps 10, 11, & 12 for Follow-up Notifications)8. **PROTECTIVE ACTION RECOMMENDATION:** ☐ NONE

IF making a PAR only, TIME OF PAR: _____

☐ CCL & JRR 0-2 MILES: ☐ CTR2-5 MILES: ☐ N-1 ☐ NE-1 ☐ E-1 ☐ SE-1☐ S-1 ☐ SW-1 ☐ W-1 ☐ NW-15-10 MILES: ☐ N-2 ☐ NE-2 ☐ NE-3 ☐ E-2☐ SE-2 ☐ SE-3 ☐ SE-4 ☐ S-2☐ SW-2 ☐ W-2 ☐ NW-2> 10 MILES: ☐ DISTANCE FROM PLANT: _____ MILES9. **CURRENT PLANT CONDITION:** ☐ IMPROVING ☐ STABILIZED ☐ DEGRADING TIME REACTOR TRIPPED _____10. **FIELD TEAM DATA:** ☐ Not Available; Time Collected: _____ At _____ Miles From CTMT =
_____ mR/hr GAMMA, _____ (uCi/cc) IODINE, _____ (uCi/cc) PART.11. **RELEASE RATE:** Release Start Time: _____ Estimated Total Release Time In Hours: _____
At (Time) _____ Release Rate = _____ Ci/Sec NOBLE GAS and _____ Ci/Sec RADIOIODINE12. **CENTERLINE DOSES (Based on):**☐ RAD MONITORING SYSTEM ☐ USAR SOURCE TERM ESTIMATE ☐ FIELD TEAM MONITORING DATA

	INTEGRATED DOSES PROJECTED (TIME): RELEASE START		RELEASE STOPPED
	TEDE (REM)		THYROID (REM)
EAB			
2 MI			
5 MI			
10 MI			

COMMENTS: [Commitment Step 3.2.1] _____

13. **NOTIFICATION APPROVAL:** _____ / _____
Signature Title

(FOR WCNOG USE ONLY)	PRIMARY CONTACT	ALTERNATE CONTACTS		PERSON/TIME
COFFEY COUNTY SHERIFF	620-364-2123	STATION RADIO	KHP 785-827-4437	
KANSAS DIVISION OF EMERGENCY MANAGEMENT	785-296-3176 LEAVE MESSAGE	STATE RADIO	STATE EOC ACTIVATED 785-274-1422	
NRC RESIDENT INSPECTOR	OFFICE EXT. 4574	FRANK BRUSH Cell: 620-343-0577 Home: 620-364-3631 NRC PAGER 816-466-5209		
TOPEKA SYSTEM DISPATCH	785-575-6078			

ANI (ALERT OR HIGHER)	860-561-3433; OFF HOURS LEAVE MESSAGE	
INPO (ALERT OR HIGHER)	800-321-0614	

EPF 06-007-01 Rev 7

MESSAGE NO.:

WOLF CREEK GENERATING STATION EMERGENCY NOTIFICATION1. **STATUS:** ☐ ACTUAL ☐ DRILL2. **CODE WORD** (County/State only): _____3. **NOTIFICATION TYPE:**☐ IMMEDIATE (Steps 1-8, & 13) ☐ FOLLOWUP (ALL)4. **EMERGENCY CLASSIFICATION:**

TIME: _____ DATE: ____/____/____

☐ UNUSUAL EVENT ☐ ALERT ☐ SITE AREA
☐ GENERAL ☐ RECOVERY ☐ TERMINATION5. **REASON FOR CLASSIFICATION:** (EAL)☐ 1-RER ☐ 2-SGTF ☐ 3-LRCB ☐ 4-MSLB
☐ 5-FEF ☐ 6-LEP/AC ☐ 7-FHA ☐ 8-SSFM
☐ 9-LPC/SC ☐ 10-FR ☐ 11-NP ☐ 12-OH
☐ 13-ADM

EAL Step Numbers _____

6. **METEOROLOGICAL DATA:**

WIND: AT: _____ MPH, FROM: _____ TOWARDS: _____ Degrees

STABILITY CLASS: _____ PRECIPITATION: ☐ YES ☐ NO7. **RADIOLOGICAL RELEASE STATUS:**☐ NONE ☐ PLANNED ☐ MONITORED
☐ TERMINATED ☐ UNPLANNED ☐ UNMONITORED
(If NONE, N/A steps 10, 11, & 12 for Follow-up Notifications)8. **PROTECTIVE ACTION RECOMMENDATION:** ☐ NONE

IF making a PAR only, TIME OF PAR: _____

☐ CCL & JRR 0-2 MILES: ☐ CTR2-5 MILES: ☐ N-1 ☐ NE-1 ☐ E-1 ☐ SE-1☐ S-1 ☐ SW-1 ☐ W-1 ☐ NW-15-10 MILES: ☐ N-2 ☐ NE-2 ☐ NE-3 ☐ E-2☐ SE-2 ☐ SE-3 ☐ SE-4 ☐ S-2☐ SW-2 ☐ W-2 ☐ NW-2> 10 MILES: ☐ DISTANCE FROM PLANT: _____ MILES9. **CURRENT PLANT CONDITION:** ☐ IMPROVING ☐ STABILIZED ☐ DEGRADING TIME REACTOR TRIPPED _____10. **FIELD TEAM DATA:** ☐ Not Available; Time Collected: _____ At _____ Miles From CTMT =
_____ mR/hr GAMMA, _____ (uCi/cc) IODINE, _____ (uCi/cc) PART.11. **RELEASE RATE:** Release Start Time: _____ Estimated Total Release Time In Hours: _____
At (Time) _____ Release Rate = _____ Ci/Sec NOBLE GAS and _____ Ci/Sec RADIOIODINE12. **CENTERLINE DOSES (Based on):**☐ RAD MONITORING SYSTEM ☐ USAR SOURCE TERM ESTIMATE ☐ FIELD TEAM MONITORING DATA

	INTEGRATED DOSES PROJECTED (TIME): RELEASE START		RELEASE STOPPED
	TEDE (REM)		THYROID (REM)
EAB			
2 MI			
5 MI			
10 MI			

COMMENTS: [Commitment Step 3.2.1] _____

13. **NOTIFICATION APPROVAL:** _____ / _____
Signature Title

(FOR WCNOG USE ONLY)	PRIMARY CONTACT	ALTERNATE CONTACTS		PERSON/TIME
COFFEY COUNTY SHERIFF	620-364-2123	STATION RADIO	KHP 785-827-4437	
KANSAS DIVISION OF EMERGENCY MANAGEMENT	785-296-3176 LEAVE MESSAGE	STATE RADIO	STATE EOC ACTIVATED 785-274-1422	
NRC RESIDENT INSPECTOR	OFFICE EXT. 4574	FRANK BRUSH Cell: 620-343-0577 Home: 620-364-3631 NRC PAGER 816-466-5209		
TOPEKA SYSTEM DISPATCH	785-575-6078			

ANI (ALERT OR HIGHER)	860-561-3433; OFF HOURS LEAVE MESSAGE	
INPO (ALERT OR HIGHER)	800-321-0614	

EPF 06-007-01 Rev 7

MESSAGE NO.:

WOLF CREEK GENERATING STATION EMERGENCY NOTIFICATION

1. **STATUS:** ☐ ACTUAL ☐ DRILL
2. **CODE WORD** (County/State only): _____
3. **NOTIFICATION TYPE:**
☐ IMMEDIATE (Steps 1-8, & 13) ☐ FOLLOWUP (ALL)

4. **EMERGENCY CLASSIFICATION:**

TIME: _____ DATE: ____/____/____

- ☐ UNUSUAL EVENT ☐ ALERT ☐ SITE AREA
☐ GENERAL ☐ RECOVERY ☐ TERMINATION

5. **REASON FOR CLASSIFICATION:** (EAL)

- ☐ 1-RER ☐ 2-SGTF ☐ 3-LRCB ☐ 4-MSLB
☐ 5-FEF ☐ 6-LEP/AC ☐ 7-FHA ☐ 8-SSFM
☐ 9-LPC/SC ☐ 10-FR ☐ 11-NP ☐ 12-OH
☐ 13-ADM

EAL Step Numbers _____

6. **METEOROLOGICAL DATA:**

WIND: AT: ____ MPH, FROM: ____ TOWARDS: ____ Degrees

STABILITY CLASS: ____ PRECIPITATION: ☐ YES ☐ NO7. **RADIOLOGICAL RELEASE STATUS:**

- ☐ NONE ☐ PLANNED ☐ MONITORED
☐ TERMINATED ☐ UNPLANNED ☐ UNMONITORED
(If NONE, N/A steps 10, 11, & 12 for Follow-up Notifications)

8. **PROTECTIVE ACTION RECOMMENDATION:** ☐ NONE

IF making a PAR only, TIME OF PAR: _____

- ☐ CCL & JRR 0-2 MILES: ☐ CTR

2-5 MILES: ☐ N-1 ☐ NE-1 ☐ E-1 ☐ SE-1☐ S-1 ☐ SW-1 ☐ W-1 ☐ NW-15-10 MILES: ☐ N-2 ☐ NE-2 ☐ NE-3 ☐ E-2☐ SE-2 ☐ SE-3 ☐ SE-4 ☐ S-2☐ SW-2 ☐ W-2 ☐ NW-2> 10 MILES: ☐ DISTANCE FROM PLANT: _____ MILES9. **CURRENT PLANT CONDITION:** ☐ IMPROVING ☐ STABILIZED ☐ DEGRADING TIME REACTOR TRIPPED _____

10. **FIELD TEAM DATA:** ☐ Not Available; Time Collected: _____ At _____ Miles From CTMT =
_____ mR/hr GAMMA, _____ (uCi/cc) IODINE, _____ (uCi/cc) PART.

11. **RELEASE RATE:** Release Start Time: _____ Estimated Total Release Time In Hours: _____
At (Time) _____ Release Rate = _____ Ci/Sec NOBLE GAS and _____ Ci/Sec RADIOIODINE

12. **CENTERLINE DOSES (Based on):**

- ☐ RAD MONITORING SYSTEM ☐ USAR SOURCE TERM ESTIMATE ☐ FIELD TEAM MONITORING DATA

	INTEGRATED DOSES PROJECTED (TIME): RELEASE START		RELEASE STOPPED
	TEDE (REM)		THYROID (REM)
EAB			
2 MI			
5 MI			
10 MI			

COMMENTS: [Commitment Step 3.2.1] _____

13. **NOTIFICATION APPROVAL:** _____ / _____

Signature

Title

(FOR WCNOG USE ONLY)	PRIMARY CONTACT	ALTERNATE CONTACTS		PERSON/TIME
COFFEY COUNTY SHERIFF	620-364-2123	STATION RADIO	KHP 785-827-4437	
KANSAS DIVISION OF EMERGENCY MANAGEMENT	785-296-3176 LEAVE MESSAGE	STATE RADIO	STATE EOC ACTIVATED 785-274-1422	
NRC RESIDENT INSPECTOR	OFFICE EXT. 4574	FRANK BRUSH Cell: 620-343-0577 Home: 620-364-3631 NRC PAGER 816-466-5209		
TOPEKA SYSTEM DISPATCH	785-575-6078			

ANI (ALERT OR HIGHER)	860-561-3433; OFF HOURS LEAVE MESSAGE	
INPO (ALERT OR HIGHER)	800-321-0614	

EPF 06-007-01 Rev 7

MESSAGE NO.:

WOLF CREEK GENERATING STATION EMERGENCY NOTIFICATION

1. **STATUS:** ☐ ACTUAL ☐ DRILL
2. **CODE WORD** (County/State only): _____
3. **NOTIFICATION TYPE:**
☐ IMMEDIATE (Steps 1-8, & 13) ☐ FOLLOWUP (ALL)

4. **EMERGENCY CLASSIFICATION:**

TIME: _____ DATE: ____/____/____

- ☐ UNUSUAL EVENT ☐ ALERT ☐ SITE AREA
☐ GENERAL ☐ RECOVERY ☐ TERMINATION

5. **REASON FOR CLASSIFICATION:** (EAL)

- ☐ 1-RER ☐ 2-SGTF ☐ 3-LRCB ☐ 4-MSLB
☐ 5-FEF ☐ 6-LEP/AC ☐ 7-FHA ☐ 8-SSFM
☐ 9-LPC/SC ☐ 10-FR ☐ 11-NP ☐ 12-OH
☐ 13-ADM

EAL Step Numbers _____

6. **METEOROLOGICAL DATA:**

WIND: AT: _____ MPH, FROM: _____ TOWARDS: _____ Degrees

STABILITY CLASS: _____ PRECIPITATION: ☐ YES ☐ NO7. **RADIOLOGICAL RELEASE STATUS:**

- ☐ NONE ☐ PLANNED ☐ MONITORED
☐ TERMINATED ☐ UNPLANNED ☐ UNMONITORED
(If NONE, N/A steps 10, 11, & 12 for Follow-up Notifications)

8. **PROTECTIVE ACTION RECOMMENDATION:** ☐ NONE

IF making a PAR only, TIME OF PAR: _____

- ☐ CCL & JRR 0-2 MILES: ☐ CTR

2-5 MILES: ☐ N-1 ☐ NE-1 ☐ E-1 ☐ SE-1☐ S-1 ☐ SW-1 ☐ W-1 ☐ NW-15-10 MILES: ☐ N-2 ☐ NE-2 ☐ NE-3 ☐ E-2☐ SE-2 ☐ SE-3 ☐ SE-4 ☐ S-2☐ SW-2 ☐ W-2 ☐ NW-2> 10 MILES: ☐ DISTANCE FROM PLANT: _____ MILES9. **CURRENT PLANT CONDITION:** ☐ IMPROVING ☐ STABILIZED ☐ DEGRADING TIME REACTOR TRIPPED _____

10. **FIELD TEAM DATA:** ☐ Not Available; Time Collected: _____ At _____ Miles From CTMT =
_____ mR/hr GAMMA, _____ (uCi/cc) IODINE, _____ (uCi/cc) PART.

11. **RELEASE RATE:** Release Start Time: _____ Estimated Total Release Time In Hours: _____
At (Time) _____ Release Rate = _____ Ci/Sec NOBLE GAS and _____ Ci/Sec RADIOIODINE

12. **CENTERLINE DOSES (Based on):**

- ☐ RAD MONITORING SYSTEM ☐ USAR SOURCE TERM ESTIMATE ☐ FIELD TEAM MONITORING DATA

	INTEGRATED DOSES PROJECTED (TIME): RELEASE START		RELEASE STOPPED
	TEDE (REM)		THYROID (REM)
EAB			
2 MI			
5 MI			
10 MI			

COMMENTS: [Commitment Step 3.2.1] _____

13. **NOTIFICATION APPROVAL:** _____ / _____

Signature

Title

(FOR WCNOG USE ONLY)	PRIMARY CONTACT	ALTERNATE CONTACTS		PERSON/TIME
COFFEY COUNTY SHERIFF	620-364-2123	STATION RADIO	KHP 785-827-4437	
KANSAS DIVISION OF EMERGENCY MANAGEMENT	785-296-3176 LEAVE MESSAGE	STATE RADIO	STATE EOC ACTIVATED 785-274-1422	
NRC RESIDENT INSPECTOR	OFFICE EXT. 4574	FRANK BRUSH Cell: 620-343-0577 Home: 620-364-3631 NRC PAGER 816-466-5209		
TOPEKA SYSTEM DISPATCH	785-575-6078			

ANI (ALERT OR HIGHER)	860-561-3433; OFF HOURS LEAVE MESSAGE	
INPO (ALERT OR HIGHER)	800-321-0614	

WOLF CREEK GENERATING STATION EMERGENCY NOTIFICATION1. **STATUS:** ☐ ACTUAL ☐ DRILL2. **CODE WORD** (County/State only): _____3. **NOTIFICATION TYPE:**☐ IMMEDIATE (Steps 1-8, & 13) ☐ FOLLOWUP (ALL)4. **EMERGENCY CLASSIFICATION:**

TIME: _____ DATE: ____/____/____

☐ UNUSUAL EVENT ☐ ALERT ☐ SITE AREA
☐ GENERAL ☐ RECOVERY ☐ TERMINATION5. **REASON FOR CLASSIFICATION:** (EAL)☐ 1-RER ☐ 2-SGTF ☐ 3-LRCB ☐ 4-MSLB
☐ 5-FEF ☐ 6-LEP/AC ☐ 7-FHA ☐ 8-SSFM
☐ 9-LPC/SC ☐ 10-FR ☐ 11-NP ☐ 12-OH
☐ 13-ADM

EAL Step Numbers _____

6. **METEOROLOGICAL DATA:**

WIND: AT: _____ MPH, FROM: _____ TOWARDS: _____ Degrees

STABILITY CLASS: _____ PRECIPITATION: ☐ YES ☐ NO7. **RADIOLOGICAL RELEASE STATUS:**☐ NONE ☐ PLANNED ☐ MONITORED
☐ TERMINATED ☐ UNPLANNED ☐ UNMONITORED
(If NONE, N/A steps 10, 11, & 12 for Follow-up Notifications)8. **PROTECTIVE ACTION RECOMMENDATION:** ☐ NONE

IF making a PAR only, TIME OF PAR: _____

☐ CCL & JRR ☐ 0-2 MILES: ☐ CTR2-5 MILES: ☐ N-1 ☐ NE-1 ☐ E-1 ☐ SE-1☐ S-1 ☐ SW-1 ☐ W-1 ☐ NW-15-10 MILES: ☐ N-2 ☐ NE-2 ☐ NE-3 ☐ E-2☐ SE-2 ☐ SE-3 ☐ SE-4 ☐ S-2☐ SW-2 ☐ W-2 ☐ NW-2> 10 MILES: ☐ DISTANCE FROM PLANT: _____ MILES9. **CURRENT PLANT CONDITION:** ☐ IMPROVING ☐ STABILIZED ☐ DEGRADING TIME REACTOR TRIPPED _____10. **FIELD TEAM DATA:** ☐ Not Available; Time Collected: _____ At _____ Miles From CTMT =
_____ mR/hr GAMMA, _____ (uCi/cc) IODINE, _____ (uCi/cc) PART.11. **RELEASE RATE:** Release Start Time: _____ Estimated Total Release Time In Hours: _____
At (Time) _____ Release Rate = _____ Ci/Sec NOBLE GAS and _____ Ci/Sec RADIOIODINE12. **CENTERLINE DOSES (Based on):**☐ RAD MONITORING SYSTEM ☐ USAR SOURCE TERM ESTIMATE ☐ FIELD TEAM MONITORING DATA

	INTEGRATED DOSES PROJECTED (TIME):	
	RELEASE START	RELEASE STOPPED
	TEDE (REM)	THYROID (REM)
EAB		
2 MI		
5 MI		
10 MI		

COMMENTS: [Commitment Step 3.2.1] _____

13. **NOTIFICATION APPROVAL:** _____ / _____
Signature Title

(FOR WCNOG USE ONLY)	PRIMARY CONTACT	ALTERNATE CONTACTS		PERSON/TIME
COFFEY COUNTY SHERIFF	620-364-2123	STATION RADIO	KHP 785-827-4437	
KANSAS DIVISION OF EMERGENCY MANAGEMENT	785-296-3176 LEAVE MESSAGE	STATE RADIO	STATE EOC ACTIVATED 785-274-1422	
NRC RESIDENT INSPECTOR	OFFICE EXT. 4574	FRANK BRUSH Cell: 620-343-0577 Home: 620-364-3631 NRC PAGER 816-466-5209		
TOPEKA SYSTEM DISPATCH	785-575-6078			

ANI (ALERT OR HIGHER)	860-561-3433; OFF HOURS LEAVE MESSAGE	
INPO (ALERT OR HIGHER)	800-321-0614	

SRO A4

JPM NO: 009A-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	

☐ SATISFACTORY ☐ UNSATISFACTORY

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

CONTROL ROOM SIMULATOR/LAB X PLANT CLASSROOM

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED **X** _____

TOOLS/EQUIPMENT: NONE

PREPARER: Ralph L. Ewry 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: You are the Shift Manager.

Initiating Cues: Analyze the events you have just experienced on the simulator, complete items 4, 5, 7, and 8 of an EPF 06-007-01, WCGS Emergency Notification form (provided). Use current plant status.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: Present the blank Emergency Notification 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 scenario just completed.

START TIME: _____

STOP TIME: _____

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

			S U
1. * The classification for Scenario #1		EAL 8-SSFM1 – No 8-SSFM4 – Yes 8-SSFM5 – Yes 8-SSFM6 – No Site Area Emergency	Comments:
2. * Perform Attachment A of EPP 06-006		PAR Complete EMERGENCY ACTION NOTIFICATION as indicated on attached “Key”. <ul style="list-style-type: none"> Sections 4, 5, 7, and 8 are critical 	
	THE JPM IS COMPLETE <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 Shift Manager.

Initiating Cues: Analyze the events you have just experienced on the simulator, complete items 4, 5, 7, and 8 of an EPF 06-007-01, WCGS Emergency Notification form (provided). Use current plant status.

SRO A-4

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	

☐ SATISFACTORY ☐ UNSATISFACTORY

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

CONTROL ROOM SIMULATOR/LAB X PLANT CLASSROOM

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED **X** _____

TOOLS/EQUIPMENT: NONE

PREPARER: Ralph L. Ewry 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 scenario just completed.

START TIME: _____

STOP TIME: _____

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

			S U
1. * The classification for Scenario #2		EAL 2-SGTF1 – Yes 2-SGTF2 – NO 2-SGTF9 – Yes 2-SGTF10 – No 2-SGTF12 – No Alert	Comments:
2. * Perform Attachment A of EPP 06-006	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>	PAR Complete EMERGENCY ACTION NOTIFICATION as indicated on attached “Key”. <ul style="list-style-type: none"> Sections 4, 5, 7, and 8 are critical 	

* 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.

Administrative (Simulator Scenario #3)

SRO A-4

WOLF CREEK JOB PERFORMANCE MEASURE

JPM NO: 009C-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 L. 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**

			S U
1. * This classification is for Scenario #3	NOTE: Cue must have been given during the scenario that the steam line break caused damage in Area 5. See EAL 12 Block 4 Background	EAL 12-OH1 – No 12-OH3 – No 12-OH4 – Yes 12-OH6 – Yes Alert	Comments:
2. * Perform Attachment A of EPP 06-006	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>	PAR Perform Attachment A of EPP 06-006 Complete EMERGENCY ACTION NOTIFICATION as indicated on attached “Key”. <ul style="list-style-type: none"> Sections 4, 5, 7, and 8 are critical 	

* 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.

Administrative (Simulator Scenario #4)**SRO A-4****WOLF CREEK JOB PERFORMANCE MEASURE**

JPM NO: 009D-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 X PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED X

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 L. 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 scenario just completed.

START TIME: _____

STOP TIME: _____

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

			S U
1. * This classification is for Backup Scenario #4		EAL 3-LRCB1 – Yes 3-LRCB2 – Yes 3-LRCB3 – No 3-LRCB5 – Yes 3-LRCB6 – No 3-LRCB7 – No Alert	Comments:
2. * Perform Attachment A of EPP 06-006		PAR Perform Attachment A of EPP 06-006 Complete EMERGENCY ACTION NOTIFICATION as indicated on attached “Key”. <ul style="list-style-type: none"> Sections 4, 5, 7, and 8 are critical 	
	THE JPM IS COMPLETE <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 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.



INITIAL LICENSE EXAM

OPERATING TEST # 1

SCENARIO # 1

Revision 02

Week of May 10, 2004

Facility: Wolf Creek **NRC Scenario No.:** 1 **Op-Test No.:** 1 **Revision** 02

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 Warning for Coffey County.

Turnover: Maintain current plant conditions.

Event No.	Malf. No.	Event Type*	Event Description
1 T+1	mRCS 01B	I	Loop Two Thot average channel fails high.
2 T+14	mMSS 13	I	Steam Header Pressure Channel fails low. (Affects both MFP's)
3 T+22	mPRS 03A	C	Pzr Spray Valve fails full open in Automatic.
4 T+27	mEPS 06B	C	Vital 4160volt NB02 bus lockout
5 T+45	N/A	N (BOP) R (RO)	Tech Spec Required Shutdown due to loss of two AFW pumps.
6 T+60	mFWM 20	M	Main Feed Line break in Turbine Building
7 T+63	mAFW 02B	C	TDAFW pump fails. Entry to FR-H1.
8 T+72		C	“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 Crew A		
Examiners		Applicants
E1: E2: E3:		CRS: SRO-U RO: RO1 BOP: RO2
Session 2 Crew C		
Examiners		Applicants
E2: E1:		CRS: Surrogate RO: SRO-I3 BOP: RO4
Session 3 Crew B		
Examiners		Applicants
E3: E4:		CRS: Surrogate RO: SRO-I4 BOP: RO5
Session 4 Crew D		
Examiners		Applicants
E4: E3: E1:		CRS: SRO-I1 RO: SRO-I2 BOP: RO3

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 loop 2 temperature instrument failure, 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 loop temperature failure and 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 EMRGENCY 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: Loop Two Thot average channel fails high.**

Time	Position	Applicant's Actions or Behavior	Notes
	RO	Notifies 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 Tavg and Delta T indication on Loop Bravo are high.	
	CRS	Enter and direct OFN SB-008, Instrument Malfunctions, Attachment “L”. Steps L1 and L2 are already complete.	
	BOP	Checks steam dumps in Tavg mode and dumps are closed.	
	RO	Confirms Loop 2 temperature channel failed. Selects loop 2 on Tavg / DT defeat switches.	
	CRS/RO	Conduct Reactivity brief and withdraw control rods back to the ‘parked’ position. BOP Peer check rod motion. Checks Tavg/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 1 continued)**

	BOP	<p>On Miscellaneous Bi-Stable Panel, checks C-7 interlock not lit.</p> <p>Check Steam Dump Bypass interlock switches in ON</p> <p>Monitor Steam Dump System.</p> <p>Check Failed Temperature Channel not used on OPDT and OTDT recorders.</p>	
	CRS	<p>Contact Work Week Manager (WWM) and request I&C assistance to trip bi-stables and repair channel.</p> <p>Review and comply with Tech Specs.</p> <p>T.S. 3.3.1 Reactor Trip System</p> <p>Condition A</p> <p>Table 3.3.1-1, Functions 6 and 7.</p>	<p><i>6 hours to place channel in trip or be in Mode 3 in 12 hours</i></p>
<p>Termination Criteria: Control Rods are in automatic and returned to the 'park' position. Tech Spec time limit has been identified.</p>			

OPERATOR ACTIONS**Op-Test No.: # 1 Scenario No.: 1 Event No.: 2****Event Description: Steam Header Pressure Channel fails low. (Affects both MFP's)**

Time	Position	Applicant's Actions or Behavior	Notes
	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.: 3****Event Description: PZR Spray Valve "A" fails full open in Automatic.**

Time	Position	Applicant's Actions or Behavior	Notes
	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 nd 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.: 4****Event Description: Vital 4160 volt NB02 bus lockout.**

Time	Position	Applicant's Actions or Behavior	Notes
	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)	Align CCW to Red Train: Start one CCW pump (A or C) Open Red Train to Service Loop Valves (EG HIS-15) 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 4 Continued**

	RO	Check Yellow Train AC Emergency Bus De-energized.	
	BOP	Verify CCW Service Loop Aligned to Red Train. <ul style="list-style-type: none"> • Start A or C CCW pump. • Open Red Train Supply/Return Valves. EG HS-15 • Dispatch Operator to locally close Yellow Train Supply/Return valves. 	<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	Establish ESW to Red Train <ul style="list-style-type: none"> • Start "A" ESW Pump • Open Train A to UHS EF HIS-37 • Close red train ESW valves EF HIS 23 EF HIS-41 	
	CRS/BOP	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.)	
	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.	
Termination Criteria: Red Train ESW and CCW are in service.			

OPERATOR ACTIONS**Op-Test No.: # 1 Scenario No.: 1 Event No.: 5****Event Description: Tech Spec Required Shutdown**

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

Time	Position	Applicant's Actions or Behavior	Notes
	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"> • Press Decrease Load till Load Limit light is out. • Select 1%/Minute on Loading Rate. • Select Decrease Loading Rate – ON. • Decrease Load Set, maintain within 200 MW of actual load. 	
	RO (Continuous)	<ul style="list-style-type: none"> • Use rods to maintain Tavg/Tref error between 0 and +5 • Energize both PZR B/U heaters. • Borate and adjust rods as necessary to maintain rods above RIL. 	
	RO/BOP	<ul style="list-style-type: none"> • Check PZR PORV's / Block Valves • Check PZR Pressure • Check PZR Level 	
	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.: 6****Event Description: Main Feed Line break in Turbine Building.**

Time	Position	Applicant's Actions or Behavior	Notes
	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	<ul style="list-style-type: none"> Rod Bottom Lights Lit. Rx Trip and Bypass Bkrs open. Neutron Flux decreasing (Intermediate Range & Gamma metrics) Transfer NR-45 recorder to Intermediate Range NB01 normal voltage / off site power. Determine SI is NOT actuated. 	
	BOP	<ul style="list-style-type: none"> Main Stop valves all closed. Generator and exciter bkrs open. 	
	RO	<ul style="list-style-type: none"> RCS Press > 1830 PSIG All S/G Press > 615 psig Ctmt Press < 3.5 psig RCS Subcooling > 30 degrees PZR Level > 6% 	

OPERATOR ACTIONS**Event 6 (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.	
Termination Criteria: EMG E-0 Immediate Actions completed, transition is made to EMG ES-02.			

OPERATOR ACTIONS**Op-Test No.: # 1 Scenario No.: 1 Event No.: 7 and 8****Event Description: Loss of Heat Sink, failure of high head Injection.**

Time	Position	Applicant's Actions or Behavior	Notes
	CRS	Conduct Transition Brief for entry to EMG ES-02.	
	RO	Perform EMG F-0 for CSFST	
	CRS/RO BOP (Continuous)	Monitor CSFST on NPIS computer screen after 1 st verification with the procedure.	
	BOP	Note that AFW flow is zero to all S/G's. <ul style="list-style-type: none"> • May attempt to open all AFW valves. • Note and report that zero flow is indicated to all S/G's. 	
	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.	
	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 7/8 (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)	Manually start "A" CCP. Checks BIT flow indicated on EM FI-917A.	<i>Ensures Feed Path Established</i>
	RO/BOP (C)	ARM both Cold Overpressure Protection circuits. Ensure Both Block Valves open. Open both PZR PORV's.	<i>Ensures Bleed Path Established</i>
	RO/BOP	Verifies BOTH Block valves and BOTH PORV's are open.	
Termination Criteria: Bleed and Feed established per steps 27-31 of EMG FR-H1.			Scenario may be terminated anytime after bleed and feed has been established .

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" Safety Injection 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: **2004SCN01.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 after crew assumes the watch, enter **EVENT 1**.

When CRS contacts I&C or the Work Week Manager for Loop 2 Temperature 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 Steam Header pressure instrument, 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 PZR Spray Valve Failure, respond:

“I will assemble a team.”

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

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 2004SCN01.TXT
>TAGOUT 'B' AFW PUMP
IRF NALP01A 1
IRF NALP01AX 1
IRF RALH31 1
IRF RALH35 1
>TAGOUT “A” SI Pump
IRF NEMP01A
>Loop two Thot Avg fails high
IMF mRCS01B (1) 650 20
> AB PT-507 fails low
IMF mMSS13 (2) 0 20
> "A" PZR Sray valve fails full open in Auto
IMF mPRS03A (3) 100 30
>Bus Lockout on NB02
IMF mEPS06B (4)
> Main Feed Line break in Turb Bldg
IMF mFWM20 (6) 1e+7 45
> Trip of TDAFWP tied to Rx Trip
TRGSET 7 "JPPLP4"
IMF mAFW02B (7 180)
> Intermediate Range Compensation failure
IMF mNIS04A 1e-9.5
>Close EG HV16/54 CCW B to Service Loop
TRGSET 8
TRG 8 “SET regh16=0”
>Local Shutdown of “B” EDG
TRGSET 9
RDGS02B (98) 0
RDGS10B (9 5) 0
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- 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: <div style="margin-left: 40px;">"A" Train Work Week</div>
<div style="margin-left: 40px;">Severe Thunderstorm Watch in effect for next four hours. Maintenance is trying to complete all work due to weather.</div>
MAINTENANCE IN PROGRESS: <div style="margin-left: 40px;">"A" MD AFW Pump for bearing replacement. "A" SI pump, jump up for oil change.</div>
TESTING IN PROGRESS: NONE
SIGNIFICANT LCOs IN EFFECT: <div style="margin-left: 40px;">3.7.5 AFW, Condition B, 42 hours to restore. 3.5.2 ECCS, Condition A, 68 hours to restore.</div>

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 _b)	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

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



INITIAL LICENSE EXAM

OPERATING TEST #1

SCENARIO # 2

Revision 02

Week of May 10, 2004

Facility: Wolf Creek NRC Scenario No.: 2 Op-Test No.: 1 Revision 02

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.

Event No.	Malf. No.	Event Type*	Event Description
1 T+1	mPRS 01C	I	PZR Pressure Channel Fails High
2 T+17	mMSS 07C	C	“C” S/G ARV fails open in auto, manual available.
3 T+25	mFWM 03B	C	“B” S/G MFRV fails closed in auto, manual available.
4 T+31	mNIS 03C	I	Nuclear Instrumentation Channel NI-43 fails high.
5 T+40	mRCS 07A	C	SSE/OBE Earthquake causes SBLOCA.
6 T+46	mRCS 06A	M	SSE/OBE escalates to Loss of Offsite Power, LBLOCA.
7 T+47	mDGS 02A/B	C	Both EDG’s fail to Auto Start.
8 T+68	rBN881 2A	C	“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 Crew B		
Examiners		Applicants
E3: E1:		CRS: SRO-I2 RO: RO3 BOP: Surrogate
Session 2 Crew D		
Examiners		Applicants
E3: E4:		CRS: SRO-I4 RO: RO5 BOP: Surrogate
Session 3 Crew B		
Examiners		Applicants
E4:		CRS: Surrogate RO: SRO-I1 BOP: Surrogate
Session 4 Crew C		
Examiners		Applicants
E2: E1:		CRS: SRO-I3 RO: RO4 BOP: Surrogate
Session 5 Crew A		
Examiners		Applicants
E3: E2:		CRS: Surrogate RO: RO2 BOP: RO1

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 event exceeds the Operational Based Earthquake (OBE) causing a small break LOCA at 80 gallons per minute. The crew will enter the off normal procedures and estimate the leak rate. The second 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 form 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**

Time	Position	Applicant's Actions or Behavior	Notes
	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 nd set of PZR back-up heaters.	<i>RO/BOP may change Digital Display for Pressure Indication.</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.**

Time	Position	Applicant's Actions or Behavior	Notes
	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"> • Close AE HV-038. • Reduce turbine load. 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.**

Time	Position	Applicant's Actions or Behavior	Notes
	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.**

Time	Position	Applicant's Actions or Behavior	Notes
	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.	
	CRS/BOP	Bypass Failed Channel at the NI Cabinets. At Detector Current Comparator Drawer: <ul style="list-style-type: none"> • Upper Section switch to N43 • Lower Section switch to N43 • Power Mismatch Bypass to N43 • Rod Stop Bypass to N43 At Comparator and Rate Drawer: <ul style="list-style-type: none"> • Comparator Channel Defeat to N43. 	
	CRS/RO	Conduct Reactivity brief and withdraw control rods back to the 'parked' position. BOP Peer check rod motion. Checks Tav _g /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&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>Termination Criteria: Control Rods are in automatic and returned to the 'park' position. Tech Spec time limit has been identified</p>			

OPERATOR ACTIONS**Op-Test No.: # 1 Scenario No.: 2 Event No.: 5****Event Description: SSE/OBE Earthquake causes SBLOCA. (80 gpm)**

Time	Position	Applicant's Actions or Behavior	Notes
	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. Stabilize PZR Level. Estimate RCS leak rate.	<i>RO should increase charging flow and isolate letdown. Provide estimate of RCS Leak rate at 80 gpm.</i>
	CRS/RO	Check Charging Pump Suction. Check PZR pressure – stable.	
	CRS/BOP	Check S/G Tubes – intact. <ul style="list-style-type: none"> • Dispatch HP • Contact Chemistry. 	
	CRS	Check Containment Conditions	<i>Event 6 will occur when CRS begins checking Cmt conditions, escalating leak size.</i>

Termination Criteria: **OFN BB-007 has been entered with leak rate identified.**

OPERATOR ACTIONS**Op-Test No.: # 1 Scenario No.: 2 Event No.: 6 and 7****Event Description: SSE/OBE escalates to Loss of Offsite Power, LBLOCA.****Both Emergency Diesels Fail to Auto Start.**

Time	Position	Applicant's Actions or Behavior	Notes
	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. Depress Start/Reset pushbutton for both EDG's. 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.**

Time	Position	Applicant's Actions or Behavior	Notes
	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 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.	

	CRS	Enter and Direct EMG E-1 "Loss of	<i>Crew will begin working</i>
--	-----	-----------------------------------	--------------------------------

		Reactor or Secondary Coolant.” Conduct Transition Brief with Crew.	<i>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	
Termination Criteria: Annunciator 047D, RWST Level Lo-Lo 1 alarms and the Crew transitions to EMG ES-12.			

OPERATOR ACTIONS**Op-Test No.: # 1 Scenario No.: 2 Event No.: 8****Event Description: EMG ES-12 is entered; RWST Suction Valve BN HV-8812A fails to automatically re-align.**

Time	Position	Applicant's Actions or Behavior	Notes
	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)	Reset All SI signals. SIS and RWST Switchover.	
	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. Stop "A" RHR pump. Close EJ HV-8811A.	<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)	Close both SI pump mini-flow valves. Using the Power Lockout, close SI pump recirc to RWST	
	CRS/RO (C)	Open both RHR to CCP/SI suction valves. Open both CVCS to SI suction valves. Close both RWST to SI suction valves. Close both RWST to CCP suction valves.	
	CRS	Resume monitoring Critical Safety Functions.	
Termination Criteria:		Cold Leg Recirculation is aligned with "A" RHR pump secured.	Terminate Scenario

CRITICAL TASK SUMMARY

POSITION	EXPECTED RESPONSE	ACCEPTANCE CRITERIA	SAT/ UNSAT
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 the RWST suction valve closed. Remaining ECCS pumps on both trains 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: **2004SCN02.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**.

WHEN cued from the floor, enter **EVENT 6**.

During events 5 and 6 the CRS will contact Chemistry and HP, simply acknowledge the requests.

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
TRGSET 5 (0)
IMF ANN-E098 (5 5) 0
IMF ANN-D098 (5 10) 0
IMF ANN-C098 (5 12) 0
IMF mRCS07C (5 15) 80 60
>Earthquake escalates to LOCA/LOSP
TRGSET 6 (0)
IMF ANN-B098 (6 5) 0
IMF ANN-A098 (6 10) 0
IMF mRCS06C (6 10) 80000 180
>LOSP tied to Rx Trip/Both EDG's Fail to auto start
TRGSET 7 "JPPLP4"
IMF mEPS01A (7 20)
IMF mEPS01B (7 30)
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)
		RO _____	CRS _____
		BOP _____	RO _____
		SE _____	BOP _____
			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 _b)	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

WINDOW	NAME	REASON	WR/WO



INITIAL LICENSE EXAM

OPERATING TEST # 1

SCENARIO # 3 Back Up

Revision 02

Week of May 10, 2004

Facility: Wolf Creek **NRC Scenario No.:** 1 **Op-Test No.:** 1 **Revision 02**

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.**

Time	Position	Applicant's Actions or Behavior	Notes
	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%).	
	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.	
Termination Criteria: S/G level stable or trending to 50%. MFRV back in auto and Tech Specs identified.			

OPERATOR ACTIONS**Op-Test No.: # 1 Scenario No.: 2 Event No.: 2****Event Description: Normal Charging Pump Trips**

Time	Position	Applicant's Actions or Behavior	Notes
	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 120 gpm letdown flow using ALR.	
	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:

OPERATOR ACTIONS**Op-Test No.: # 1 Scenario No.: 2 Event No.: 3****Event Description: Excessive Seal Leak Off “A” RCP.**

Time	Position	Applicant's Actions or Behavior	Notes
	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)	<i>Cue from evaluator: All frame vibrations < 2 All shaft vibrations < 10 All appear steady.</i>
	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>
Termination Criteria: RCP "A" is stopped with Seal Leak Off isolated, T.S required Shut Down identified.			

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.)

Time	Position	Applicant's Actions or Behavior	Notes
	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.	
	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.	
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	CRS	Direct a Reactor Trip and Initiate Safety Injection.	
Termination Criteria: Determined the leak is in excess of the capacity of one charging pump, Rx trip and Safety Injection actuated.			

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	<ul style="list-style-type: none"> Rod Bottom Lights Lit. Rx Trip and Bypass Bkrs open. Neutron Flux decreasing (Intermediate Range & Gamma metrics) Transfer NR-45 recorder to Intermediate Range Both NB buses - normal voltage / off site power. Determine SI is actuated. Annunciators 30A and 30B are lit. 	
	BOP	Recognize Turbine did not trip. Manually trip Turbine <ul style="list-style-type: none"> Main Stop valves all closed. Generator and exciter bkrs open. 	<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)	Makes plant announcement and starts both ESW pumps.	

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.**

Time	Position	Applicant's Actions or Behavior	Notes
	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)	
	BOP	Perform EMG F-0 for CSFST	
	CRS/RO BOP (Continuous)	Monitor CSFST on NPIS computer screen after 1 st 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)	Initiate RCS Cooldown Determine Target Temperature. Cooldown using Steam Dumps/ARVs. Per Ops Expectations, AP 15C-003, the steam dump controller should be lowered slowly such that only group 1 valves open. Once Tav _g is below 550 degrees the low temperature interlock is by-passed and the controller is set at Target Setpoint.	<i>Setting the controller directly to the target setpoint could cause a Main Steam Line Isolation requiring the use of the ARVs.</i> <i>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.	
	CRS/BOP (C)	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.	
Termination Criteria: RCS cooldown is terminated with temperature stable at or below target.			

CRITICAL TASK SUMMARY

POSITION	EXPECTED RESPONSE	ACCEPTANCE CRITERIA	SAT/ UNSAT
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.

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- 1
OFF-GOING: (PRINT)	CRS _____	ON-COMING: (PRINT)	
	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	30	%	RCS: 566.5 °F 2235 PSIG
ROD CONTROL	AUTO <input checked="" type="checkbox"/>	MANUAL <input type="checkbox"/>	
CONTROL BANK D	171	STEPS	
RCS BORON (C _b)	1360	PPM	@ DATE/TIME Today/0400
LEAK RATE (GPM):	IDENTIFIED .02	UNIDENTIFIED .01	@ DATE/TIME Today/0400
COND. AIR INLEAKAGE (IAW STN CH-020)	(total) 13.8		

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

