

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**DETERMINE THE AMOUNT OF DECAY HEAT IN THE CORE**

**REASON FOR REVISION:**

2008 NRC Exam JPM – RO                      **A1**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>26 Aug 2008</u>
Preparer	KCN	Date
<u>Scott Shultz</u>	<u>0176</u>	<u>23 Sep 2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>01 Oct 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

# RJPM-NRC08-A1

<b>TASK DESCRIPTION:</b>	Determine the amount of Decay Heat in the Core per OSP-0041
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<b>TASK REFERENCE:</b>	301001005003
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<b>K/A REFERENCE &amp; RATING:</b>	2.1.20, 4.6/4.6
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<b>TESTING METHOD:</b>	Simulate Performance			Actual Performance	<b>X</b>
	Control Room		Simulator	Classroom	<b>X</b>

<b>COMPLETION TIME:</b>	15 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	RO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	No
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# RJPM-NRC08-A1

## SIMULATOR SETUP SHEET

**Task Description:** Determine the amount of Decay Heat in the Core per OSP-0041

**Required Power:** N/A

**IC No.:** N/A

**Notes:** **Administrative JPM that will be conducted in a classroom.**

## RJPM-NRC08-A1

### DATA SHEET

**References for Development:** OSP-0041, Alternate Decay Heat Removal

**Required Materials:** OSP-0041, Rev 303, Alternate Decay Heat Removal

**Required Plant Condition:** N/A

**Applicable Objectives:**

**Safety Related Task:** (If K/A less than 3.0)

**Control Manipulations:** N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-A1

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### Initial Conditions:

After operating 266 days at 100% power, the plant scrammed at 0400 hours on December 24, 2008. It is now 2000 hours on December 25, 2008. RHR B is operating in SDC and the following conditions exist:

- Reactor coolant temperature is 175°F
- Service Water Temperature is 80°F
- RPCCW Temperature is 89°F

### Initiating Cue:

The OSM has directed you to determine the amount of Decay Heat in the core by completing OSP-0041, Alternate Decay Heat Removal through Step 6.2.2.

**RJPM-NRC08-A1**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
_____ 1.	Determine time since reactor shutdown and record on Attachment 1, Mode Selection.	Using information provided, determines time after shutdown to be 40 hours and records on Attachment 1.	_____
* _____ 2.	Determine core decay heat after shutdown, per Attachment 6, Decay Heat After Shutdown From Full Power or from the Incore Fuels Group if extremely accurate Decay Heat Data is needed. Record Value on Attachment 1.	Using time after shutdown at 40 hours determines Decay Heat to be 58 MBtu/hr ( $\pm 2$ MBtu/hr) and records on Attachment 1.	_____ <b>CUE:</b> Decay Heat information from Incore Fuels Group is NOT available at this time, because of the Christmas holiday.

**Terminating Cue:** OSP-0041, Alternate Decay Heat Removal, Determination of Alternate Decay Heat Removal Method, completed through step 6.2.2..

**RJPM-NRC08-A1**

**SAMPLE COMPLETED OSP-0041 ATTACHMENT 1**

1 Time Since Reactor Shutdown

Record current date and time 25 Dec 2008 / 2000 Hr

Record date and time of Reactor shutdown 24 Dec 2008 @ 0400 Hr

Determine length of time since Reactor shutdown 40 Hours

2 Reactor Core Decay Heat from Attachment 6 or Incore Fuels Group

58 x 10<sup>6</sup> BTU/HR

Attachment 6 / Incore Fuels Group (Circle one)

**RJPM-NRC08-A1**  
**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# RJPM-NRC08-A1

## JPM Task Conditions/Cues

(Operator Copy)

**Initial Conditions:** After operating 266 days at 100% power, the plant scrammed at 0400 hours on December 24, 2008. It is now 2000 hours on December 25, 2008. RHR B is operating in SDC and the following conditions exist:

- Reactor coolant temperature is 175°F
- Service Water Temperature is 80°F
- RPCCW Temperature is 89°F

**Initiating Cues:** The OSM has directed you to determine the amount of Decay Heat in the core by completing OSP-0041, Alternate Decay Heat Removal through Step 6.2.2.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**DETERMINE WHEN HOT SHUTDOWN BORON WEIGHT HAS BEEN  
INJECTED INTO THE CORE**

**REASON FOR REVISION:**

2008 NRC Exam JPM – RO                      **A2**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>26 Aug 2008</u>
Preparer	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>01 Oct 2008</u>
Technical Review (SME)	KCN	Date
<u>Eric Stone</u>	<u>0348</u>	<u>23 Sep 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

## RJPM-NRC08-A2

<b>TASK DESCRIPTION:</b>	Determine when Hot Shutdown Boron weight has been injected into the core per EOP-0005 Enclosure 15
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<b>TASK REFERENCE:</b>
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<b>K/A REFERENCE &amp; RATING:</b>	2.1.25, 3.9/4.2
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<b>TESTING METHOD:</b>	Simulate Performance			Actual Performance	<b>X</b>
	Control Room		Simulator	Classroom	<b>X</b>

<b>COMPLETION TIME:</b>	15 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	RO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	No
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## **RJPM-NRC08-A2**

### **SIMULATOR SETUP SHEET**

**Task Description:** Determine when Hot Shutdown Boron weight has been injected into the core per EOP-0005 Enclosure 15

**Required Power:** N/A

**IC No.:** N/A

**Notes:** **Administrative JPM that will be conducted in a classroom.**

## RJPM-NRC08-A2

### DATA SHEET

<b>References for Development:</b>	EOP-0005, Enclose 15 Alternate SLC Injection and SLC Tk gal to lb conversion
<b>Required Materials:</b>	EOP-0005, Enclose 15 Alternate SLC Injection and SLC Tk gal to lb conversion
<b>Required Plant Condition:</b>	N/A
<b>Applicable Objectives:</b>	RLP-HLO-516 Objective 1
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-A2

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### Initial Conditions:

An Anticipated Transient without Scram (ATWS) has occurred, 47 rods have failed to fully insert into the core.

- Reactor Pressure is 900 psig and stable
- Suppression Pool temperature is 109°F and rising
- Both Recirculation Pumps are tripped
- Initial SLC tank level is 3400 gal
- SLC pump 'A' was started at 0912 hours

### Initiating Cue:

The Control Room Supervisor has directed you to determine the tank level at which the Hot Shutdown Boron weight has been injected and approximately what time this will occur.

**RJPM-NRC08-A2**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
* _____1.	Using the Standby Liquid Control Injection Requirements table on page 8 of 10 of the enclosure, determine the tank level which must be reached to have injected Hot Shutdown Boron weight into the core.	_____	
* _____2.	Using the Standby Liquid Control Injection Requirements table on page 8 of 10 of the enclosure, determine the time when Hot Shutdown Boron weight will be injected.	_____	This information is provided to reflect the expected results for how soon Hot Shutdown Boron weight is achieved, since there is no SLC flow indication.

**Terminating Cue:** Hot Shutdown Boron weight tank level and injection time have been reported per EOP-0005, Enclosure 15.

**RJPM-NRC08-A2**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-A2**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** An Anticipated Transient without Scram (ATWS) has occurred, 47 rods have failed to fully insert into the core.

Reactor Pressure is 900 psig and stable  
Suppression Pool temperature is 109°F and rising  
Both Recirculation Pumps are tripped  
Initial SLC tank level is 3400 gal  
SLC pump 'A' was started at 0912 hours

**Initiating Cues:** The Control Room Supervisor has directed you to determine the tank level at which the Hot Shutdown Boron weight has been injected and approximately what time this will occur.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**DETERMINE EFFECTS OF REMOVING CONTROL POWER FUSE FOR  
CONTROL ROOM VENTILATION DAMPER HVC-AOD8B**

**REASON FOR REVISION:**

2008 NRC Exam JPM – RO

**A3**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>26 Aug 2008</u>
Preparer	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>01 Oct 2008</u>
Technical Review (SME)	KCN	Date
<u>Scott Shultz</u>	<u>0176</u>	<u>23 Sep 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

**RJPM-NRC08-A3**

<b>TASK DESCRIPTION:</b>	Determine Effects of Removing Control Power Fuse for Control Room Ventilation Damper HVC-AOD8B
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<b>TASK REFERENCE:</b>	300246003001
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<b>K/A REFERENCE &amp; RATING:</b>	2.2.15, 3.9/4.3
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<b>TESTING METHOD:</b>	Simulate Performance			Actual Performance	<b>X</b>
	Control Room		Simulator	Classroom	<b>X</b>

<b>COMPLETION TIME:</b>	15 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	RO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	No
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## **RJPM-NRC08-A3**

### **SIMULATOR SETUP SHEET**

**Task Description:** Determine Effects of Removing Control Power Fuse for Control Room Ventilation Damper HVC-AOD8B

**Required Power:** N/A

**IC No.:** N/A

**Notes:** **Administrative JPM that will be conducted in a classroom.**

## RJPM-NRC08-A3

### DATA SHEET

<b>References for Development:</b>	ESK-7HVC07 ESK-7SCC16 ESK-10ANN15 PID-22-09B ARP-P863-74A-D07
<b>Required Materials:</b>	ESK-7HVC07 ESK-7SCC16 ESK-10ANN15 PID-22-09A PID-22-09B PID-22-09C ARP-P863-74A
<b>Required Plant Condition:</b>	N/A
<b>Applicable Objectives:</b>	HLO-542-1, Obj. 4, 5, &6
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-A3

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### Initial Conditions:

Mechanical Maintenance has a Work Order to work on the actuator linkage for the “B” Control Room Air Handling Unit inlet damper, HVC-AOD8B. The Air Handling Unit has been tagged out and Electricians are ready to remove 5 amp Fuse F3 in Panel P852 to de-energize the solenoid-operated air valve HVC-SOV8B to isolate the pneumatics from HVC-AOD8B for work to begin.

### Initiating Cue:

Given ESK-7HVC07, the CRS has directed you to determine the following:

1. The fail position of HVCAOD8B.
2. Any other component(s) affected by the fuse removal.
3. The effect(s) the fuse removal will have on Control Room Panel P863 alarms and indications.

**NOTE: To pass the JPM, you must determine Items 1 and 2, and at least THREE of the FOUR effects on P863 alarms and indications for Item 3.**

**RJPM-NRC08-A3**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
* 1.	Using ESK-7HVC07 and/or P&ID-22-09, determines damper fail position.	HVC-AOD8B fails closed when de-energized	NOTE: Provide additional prints, ESK-7SCC16, ESK-10ANN15 or PID-22-09 when requested by candidate.
* 2.	Using ESK-7HVC07, ESK-7SCC16, ESK-10ANN15, and ARPs, identifies impact of fuse removal on Control Room indication and alarm status.	States fuse removal will cause the following on P863: <ul style="list-style-type: none"> <li>• De-energizes (red and green) position indication lights for HVC-AOD8B.</li> <li>• De-energizes (red and green) position indication lights for HVC-AOD6B.</li> <li>• Energizes (or turns on) the Amber inop status light (postage stamp) “Cont Bldg Dmprs.”</li> <li>• Initiates alarm window No. 0409 on P863, Annunciator “DIV 2 CONTROL BLDG VENT SYSTEM INOP”.</li> <li>• HVC-AOD6B fails closed when de-energized</li> </ul>	NOTE: <b>Must have three of the four bulleted items correct to meet pass criteria for this critical step.</b>  Candidates may include in their response (though not required) that the fuse removal de-energizes relay 74A, which actuates the inop status light and annunciator.  CUE: <b>If candidate only provides Alarm Window No. 0409, as CRS state that you want the Title of the alarm window and provide ARP-P863-74A. (NOTE: Candidate must identify alarm window from print to be provided ARP-P863-74A.)</b>

**Terminating Cue:** Provided fuse removal fail position of HVC-AOD8B, its impact on HVC-AOD6B and Control Room P863 indications and alarms.

**RJPM-NRC08-A3**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-A3**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** Mechanical Maintenance has a Work Order to work on the actuator linkage for the “B” Control Room Air Handling Unit inlet damper, HVC-AOD8B. The Air Handling Unit has been tagged out and Electricians are ready to remove 5 amp Fuse F3 in Panel P852 to de-energize the solenoid-operated air valve HVC-SOV8B to isolate the pneumatics from HVC-AOD8B for work to begin.

**Initiating Cues:** Given ESK-7HVC07, the CRS has directed you to determine the following:

1. The fail position of HVCAOD8B.
2. Any other component(s) affected by the fuse removal.
3. The effect(s) the fuse removal will have on Control Room Panel P863 alarms and indications.

**NOTE: To pass the JPM, you must determine Items 1 and 2, and at least THREE of the FOUR effects on P863 alarms and indications for Item 3.**

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**DEMONSTRATE ABILITY TO USE A FRISKER**

**REASON FOR REVISION:**

2008 NRC Exam JPM – RO & SRO

**A4**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>26 Aug 2008</u>
Preparer	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>01 Oct 2008</u>
Technical Review (SME)	KCN	Date
<u>Eric Stone</u>	<u>0348</u>	<u>23 Sep 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

## RJPM-NRC08-A4

**TASK DESCRIPTION:** Demonstrate ability to use a Frisker

**TASK REFERENCE:**

**K/A REFERENCE & RATING:** 2.3.5, 2.9/2.9

<b>TESTING METHOD:</b>	Simulate Performance			Actual Performance	<b>X</b>
	Control Room		Simulator	Classroom	<b>X</b>

**COMPLETION TIME:** 10 min.

**MAX TIME:** N/A

**JOB LEVEL:** RO & SRO

**TIME CRITICAL:** No

**EIP CLASSIFICATION REQUIRED:** No

**PSA RISK DOMINATE:** No

**ALTERNATE PATH (FAULTED):** No

# RJPM-NRC08-A4

## SIMULATOR SETUP SHEET

**Task Description:** Demonstrate ability to use a Frisker  
**Required Power:** N/A  
**IC No.:** N/A  
**Notes:** **Administrative JPM that will be conducted in a classroom.**

## RJPM-NRC08-A4

### DATA SHEET

<b>References for Development:</b>	EPF-GET-RWT, Inprocessing Practical Exercise for Radiation Workers EN-RP-100, Radworker Expectations
<b>Required Materials:</b>	Personal Contamination Frisker
<b>Required Plant Condition:</b>	N/A
<b>Applicable Objectives:</b>	EPF-GET-RWT, Obj. 3.6
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-A4

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

You are exiting a Contaminated area in the Turbine Building (95' Heater Bay)

### **Initiating Cue:**

Show how you would frisk yourself before leaving the area.

**RJPM-NRC08-A4**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
* 1.	Verify that the Frisker is powered on	_____	
* 2.	Verify that the Frisker is on the X1 scale	_____	<b>If using a Frisker to exit the RCA background reading is less than 200 cpm</b>
* 3.	Frisk hands prior to picking up the probe	_____	If frisker alarms or reads 100 cpm higher than background, contact RP from the nearest phone or gaitronics, return to the frisker and wait for RP personnel
* 4.	Move the probe slowly over the body at 2 inch per second and ~ ½ inch away.  Listen for an audible response and hold stationary over any area which causes increased count rate	_____	
5.	Leave the probe arranged so that the next person can frisk their hands prior to using the frisker	_____	

**Terminating Cue:** Contamination frisk is complete, no Contamination found.

**RJPM-NRC08-A4**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**RJPM-NRC08-A4**

**JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** You are exiting a Contaminated area in the Turbine Building (95' Heater Bay)

**Initiating Cues:** Show how you would frisk yourself before leaving the area.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**PERFORM CALCULATION PER GOP-0004 FOR ENTERING SINGLE  
LOOP OPERATION**

**REASON FOR REVISION:**

2008 NRC Exam JPM – SRO

**A5**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>16 Sept 2008</u>
Preparer	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>01 Oct 2008</u>
Technical Review (SME)	KCN	Date
<u>Russell Zahorchak</u>	<u>0564</u>	<u>23 Sep 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

**RJPM-NRC08-A5**

<b>TASK DESCRIPTION:</b>	Perform Calculations per GOP-0004 for Entering Single Loop Operation
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<b>TASK REFERENCE:</b>	300066003001
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<b>K/A REFERENCE &amp; RATING:</b>	2.1.20, 4.6/4.6
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<b>TESTING METHOD:</b>	Simulate Performance			Actual Performance	<b>X</b>
	Control Room		Simulator	Classroom	<b>X</b>

<b>COMPLETION TIME:</b>	10 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	SRO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	No
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## **RJPM-NRC08-A5**

### **SIMULATOR SETUP SHEET**

**Task Description:** Perform Calculations per GOP-0004 for Entering Single Loop Operation

**Required Power:** N/A

**IC No.:** N/A

**Notes:** **Administrative JPM that will be conducted in a classroom.**

## RJPM-NRC08-A5

### DATA SHEET

<b>References for Development:</b>	GOP-0004, Single Loop Operation, Attachment 1
<b>Required Materials:</b>	GOP-0004, Single Loop Operation, Attachment 1  CE Power Systems Steam Tables 12 <sup>th</sup> Edition are available.
<b>Required Plant Condition:</b>	Any
<b>Applicable Objectives:</b>	HLO-503, Obj. 2
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-A5

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### Initial Conditions:

The "A" Reactor Recirc Pump tripped from full power and GOP-0004 Single Loop Operation has been entered  
Loop B Flow recorder pen on C51-R614 is failed downscale requiring use of Group Point B33NA007 for Flow Calculation.  
B33NA007 is reading 12.77 Mlbm/hr.

CMWth = 1850 MWth

'B' Loop Operating Temperature 524°F

Both Recirc Flow Control valve M/A stations have MAN lights on

### Initiating Cue:

The CRS has directed you to complete Step 4 of GOP-0004, Attachment 1.

**RJPM-NRC08-A5**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
<p>* 1.</p>	<p>Within one hour of entering Single Loop Operation, verify the following: Thermal Power is less than or equal to 79% Rated Thermal Power (2400 MWTH) _____ CMWTH= _____ % ≤77.6% 3091 (TSR 3.4.1.1.2)</p>	<p>Determines power to be 60% ±1%.</p>	<p>_____</p> <p><b>NOTE:</b> Initial conditions set CMWth power at 1850 MWth.</p>
<p>_____ 2.</p>	<p><u>AND</u> At H13-P680, B33-HYVF060A and B33-HYVF060B, FLOW CONT VALVE, is in LOOP MANUAL. (TSR 3.4.1.1.3)</p>	<p>Verifies both Recirc FCV M/A Stations in MANUAL. MAN lights ON.</p>	<p>_____</p>
<p>_____ 3.</p>	<p>Total loop flow in running loop is less than 33 kgpm using one of the following methods (N/A method <u>not</u> used): (TSR 3.4.1.1.1)</p>	<p>.</p>	<p>_____</p>

**RJPM-NRC08-A5**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
<p>* 4. Use computer point for the operating (LOOP B - B33NA007 or B33NA008) and convert from mlbm/hr to kgpm using the following formula:</p> $\frac{\text{flow}}{(\text{flow})} \times \frac{\text{sv}}{(\text{sv})} \times (124.68) = \frac{\text{kgpm}}{(\text{kgpm})}$ <p>where            flow = loop flow from computer point in mlbm/hr.            sv = specific volume from steam tables (Vf) (dependent on loop temp) in ft<sup>3</sup>/lbm.</p>	<p>Determines flow to be 33.5 kgpm, ±0.1 kgpm</p>	<p>_____</p>	<p><b>CUE:</b> The PMS (Plant Computer) Point is reading 524 °F</p> <p>B33NA007 reads ~12.77 Mlbm/hr</p> <p>Vf for 524°F is 0.02102 by interpolation</p> <p><b>VALUE IS OUT OF LIMITS HIGH &gt;33 kgpm</b></p>

**Terminating Cue:** Step 4 of GOP-0004, Attachment 1 is completed.

**RJPM-NRC08-A5**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## RJPM-NRC08-A5

### JPM Task Conditions/Cues

(Operator Copy)

**Initial Conditions:** The "A" Reactor Recirc Pump tripped from full power and GOP-0004 Single Loop Operation has been entered  
Loop B Flow recorder pen on C51-R614 is failed downscale requiring use of Group Point B33NA007 for Flow Calculation.  
B33NA007 is reading 12.77 Mlbm/hr.

CMWth = 1850 MWth

'B' Loop Operating Temperature 524°F

Both Recirc Flow Control valve M/A stations have MAN lights on

**Initiating Cues:** The CRS has directed you to complete Step 4 of GOP-0004, Attachment 1.

**RIVER  
BEND STATION**

Number: \***RJPM-NRC08-A6**  
Revision: **0**  
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**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**DETERMINE PLANT SAFETY LEVEL DURING SHUTDOWN  
CONDITIONS**

**REASON FOR REVISION:**

2008 NRC Exam JPM – SRO

**A6**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>26 Aug 2008</u>
Preparer	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>01 Oct 2008</u>
Technical Review (SME)	KCN	Date
<u>Alfonso Croeze</u>	<u>0597</u>	<u>23 Sep 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

## RJPM-NRC08-A6

<b>TASK DESCRIPTION:</b>	Determine Plant Safety Level during shutdown conditions per OSP-0037
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<b>TASK REFERENCE:</b>
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<b>K/A REFERENCE &amp; RATING:</b>	2.1.23, 4.3/4.4
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<b>TESTING METHOD:</b>	Simulate Performance				Actual Performance	<b>X</b>
	Control Room		Simulator		Classroom	<b>X</b>

<b>COMPLETION TIME:</b>	20 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	SRO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	No
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## **RJPM-NRC08-A6**

### **SIMULATOR SETUP SHEET**

**Task Description:** Determine Plant Safety Level during shutdown conditions per OSP-0037

**Required Power:** N/A

**IC No.:** N/A

**Notes:** **Administrative JPM that will be conducted in a classroom.**

## RJPM-NRC08-A6

### DATA SHEET

<b>References for Development:</b>	OSP-0037, Shutdown Operations Protection Plan (SOPP)
<b>Required Materials:</b>	OSP-0037, Rev 17, Shutdown Operations Protection Plan (SOPP)
<b>Required Plant Condition:</b>	N/A
<b>Applicable Objectives:</b>	RBS-1-LEC-LOR-00910.00 Obj. 4
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-A6

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### Initial Conditions:

RBS is at day 25 of Refueling outage 15 (RF-15). At the start of last shift all Safety Levels were GREEN. During the last shift only the following changes have occurred:

- The Upper Storage Pool is a 23' 1" , and the cavity gate has been closed to prepare for draining the upper cavity to prepare setting the Reactor Head
- Reactor coolant temperature is 105°F, Decay heat is Medium
- RHR 'A' was started in Shutdown Cooling, RHR 'B' was secured and is available for shutdown cooling
- All fuel handling activities in Containment and Fuel Building have been completed
- ADHR is not available due to signature testing of the suction valves
- LPCS is now Operable following STP run
- The Shutdown EOOS Safety Index is 9.4 and GREEN for the oncoming Shift.
- The plant is preparing for divisional swap so no equipment status changes are planned during this shift.

### Initiating Cue:

The oncoming Admin. CRS has been called for a Fitness for Duty random test prior to completing the Plant Safety Index. The OSM has directed you to finish the Plant Safety Level for the on-coming Shift Brief. Complete the attached sheet to show the Plant Safety Level per OSP-0037, Shutdown Operations Protection Plan.

**RJPM-NRC08-A6**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
* 1.	Using Attachment 1 determine the Safety level for Shutdown Cooling Function Color State	Med Decay Heat/ Not Flooded Up With only RHR A&B available, ADHR is not available places the plant in YELLOW (TS)	_____ Note 5, with the Cavity Gate closed, the condition for this section is Not Flooded Up
* 2.	Using Attachment 2 determine the Safety level for Inventory Control Function Color State	RHR A&B and LPCS available you have 3 ECCS trains and >23' above the flange status is still GREEN	_____ Note 5 from Attachment 1 does not apply here
* 3.	Using Attachment 6 determine the Safety level for Fuel Building Ventilation Function Color State	Last Shift the color was Green indicating that 2 HVF Trains were available, with no fuel movement in progress the color remains GREEN	_____ Note * "...no Fuel is being handled in the Fuel Building, the color code s are relaxed as indicated in the 3 <sup>rd</sup> column."
* 4.	Using the Color State from the Key Shutdown Function Areas Determine the Overall Risk	Overall Status color is conservatily set at the lowest level of any section	_____

**Terminating Cue:** OSP-0037, Shutdown Operations Protection Plan (SOPP) status sheet completed.

**COMPLETED**  
**SHUTDOWN OPERATIONS PROTECTION PLAN (SOPP)**  
**Status Sheet**

Shutdown EOOS Safety Index	<u>9.4 - GREEN</u>
1. Shutdown Cooling	<u>YELLOW</u>
2. Inventory Control	<u>GREEN</u>
3. AC Power	<u>GREEN</u>
4. Fuel Pool Cooling	<u>GREEN</u>
5. Containment Control	<u>GREEN</u>
6. Fuel Building	<u>GREEN</u>
7. Reactivity Control	<u>GREEN</u>
8. Fire	<u>GREEN</u>
OVERALL	<u>YELLOW</u>

**RJPM-NRC08-A6**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## RJPM-NRC08-A6

### JPM Task Conditions/Cues

(Operator Copy)

**Initial Conditions:** RBS is at day 25 of Refueling outage 15 (RF-15). At the start of last shift all Safety Levels were GREEN. During the last shift the following changes occurred :

- The Upper Storage Pool cavity gate has been closed to prepare the drain the upper cavity to prepare setting the Reactor Head
- Reactor coolant temperature is 105°F, Decay heat is Medium
- RHR 'A' was started in Shutdown Cooling, RHR 'B' was secured and is available for shutdown cooling
- All fuel handling activities in Containment and Fuel Building have been completed
- ADHR is not available due to signature testing of the suction valves
- LPCS is now Operable following STP run
- The Shutdown EOOS Safety Index is 9.4 and GREEN for the oncoming Shift.
- The plant is preparing for divisional swap so no equipment status changes are planned during this shift.

**Initiating Cues:** The OSM has directed you to determine the Plant Safety Level for the on-coming Shift Brief. Complete the attached sheet to show the Plant Safety Level per OSP-0037, Shutdown Operations Protection Plan.

**RJPM-NRC08-A6**  
**JPM Task Conditions/Cues**  
(Operator Copy)

**SHUTDOWN OPERATIONS PROTECTION PLAN (SOPP)**  
**Status Sheet**

Shutdown EOOS Safety Index	<u>9.4 - GREEN</u>
1. Shutdown Cooling	_____
2. Inventory Control	_____
3. AC Power	<u>GREEN</u>
4. Fuel Pool Cooling	<u>GREEN</u>
5. Containment Control	<u>GREEN</u>
6. Fuel Building	_____
7. Reactivity Control	<u>GREEN</u>
8. Fire	<u>GREEN</u>
OVERALL	_____

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**DETERMINE TECHNICAL SPECIFICATION IMPLATIONS OF AN I&C  
STP**

**REASON FOR REVISION:**

2008 NRC Exam JPM - SRO **A7**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>26 Aug 2008</u>
Preparer	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>01 Oct 2008</u>
Technical Review (SME)	KCN	Date
<u>Russell Zahorchak</u>	<u>0564</u>	<u>23 Sept 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

**RJPM-NRC08-A7**

<b>TASK DESCRIPTION:</b>	Determine Technical Specification Implications of an I&C STP
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<b>TASK REFERENCE:</b>	
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<b>K/A REFERENCE &amp; RATING:</b>	2.2.40, 3.4/4.7
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<b>TESTING METHOD:</b>	Simulate Performance			Actual Performance	<b>X</b>
	Control Room		Simulator	Classroom	<b>X</b>

<b>COMPLETION TIME:</b>	15 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	SRO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	No
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## **RJPM-NRC08-A7**

### **SIMULATOR SETUP SHEET**

**Task Description:** Determine Technical Specification Implications of an I&C STP

**Required Power:** N/A

**IC No.:** N/A

**Notes:** **Administrative JPM that will be conducted in a classroom.**

## RJPM-NRC08-A7

### DATA SHEET

<b>References for Development:</b>	STP-204-4503, LPCI Pump A Discharge Flow – Low, Channel Functional Test (E12-N652A) Technical Specifications TS3.3.5.1
<b>Required Materials:</b>	STP-204-4503, LPCI Pump A Discharge Flow – Low, Channel Functional Test (E12-N652A) Technical Specifications TS3.3.5.1
<b>Required Plant Condition:</b>	All modes
<b>Applicable Objectives:</b>	HLO-404 Obj. 1 RLP-HLO-416 Obj. 11
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-A7

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### Initial Conditions:

At the beginning of shift I&C comes to the Main Control Room with STP-204-4503, LPCI Pump A Discharge Flow – Low, Channel Functional Test (E12-N652A) to sign in.

Plant is at 100% RCTP

There is no other equipment Out of Service

There are no LCO's

### Initiating Cue:

As the CRS in the Main Control Room, determine the appropriate Technical Specification LCO's, if any and complete any forms necessary to support the start of the STP.

**RJPM-NRC08-A7**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
* _____ 1.	Using the STP provided to determine applicable LCO  STP 204-4503 section 1.1 states that the procedure is to perform a channel functional test of E12-N652A and calibration of Trip Unit E12-N652A for Specifications SR 3.3.5.1.2-1.g and SR 3.3.5.1.3-1.g  This STP is applicable is Modes 1,2, & 3	_____	Note 2 of the Surveillance Requirements state that the channel maybe placed in an Inoperable status solely for performance of this STP and the entry into the associated Condition and Required Actions may be delayed for up to 6 hours
_____ 2.	Determine that either a Short Term LCO or STP Tracking Log entry  Both forms are acceptable, however the STP Tracking form was specifically created for Surveillance Requirement Note 2 and should be used.	_____	<b>CUE: When prompted by the Operator, provide either the Short Term LCO or STP Tracking Log form</b>
* _____ 3.	Complete the form provided  <b>See sample completed form</b>	_____	

**Terminating Cue:** Either the Short Term LCO or the STP Tracking Log are completed.

SAMPLE STP TRACKING LOG

Microsoft Access - [STP TRACKING LOG]  
File Edit View Insert Format Records Tools Window Help

**STP TRACKING LOG** Shows only open STPs

STP NUMBER: STP-204-4503, LPCI PUMP A Discharge Flow – Low, Channel Functional Teat (E12-N652A)

REQ'D RESTORED: Start Time plus 6 hours

RESPON INDIVIDUAL: I & C

Tech spec: 3.3.5.1

START: Current Time

SRO INIT: Candidate Initials

StartDate: Current Date  
00/00/00

STOP:

SRO INIT:

MAIN CONTROL ROOM LOG ENTRY SAMPLE

System Number: 204

SHORT TERM LCO COMPONENT: RHR pump 'A' Min Flow

TECH SPEC NO: 3.3.5.1

START TIME: Current Time

DUE TIME: Current Time plus 6 hours

ACTION: E.1 Declare supported features inoperable when redundant feature ECCS initiation capability is inoperable 1 hours from discovery of loss of initiation capability for feature in both divisions AND E.2 Restore channel to OPERABLE status in 7 Days

REMARKS: None

SAFETY FUNCTION DETERMINATION (Y / NA): NA

PLANNED LCO (Y/N): Y

**RJPM-NRC08-A7**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-A7**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** At the beginning of shift I&C comes to the Main Control Room with STP-204-4503, LPCI Pump A Discharge Flow – Low, Channel Functional Test (E12-N652A) to sign in.

Plant is at 100% RCTP  
There is no other equipment Out of Service  
There are no LCO's

**Initiating Cues:** As the CRS in the Main Control Room, determine the appropriate Technical Specification LCO's, if any and complete any forms necessary to support the start of the STP

**RJPM-NRC08-A7**

**JPM Task Conditions/Cues**  
(Provide to Operator when Requested)

Microsoft Access - [STP TRACKING LOG]

File Edit View Insert Format Records Tools Window Help

**STP TRACKING LOG**  **Shows only open STPs**

**STP NUMBER**

**REQ'D RESTORED:**

**RESPON INDIVIDUAL:**

**Tech spec:**

**START:**

**SRO INIT:**

**StartDate:**

**STOP:**

**SRO INIT:**

**RJPM-NRC08-A7**

**JPM Task Conditions/Cues**

(Provide to Operator when Requested)

**MAIN CONTROL ROOM LOG**

System Number: \_\_\_\_\_

SHORT TERM LCO COMPONENT: \_\_\_\_\_, TECH SPEC NO: \_\_\_\_\_

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

DUE TIME: \_\_\_\_\_

ACTION: \_\_\_\_\_  
\_\_\_\_\_

REMARKS: \_\_\_\_\_  
\_\_\_\_\_

SAFETY FUNCTION DETERMINATION (Y / NA): \_\_\_\_\_

PLANNED LCO (Y/N): \_\_\_\_\_

**RIVER  
BEND STATION**

Number: \***RJPM-NRC08-A8**  
Revision: **0**  
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**JOB PERFORMANCE MEASURE**

---



**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**DETERMINE PROTECTIVE ACTION RECOMMENDATIONS**

**REASON FOR REVISION:**

2008 NRC Exam JPM - SRO

**A8**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>26 Aug 2008</u>
Preparer	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>23 Sep 2008</u>
Technical Review (SME)	KCN	Date
<u>Russell Zahorchak</u>	<u>0564</u>	<u>23 Sep 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

**RJPM-NRC08-A8**

**TASK DESCRIPTION:** Determine Protective Action Recommendations

**TASK REFERENCE:** 301001005003  
301011005003

**K/A REFERENCE & RATING:** 2.4.44

<b>TESTING METHOD:</b>	Simulate Performance			Actual Performance	<b>X</b>
	Control Room		Simulator	Classroom	<b>X</b>

**COMPLETION TIME:** 10 min.

**MAX TIME:** 15 min

**JOB LEVEL:** SRO

**TIME CRITICAL:** Yes

**EIP CLASSIFICATION REQUIRED:** No

**PSA RISK DOMINATE:** No

**ALTERNATE PATH (FAULTED):** No

# RJPM-NRC08-A8

## SIMULATOR SETUP SHEET

**Task Description:** Determine Protective Action Recommendations.

**Required Power:** N/A

**IC No.:** N/A

**Notes:** **Administrative JPM that will be conducted in a classroom.**

## RJPM-NRC08-A8

### DATA SHEET

<b>References for Development:</b>	EIP-2-007, Protective Action Recommendation Guidelines
<b>Required Materials:</b>	EIP-2-007, Protective Action Recommendation Guidelines
<b>Required Plant Condition:</b>	Shutdown with release in progress
<b>Applicable Objectives:</b>	EP-42.12, Obj. 11
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-A8

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

A General Emergency has been declared due to a release in progress following a large break LOCA inside containment. Minimum Protective Action Recommendations were issued. Due to the combination of Hydrogen Concentration and Containment pressure, Emergency Containment Venting is now required.

### **Initiating Cue:**

As acting Recovery Manager, determine the appropriate Protective Action Recommendations and complete a Notification of General Emergency short form using the attached dose projections and meteorological information. The declaration time is the time you received this form.

**RJPM-NRC08-A8**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
* 1.	Use (EIP-2-007) Attachments 1, 2, and 3 to formulate Protective Action Recommendations (PARs).  <b>START TIME:</b> _____	_____	Notification of General Emergency on "Loss of Coolant Accident"  Wind is from 330 deg @ 2.1 MPH Delta T is -0.8°F Stability Class-D  TEDE Dose (REM): Site Boundary : 3.95E1 2 miles : 6.49E0 5 miles : 1.08E0 10 miles : 2.02E-1  CEDE Dose (REM): Site Boundary : 6.02E-1 2 miles : 1.06E-1 5 miles : 12.44E-2 10 miles : 7.55E-3
* 2.	Determines upgraded PARs are required.	PAR upgraded to Scenario 19 and Notification short form completed.	_____ See Sample Short Form  Block 2  <b>Current Date/Time and Message Number are not required for Satisfactory performance. This information is computer generated.</b>

**RJPM-NRC08-A8**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
* _____ 3. Protective Action Recommendations must be developed within 15 minutes of the declaration of a General Emergency	Must be completed in 15 minutes or less <b>TERMINATION TIME:</b> _____	_____	

**Terminating Cue:** Notification of General Emergency short form completed.

SAMPLE SHORT FORM

<b>Notification of General Emergency</b>					
Time/Date: <i>CURRENT TIME &amp; DATE</i>	Message:				
<b>This is River Bend Station</b> A General Emergency was declared at					
DECLARATION TIME	on	DECLARATION DATE	for		
Words to the effect: RELEASE IN PROGRESS DUE TO A LOSS OF COOLANT ACCIDENT (LOCA) IN THE REACTOR BUILDING.					
Wind from	330	Deg.	At	2.1	MPH
<input type="radio"/> No Release	PAR Reference Scenario No.:			19	
<input type="radio"/> Release BELOW federally approved operating limits					
<input checked="" type="radio"/> Release ABOVE federally approved operating limits					
Authorized by:	Signature		Title:	Emergency Director/ Recovery Manager	

**RJPM-NRC08-A8**  
**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## RJPM-NRC08-A8

### JPM Task Conditions/Cues

(Operator Copy)

**Initial Conditions:** A General Emergency has been declared due to a release in progress following a large break LOCA inside containment.

Minimum Protective Action Recommendations were issued.

Due to the combination of Hydrogen concentration and Containment pressure, Emergency Containment Venting is now required.

**Initiating Cues:** As acting Recovery Manager, determine the appropriate Protective Action Recommendations and complete a Notification of General Emergency short form using the attached dose projections and meteorological information. The declaration time is the time you received this form.

### DOSE ASSESSMENT for Emergency Containment Venting

#### DISTANCE DOSE RATE CALCULATIONS

##### TEDE Dose (REM):

Site Boundary	3.95E1
2 Miles	6.49E0
5 Miles	1.08E0
10 Miles	2.02E-1

##### CEDE DOSE (REM):

Site Boundary	6.02E-1
2 Miles	1.06E-1
5 Miles	2.44E-2
10 Miles	7.55E-3

##### Meteorological Data

Wind Speed	2.1 mph
Delta T	-0.8°F

Wind Direction	330 deg.
Stability Class	D

**JPM Task Conditions/Cues**

(Operator Copy)

<b>Notification of General Emergency</b>	
Time/Date:	Message:
<b>This is River Bend Station</b>	
A General Emergency was declared at	
<input type="text"/>	on <input type="text"/> for
<input type="text"/>	
Wind from _____ Deg.	At _____ MPH
<input type="radio"/> No Release	PAR Reference Scenario No.: <input type="text"/>
<input type="radio"/> Release BELOW federally approved operating limits	
<input type="radio"/> Release ABOVE federally approved operating limits	
Authorized by: <input type="text"/>	Title: <input type="text"/>

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**PREVENTING INJECTION FROM LOW PRESSURE ECCS SYSTEMS  
PER EOP-0005, ENCLOSURE 27**

**REASON FOR REVISION:**

2008 NRC Exam JPM **C1**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1168</u>	<u>9/16/2008</u>
Preparer	KCN	Date
<u>Scott Shultz</u>	<u>0176</u>	<u>9/23/2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>10/01/2008</u>
Training Supervisor	KCN	Date

\* Indexing Information

## RJPM-NRC08-C1

<b>TASK DESCRIPTION:</b>	Prevent Injection from Low Pressure ECCS Systems per EOP-0005 Encl. 27, Preventing Injection From Low Pressure ECCS Systems
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<b>TASK REFERENCE:</b>	200088005001
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<b>K/A REFERENCE &amp; RATING:</b>	295037 G6 4.2/4.1 G12 3.9/4.6
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<b>TESTING METHOD:</b>	Simulate Performance	<b>X</b>			Actual Performance	
	Control Room	<b>X</b>	Simulator		In-Plant	

<b>COMPLETION TIME:</b>	5 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	RO/SRO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	No
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# RJPM-NRC08-C1

## SIMULATOR SETUP SHEET

**Task Description:** Prevent Injection from Low Pressure ECCS Systems per EOP-0005 Encl. 27, Preventing Injection From Low Pressure ECCS Systems

**Required Power:** ANY

**IC No.:** N/A

**Notes:** This JPM is to be simulated in the Main Control Room

# RJPM-NRC08-C1

## DATA SHEET

<b>References for Development:</b>	EOP-0005 Enclosure 27, Preventing Injection From Low Pressure ECCS Systems.
<b>Required Materials:</b>	EOP-0005 Enclosure 27, Preventing Injection From Low Pressure ECCS Systems.
<b>Required Plant Condition:</b>	RPV emergency depressurization is required due to a steam leak causing drywell temperature to rise. Injection from the Feed and Condensate System is still available
<b>Applicable Objectives:</b>	HLO-516-00, Obj 27
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-C1

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

RPV emergency depressurization is required due to a steam leak causing drywell temperature to rise. LOCA signal is NOT present. Injection from the Feed and Condensate System is still available

### **Initiating Cue:**

The CRS has directed you to prevent injection from the low pressure ECCS systems by implementing EOP-0005 Encl. 27, Preventing Injection From Low Pressure ECCS Systems.

**RJPM-NRC08-C1**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
* 1.	PREVENT auto-opening of 1E21-F005, LPCS INJECT ISOL VALVE, as follows: Remove relay 1E21A-K14	_____	Located H13-P629 Bay B 2nd row of relays from top, 1st relay from left
* 2.	PREVENT auto-opening of E12-F042A, RHR PUMP A LPCI INJECT ISOL VALVE, as follows: Remove Relay 1E12A-K23A	_____	Located H13-P629 Bay C 5th row of relays from top, 5th relay from left.
* 3.	PREVENT auto-opening of E12-F042B, RHR PUMP B LPCI INJECT ISOL VALVE, as follows: Remove Relay 1E12A-K23B	_____	Located H13-P618 Bay B bottom row of relays, 1st relay from left.
* 4.	PREVENT auto-opening of E12-F042C, RHR PUMP C LPCI INJECT ISOL VALVE, as follows: Remove Relay 1E12A-K23C	_____	Located H13-P618 Bay B bottom row of relays, 2nd relay from left.

**Terminating Cue:** Low Pressure ECCS injection prevented by completing EOP-0005 Enclosure 27.

**RJPM-NRC08-C1**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-C1**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** RPV emergency depressurization is required due to a steam leak causing drywell temperature to rise. LOCA signal is NOT present. Injection from the Feed and Condensate System is still available

**Initiating Cues:** The CRS has directed you to prevent injection from the low pressure ECCS systems by implementing EOP-0005 Encl. 27, Preventing Injection From Low Pressure ECCS Systems.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**DEFEATING PRIMARY CONTAINMENT VENT AND PURGE  
ISOLATION INTERLOCKS PER EOP-0005, ENCLOSURE 25**

**REASON FOR REVISION:**

2008 NRC Exam JPM **C2**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1168</u>	<u>9/16/2008</u>
Preparer	KCN	Date
<u>Eric Stone</u>	<u>0348</u>	<u>9/23/2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>10/01/2008</u>
Training Supervisor	KCN	Date

\* Indexing Information

## RJPM-NRC08-C2

<b>TASK DESCRIPTION:</b>	Defeating Primary Containment Vent And Purge Isolation Interlocks per EOP-0005 Enclosure 25
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<b>TASK REFERENCE:</b>	200067005001 200025005004
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<b>K/A REFERENCE &amp; RATING:</b>	288000    A2.01    3.3/ 3.4 A2.02    3.4/ 3.6 A2.04    3.7/ 3.8
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<b>TESTING METHOD:</b>	Simulate Performance	<b>X</b>			Actual Performance	
	Control Room	<b>X</b>	Simulator		In-Plant	

<b>COMPLETION TIME:</b>	10 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	RO/SRO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	No
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## **RJPM-NRC08-C2**

### **SIMULATOR SETUP SHEET**

**Task Description:** Defeating Primary Containment Vent And Purge Isolation Interlocks, EOP-0005 Enclosure 25

**Required Power:** ANY

**IC No.:** N/A

**Notes:** This JPM is to be simulated in the Main Control Room

## RJPM-NRC08-C2

### DATA SHEET

<b>References for Development:</b>	EOP-0005 Enclosure 25, Defeating Primary Containment Vent And Purge Isolation Interlocks
<b>Required Materials:</b>	EOP-0005 Enclosure 25, Defeating Primary Containment Vent And Purge Isolation Interlocks
<b>Required Plant Condition:</b>	Any
<b>Applicable Objectives:</b>	HLO-516-00, Obj 1
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-C2

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

RPV water level has decreased to -162" following a LOCA. Containment hydrogen concentration is 2% and Hydrogen Igniters are operating. Containment pressure is 15.5 psia (0.8 psig).

### **Initiating Cue:**

The CRS directs you to implement EOP-0005, Enclosure 25 in preparation for Containment Purging.

**RJPM-NRC08-C2**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
1.	OBTAIN EOP-0005 ENCL 25 jumper kit from the Control Room Emergency Locker	Kit Obtained	CUE: Role play – Recovery manager has already been notified of venting the Primary Containment, and made notifications to off-site agencies
2.	INSPECT kit for: Eight (8) jumpers One (1) regular screwdriver One (1) piece of tygon tubing	Operator states Kit contains required equipment	CUE: All materials in Kit
* 3.	<p>DEFEAT primary containment purge isolation interlocks as follows: Location: 1H13-P851 Bay E Affected Relay: 3A-1-1ISCA06 (bottom row of agastat relays, 1st relay from left)</p> <p>Jumper No. 1, JUMPER Terminal M4 on Relay Block 3A-1-1ISCA06 to Terminal R4 on Relay Block 3A-1-1ISCA06.</p> <p>Jumper No. 2, JUMPER Terminal M3 on Relay Block 3A-1-1ISCA06 to Terminal R3 on Relay Block 3A-1-1ISCA06.</p>	<p>Operator identifies terminals and states Jumper installed.</p> <p>Operator identifies terminals and states Jumper installed.</p>	<p>CUE: Jumper installed</p> <p>CUE: Jumper installed</p>

**RJPM-NRC08-C2**

<p>* <u>4.</u></p>	<p>Location: 1H13-P951 Bay A Affected Relay: 45-1HVRA20 (2nd row of agastat relays from top, 4th relay from left)</p> <p>Jumper No.3, JUMPER Terminal M1 on Relay Block 45-1HVRA20 to Terminal R1 on Relay Block 45-1HVRA20.</p> <p>Jumper No.4, JUMPER Terminal M2 on Relay Block 45-1HVRA20 to Terminal R2 on Relay Block 45-1HVRA20.</p>	<p>Operator identifies terminals and states Jumper installed.</p> <p>Operator identifies terminals and states Jumper installed.</p>	<p>_____</p> <p>_____</p>	<p><b>CUE: Jumper installed</b></p> <p><b>CUE: Jumper installed</b></p>
<p>* <u>5.</u></p>	<p>Location: 1H13-P852 Bay B Affected Relay: 3B-1-1ISCB06 (bottom row of agastat relays, 2nd relay from left)</p> <p>Jumper No.5, JUMPER Terminal M4 on Relay Block 3B-1-1ISCB06 to Terminal R4 on Relay Block 3B-1-1ISCB06.</p> <p>Jumper No.6, JUMPER Terminal M3 on Relay Block 3B-1-1ISCB06 to Terminal R3 on Relay Block 3B-1-1ISCB06.</p>	<p>Operator identifies terminals and states Jumper installed.</p> <p>Operator identifies terminals and states Jumper installed.</p>	<p>_____</p> <p>_____</p>	<p><b>CUE: Jumper installed</b></p> <p><b>CUE: Jumper installed</b></p>

**RJPM-NRC08-C2**

<p>* 6.</p>	<p>Location: 1H13-P952 Bay A Affected Relay: 45-1HVRB20 (2nd row of agastat relays from top, 4th relay from left)</p> <p>Jumper No.7, JUMPER Terminal M1 on Relay Block 45-1HVRB20 <u>to</u> Terminal R1 on Relay Block 45-1HVRB20.</p> <p>Jumper No.8, JUMPER Terminal M2 on Relay Block 45-1HVRB20 <u>to</u> Terminal R2 on Relay Block 45-1HVRB20.</p>	<p>Operator identifies terminals and states Jumper installed.</p> <p>Operator identifies terminals and states Jumper installed.</p>	<p>_____</p> <p>_____</p>	<p><b>CUE: Jumper installed</b></p> <p><b>CUE: Jumper installed</b></p>
<p>* 7.</p>	<p>Location: 1H13-P852 Bay C Affected Relay: 62-1 HVRB20 (3rd row of relays from top, round time delay relay farthest to the right)</p> <p>REMOVE the lead from Terminal 1 on Relay 62-1 HVRB20 <u>AND</u> COVER with Tygon tubing.</p>	<p>Operator identifies terminal and states lead removed and covered with Tygon tubing.</p>	<p>_____</p>	<p><b>CUE: Lead removed and covered</b></p>
<p>8.</p>	<p>Vent and Purge the Primary Containment as directed by the CRS</p>			<p><b>CUE: Vent and Purge is not required at this time</b></p>

**Terminating Cue:** EOP-0005, Enclosure 25 implemented.

**RJPM-NRC08-C2**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-C2**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** RPV water level has decreased to -162" following a LOCA. Containment hydrogen concentration is 2% and Hydrogen Igniters are operating. Containment pressure is 15.5 psia (0.8 psig).

**Initiating Cues:** The CRS directs you to implement EOP-0005, Enclosure 25 in preparation for Containment Purging.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**RESTART RECIRCULATION PUMP B IN FAST SPEED FOLLOWING  
TRIP AT POWER**

**REASON FOR REVISION:**

2008 NRC Exam JPM

**S1**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1168</u>	<u>9/16/2008</u>
Preparer	KCN	Date
<u>Alfonso Croeze</u>	<u>0597</u>	<u>09/23/2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>10/01/2008</u>
Training Supervisor	KCN	Date

\* Indexing Information

## RJPM-NRC08-S1

<b>TASK DESCRIPTION:</b>	Restart Recirculation Pump B in Fast Speed Following Trip at Power (with Suction Temperature Alarm Before Start)
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<b>TASK REFERENCE:</b>	202008001001
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<b>K/A REFERENCE &amp; RATING:</b>	202001	K1.10 (3.6/3.7)				
		A4.10 (2.8/2.8)				
		A2.21 (3.3/3.7)				
		A4.01 (3.7/3.7)				
	202002	K4.02 (3.0/3.0)				

<b>TESTING METHOD:</b>	Simulate Performance				Actual Performance	<b>X</b>
	Control Room		Simulator	<b>X</b>	In-Plant	

<b>COMPLETION TIME:</b>	30 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	RO/SRO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	Yes
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# RJPM-NRC08-S1

## SIMULATOR SETUP SHEET

**Task Description:** Restart Recirculation Pump B in Fast Speed Following Trip at Power (with Suction Temperature Alarm Before Start)

**Required Power:** 38%

**IC No.:** 249

**Notes:** Insert Annunciator Override, **P680\_04a:c\_2, t1**

## RJPM-NRC08-S1

### DATA SHEET

<b>References for Development:</b>	SOP-0003, Reactor Recirculation System (SYS #053)
<b>Required Materials:</b>	SOP-0003, Reactor Recirculation System (SYS #053)
<b>Required Plant Condition:</b>	38% Power
<b>Applicable Objectives:</b>	STM-053, Objectives H11
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-S1

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

The “B” Reactor Recirc Pump tripped during a plant startup. The plant has been in GOP-0004 Single Loop Operation for the last six hours. GOP-0004, Attachment 1 was completed. The cause of the trip has been determined and the “B” Reactor Recirc Pump is ready to be started. Attachment 2, Return to Two Loop Operation has been completed through Step 2 and the Recirculation Pump Startup in SOP-0003 has been completed through Step 4.4.10. An extra Control Room Operator is standing by to provide temperature readings from P614 since PMS is out of service.

### **Initiating Cue:**

The CRS has directed you to complete restarting the idle Recirculation Pump B per SOP-0003, Reactor Recirculation.

**RJPM-NRC08-S1**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS	
* 1.	Depress B33-C001B, RECIRC PUMP B MOTOR BREAKER 5B RELEASE Pushbutton on the STOP/PUSH TO LOCK control switch	_____	Cue: Role Play – For Step 4.4.11.2 - PMRQ's Complete	
2.	Verify seal purge flow, #1 seal cavity pressure, and #2 seal cavity pressure are normal as follows:  Pump B #1 seal cavity pressure as indicated on B33-R603B, SEAL CAVITY #1 PRESS is 10 to 15 psig above reactor pressure.	Reactor pressure = 950 psig SEAL CAVITY #1 pressure ~ 1020 psig	_____	Cue: Engineering has determined that Seal Pressures are Adequate for Pump start
3.	Pump B #2 seal cavity pressure as indicated on B33-R602B, SEAL CAVITY #2 PRESS is approximately 1/2 of #1 seal cavity pressure.	SEAL CAVITY #2 pressure ~ 500 psig	_____	
4.	The following seal flow annunciators are clear:  Annunciator P680-04A-C11, RECIRC PUMP B SEAL CLG WATER LOW FLOW  Annunciator P680-04A-E11, RECIRC PUMP B SEAL STAGING HIGH/LOW FLOW	Both annunciators are clear.	_____	<b>NOTE:</b> Neither annunciator is alarming due to plant conditions.

**RJPM-NRC08-S1**

<b>PERFORMANCE STEP</b>		<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
5.	At H13-P614, check motor and pump temperatures normal on Recorder B33-R601, RECIRC PUMP/MOTORS TEMP. MONITORING.	Requests from P614 and continues based on temperatures given being normal.	_____	<b>CUE:</b> As Operator at P614, report motor winding, pump bearing and seal temperatures all range from 95 to 105°F.
6.	Check annunciators on H13-P680-04A are clear for the pump being started.	All annunciators are clear for pump being started, except the one normal for this condition.	_____	<b>NOTE:</b> Annunciator P680-04A-A01 is normal for this condition.
* 7.	<p>Within 15 minutes prior to starting an idle recirculation loop, verify the following:</p> <p>At H13-P614, thermal interlocks are satisfied by monitoring recorders B33-R604, RECIRC LOOP WATER TEMP. MONITORING and B21-R643, REACTOR VESSEL TEMP. MONITORING.</p> <p><u>IF</u> RPV pressure is greater than or equal to 25 psig, <u>THEN</u> differential temperature between bottom head coolant and reactor pressure vessel coolant is less than or equal to 100°F</p> <p><u>IF</u> recovering an idle loop, <u>THEN</u> flow through the operating loop is less than or equal to 50% of rated loop flow.</p> <p>Differential temperature between coolant in the Recir Loop to be started and reactor pressure vessel coolant is less than or equal to 50°F.</p>	<p>Requests from P614 and continues based on 68°F being less than 100°F</p> <p>Verifies on P680 Loop Flow Recorder C51-R614 to be 16.3 – 16.4 kgpm</p> <p>Requests from P614 and continues based on 47°F being less than 50°F</p>	<p>_____</p> <p>_____</p> <p>_____</p>	<p><b>CUE:</b> As Operator at P614, report differential temperature between RPV bottom head and RPV coolant is 68°F.</p> <p><b>NOTE:</b> 50% of rated loop flow is equivalent to 16.50 kgpm.</p> <p><b>CUE:</b> As Operator at P614, report differential temperature between “A” Recirc Loop and RPV is 47°F.</p>

**RJPM-NRC08-S1**

<b>PERFORMANCE STEP</b>		<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
_____ 8.	Verify B33-C001B PUMP B MOT BRKR 4B is closed.	BRKR 4B is closed. RED light ON, GREEN light OFF	_____	<b>NOTE:</b> Breaker is closed
* _____ 9.	Depress B33-C001B PUMP B MOT BRKR 3B CLOSE pushbutton.	BRKR 3B is closed. RED light ON, GREEN light OFF	_____	<b>NOTE:</b> Annunciator P680-04A-A01 RECIRC MOTOR B TRIP clears when Breaker 3B is closed, and trigger t1 will initiate P680-04A-C08 alarm.
_____ 10.	Silence and acknowledge annunciator P680-04A-C02, RECIRC PUMP B TEMP INTERLOCK ACTUATED.	Annunciator P680-04A-C02, silenced and acknowledged.	_____	<b>NOTE:</b> <i>ALTERNATE PATH</i>
_____ 11.	Requests P614 status of vessel drain and recirc loop suction temperatures.	P614 temperatures requested.	_____	<b>CUE:</b> At P614, cause of alarm is differential temperature between "B" Recirc Loop and RPV now reading 51°F.
* _____ 12.	Verify B33-F023B, RECIRC PUMP B SUCTION VLV and B33-F067B, RECIRC PUMP B DISCH VLV are open.	Both valves are open. RED lights ON, GREEN lights OFF	_____	

**RJPM-NRC08-S1**

<b>PERFORMANCE STEP</b>		<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
____ 13.	Close C11-F024B, RX RECIRC PMP B SEAL PURGE LINE ISOL VLV.	Contacts Reactor Building Operator to close C11-F024B.  C11-F024B is closed.	____	<b>CUE: Role Play</b> - Reactor Building Operator has closed C11-F024B  <b>NOTE:</b> Alarm P680-04A-C08 clears.  <b>Delete P680_4a:c_8 after closing seal purge</b>  <b>CUE:</b> Time compression used to move 10 minutes forward. At P614, differential temperature between "A" Recirc Loop and RPV now reading 40°F.
____ 14.	Resets annunciator P680-04A-C08, RECIRC PUMP B TEMP INTERLOCK ACTUATED.	Annunciator P680-04A-C02, reset.	____	
____ 15.	Reopen C11-F024B immediately prior to starting the recirc pump	Contacts Reactor Building Operator to open C11-F024B.  C11-F024B is open when directed.	____	<b>CUE:</b> Reactor Building Operator ready to open C11-F024B.

**RJPM-NRC08-S1**

<p>* 16.</p>	<p><u>IF</u> one pump is operating in FAST SPEED <u>AND</u> the idle pump is to be operated in FAST SPEED, <u>THEN</u> depress the B33-C001B RECIRC PUMP B MOTOR BREAKER 5B control switch for the Recirc Pump to be started and perform the following:</p> <p>Verify B33-C001B RECIRC PUMP B MOTOR BREAKER 5B closes.</p> <p>Check for a surge on B33-R609A, PUMP B AMPS as the Recirc Pump accelerates to full speed of 1800 RPM.</p>	<p>B33-C001B RECIRC PUMP B MOTOR BREAKER 5B START pushbutton closed and pump running.</p> <p>Breaker 5B closed.</p> <p>RED lights ON, GREEN lights OFF</p> <p>Starting current dies back down to running current.</p>	<p>_____</p>	<p><b>NOTE:</b> 5B breaker should close ~2 seconds after the pushbutton is depressed.</p>
<p>* 17.</p>	<p>Monitor Recirc Pump B and Jet Pump Operation at the following:</p> <ol style="list-style-type: none"> <li>1) Pump B Diff Press on B33-R605A, PUMP B DP.</li> <li>2) JP Loop B Total Flow on B33-R612A, TOTAL FLOW.</li> <li>3) The following seal flow annunciators are clear: <ul style="list-style-type: none"> <li>• Annunciator P680-04A-C11, RECIRC PUMP B SEAL CLG WATER LOW FLOW</li> <li>• Annunciator P680-04A-E11, RECIRC PUMP B SEAL STAGING HIGH/LOW FLOW</li> </ul> </li> </ol>	<p>Monitors Pump DP and JP Loop B Total Flow</p> <p>PUMP B DP rises to 340 psid</p> <p>Loop B TOTAL FLOW rises to <math>9 \times 10^6</math> lbm/hr</p> <p>Annunciators cleared (were not alarming during evolution).</p>	<p>_____</p>	<p><b>NOTE:</b> LPRM DOWNSCALE alarm on P680 will clear momentarily following pump start, then begin alarming. Normal for the evolution.</p>

**RJPM-NRC08-S1**

<b>PERFORMANCE STEP</b>		<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
* ____ 18.	Verify seal purge flow, #1 seal cavity pressure, and #2 seal cavity pressure are normal as follows:  Pump B #1 seal cavity pressure as indicated on B33-R603B, SEAL CAVITY #1 PRESS is 10 to 15 psig above reactor pressure.	Reactor pressure = 975 psig  SEAL CAVITY #1 pressure ~ 1040 psig	____	CUE: If candidate requests permission to open FCV, inform them that the CRS will determine further actions per GOP-0002

**Terminating Cue:** Reactor Recirc Pump “B” is running at Fast Speed.

**RJPM-NRC08-S1**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-S1**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:**

The “B” Reactor Recirc Pump tripped during a plant startup. The plant has been in GOP-0004 Single Loop Operation for the last six hours. GOP-0004, Attachment 1 was completed. The cause of the trip has been determined and the “B” Reactor Recirc Pump is ready to be started. Attachment 2, Return to Two Loop Operation has been completed through Step 2 and the Recirculation Pump Startup in SOP-0003 has been completed through Step 4.4.10. An extra Control Room Operator is standing by to provide temperature readings from P614 since PMS is out of service.

**Initiating Cues:**

The CRS has directed you to complete restarting the idle Recirculation Pump B per SOP-0003, Reactor Recirculation.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**SHUTDOWN THE HIGH PRESSURE CORE SPRAY PUMP AFTER AN  
INADVERTENT AUTOMATIC INITIATION**

**REASON FOR REVISION:**

2008 NRC Exam JPM

**S2**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1168</u>	<u>9/16/2008</u>
Preparer	KCN	Date
<u>Scott Shultz</u>	<u>0176</u>	<u>9/23/2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>10/01/2008</u>
Training Supervisor	KCN	Date

\* Indexing Information

## RJPM-NRC08-S2

<b>TASK DESCRIPTION:</b>	Shutdown the High Pressure Core Spray Pump after an Inadvertent Automatic Initiation.
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<b>TASK REFERENCE:</b>	206016001001
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<b>K/A REFERENCE &amp; RATING:</b>	209002	A1.01	3.6/3.7	A1.02	3.4/3.6
		A1.08	3.1/3.3	A2.08	3.1/3.2
		A3.01	3.3/3.3	A3.03	3.6/3.6
		A3.04	3.7/3.7	A4.01	3.7/3.7
		A4.03	3.8/3.8	A4.04	3.1/3.1
		A4.15	3.6/3.6		

<b>TESTING METHOD:</b>	Simulate Performance				Actual Performance	<b>X</b>
	Control Room		Simulator	<b>X</b>	In-Plant	

<b>COMPLETION TIME:</b>	10 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	RO/SRO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	Yes
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## RJPM-NRC08-S2

### SIMULATOR SETUP SHEET

**Task Description:** Shutdown the High Pressure Core Spray Pump after an Inadvertent Automatic Initiation with a failure of the HPCS minimum flow valve to automatically open

**Required Power:** Reactor Power 100%

**IC No.:** 250

**Notes:** Enter imf EDG003, Failure of HPCS D/G to start.

Manually initiate HPCS.

Disarm the manual initiation collar.

Malfunction HPCS006 HPCS Min Flow fails to Auto Open

## RJPM-NRC08-S2

### DATA SHEET

<b>References for Development:</b>	SOP-0030, High Pressure Core Spray
<b>Required Materials:</b>	SOP-0030, High Pressure Core Spray
<b>Required Plant Condition:</b>	Reactor Power 100%
<b>Applicable Objectives:</b>	HLO-019-06, Objectives 3, 4, 7, and 11
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-S2

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

The plant is operating at 100% power after an inadvertent HPCS initiation. Reactor water level is in the normal range. The HPCS diesel generator has been shutdown.

### **Initiating Cue:**

The CRS has directed you to shutdown the High Pressure Core Spray Pump using SOP-0030, High Pressure Core Spray, Section 6..

**RJPM-NRC08-S2**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
____ 1.	Verify E22A-S2, HPCS MANUAL INITIATION collar is in the DISARM position.	_____	
* ____ 2.	Depress E22A-S7, HPCS INITIATION RESET pushbutton and check the white light goes off.	_____	
* ____ 3.	Verify closed the following valves: a. E22-F023, HPCS TEST RETURN VLV TO SUPPRESSION POOL b. E22-F010, HPCS TEST BYPASS VLV TO CST c. E22-F011, HPCS TEST RETURN VALVE TO CST d. E22-F004, HPCS INJECT ISOL VALVE	_____	
* ____ 4.	When flow lowers below 625 gpm on E22-R603, HPCS FLOW, verify E22-F012, HPCS MIN FLOW VALVE TO SUPPRESSION POOL opens.	_____	<b>CUE: As CRS acknowledge the failure of E22-F012 to open and if requested, direct the operator to open E22-F012.</b> <b>NOTE: As a conservative action, an immediate pump trip may be initiated. Remaining steps should be performed following the trip.</b>
* ____ 5.	If E22-PC003, HPCS LINE FILL PUMP is not running, then start E22-PC003.	_____	

**RJPM-NRC08-S2**

* 6.	Trip E22-ACB02, HPCS PUMP SUPPLY BRKR.	E22-ACB02 open, green light on, red light off.	_____	
7.	When HPCS Pump discharge pressure lowers below 300 psig on E22-R601, HPCS PUMP DISCH PRESSURE, then verify E22-F012, HPCS MIN FLOW VALVE TO SUPPRESSION POOL closes.	Valve verified to auto close when pressure drops below 300 psig by observing green light on, red light off.	_____	

**Terminating Cue:** High Pressure Core Spray Pump is shutdown.

**RJPM-NRC08-S2**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-S2**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:**

The plant is operating at 100% power after an inadvertent HPCS initiation. Reactor water level is in the normal range. The HPCS diesel generator has been shutdown.

**Initiating Cues:**

The CRS has directed you to shutdown the High Pressure Core Spray Pump using SOP-0030, High Pressure Core Spray, Section 6.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**SHIFT CONTROL BUILDING CHILLERS BETWEEN DIVISIONS**

**REASON FOR REVISION:**

2008 NRC Exam JPM

**S3**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1168</u>	<u>9/16/2008</u>
Preparer	KCN	Date
<u>Scott Shultz</u>	<u>0176</u>	<u>9/23/2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>10/01/2008</u>
Training Supervisor	KCN	Date

\* Indexing Information

### RJPM-NRC08-S3

**TASK DESCRIPTION:** Shift Control Building Chillers between divisions

**TASK REFERENCE:** 291012001004

**K/A REFERENCE & RATING:** 290003 A2.01 3.1/3.2  
 A3.01 3.3/3.5  
 A4.01 3.2/3.2  
 K4.01 3.1/3.2

<b>TESTING METHOD:</b>	Simulate Performance				Actual Performance	<b>X</b>
	Control Room		Simulator	<b>X</b>	In-Plant	

**COMPLETION TIME:** 10 min.

**MAX TIME:** N/A

**JOB LEVEL:** RO/SRO

**TIME CRITICAL:** No

**EIP CLASSIFICATION REQUIRED:** No

**PSA RISK DOMINATE:** No

**ALTERNATE PATH (FAULTED):** Yes

# RJPM-NRC08-S3

## SIMULATOR SETUP SHEET

**Task Description:** Shift Control Building Chillers between divisions.

**Required Power:** Any

**IC No.:** 249

**Notes:**

## RJPM-NRC08-S3

### DATA SHEET

<b>References for Development:</b>	SOP-0066, Control Building HVAC Chilled Water System (Sys #410)
<b>Required Materials:</b>	SOP-0066, Control Building HVAC Chilled Water System (Sys #410)
<b>Required Plant Condition:</b>	Any
<b>Applicable Objectives:</b>	RLP-STM-0402, Objectives H4, H7, H8, and H12
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-S3

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

HVK-P1C is to be tagged out for scheduled maintenance.

### **Initiating Cue:**

Rotate divisions of HVK from Div 1 to Div 2 with HVK-CH1D in service with HVK-P1D. The 'C' chiller has been running for 3 days.

**RJPM-NRC08-S3**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
<p>_____ 1.</p> <p>Alternating Divisions of Control Building Chilled Water Check that the operating chiller has been running for at least 20 minutes. NOTE The controls and indications in this section are located at H13-P863, unless otherwise specified.</p>		_____	<p>CUE: It has been running more than 20 minutes</p>
<p>* _____ 2.</p> <p><b>CRITICAL STEP</b></p> <p>Stop the running Control Building Chilled Water Pump. Verify the running chiller automatically trips.</p>	<p>Turn the HVK-P1C pump control switch to STOP</p> <p>Verify that HVK-CH1C TRIPS</p>	_____	<p>Annunciators P863-75-A2, B1, &amp; C2 will come in, A1 will come in several second later</p> <p>NOTE Chiller 1B/1D or 1A/1C pre-trip comes in and clears. Division I Chilled Water Pumps have a 30 second start time delay.</p>
<p>* _____ 3.</p> <p>Check that the standby chilled water pump starts and its discharge valve opens.</p>	<p>Verify that HVK-P1D starts and HVK-MOV20D opens</p>	_____	<p>ALTERNATE PATH: HVK-P1D does not start and HVK-CH1D Trips</p>
<p>_____ 4.</p> <p>IF the standby chilled water pump does not start, THEN go to Step 5.4.7.</p>		_____	<p>CUE: When notified that HVK-CH1D does not start, direct the operator to reset and restore the previous division to service</p>

**RJPM-NRC08-S3**

PERFORMANCE STEP		STANDARD	S/U	COMMENTS
* 5.	Check the previously running AHUs and fans have stopped		—	NOTE Steps 5.4.7 thru 5.4.11 resets the chiller logic and places the chiller in standby. A chiller can not be started until 2 ½ minutes have elapsed since it was stopped. This time delay allows sufficient time for the guide vanes to close and ensure no-load starting of the chiller.
* 6.	Verify at least 3 minutes has elapsed since chiller was stopped, THEN Reset trips on the previously running AHUs as follows:  Depress STOP on HVC-ACU1A(B), CR AHU A(B).  Depress STOP on HVC-ACU2A(B), CONTROL BLDG AHU A(B).  Place HVC-ACU3A(B), EQPT RM AHU A(B) Switch to STOP then back to AUTO.	Depress STOP on HVC-ACU1A  Depress STOP on HVC-ACU2A  Place switch for HVC-ACU3A to STOP and then back to AUTO	—  —  —	
* 7.	Verify HVK-P1A(B)(C)(D), CHILLED WATER PUMP A(B)(C)(D) Switch for the previously running pump is in STOP.	Verify HVK-P1C switch in STOP	—	

**RJPM-NRC08-S3**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS	
* 8.	Place HVK-P1A(B)(C)(D), CHILLED WATER PUMP A(B)(C)(D) Switch for the previously running pump to AUTO.	Place HVK-P1C switch to AUTO	_____	HVK-P1C and AHU's will Start
* 9.	Perform the following for the previously running chiller:  Depress STOP on HVK-CHL1A(B)(C)(D), CONT BLDG CHILLER A(B)(C)(D) Start/Stop/Reset Pushbutton.  Depress RESET on HVK-CHL1A(B)(C)(D) Start/Stop/Reset Pushbutton	Depress STOP pushbutton on HVK-CH1C  Depress RESET pushbutton on HVK-CH1C	_____  _____	SWP-P3C Discharge valve will open and SWP-P3C will start
* 10.	Verify the following:  Standby Chiller starts.  Standby Chiller Recirc Service Water Pump suction valve opens.  Standby Chiller Recirc Service Water Pump starts.	Verify that HVK-CH1C restarts  Verify that SWP-MOV27C opens  Verify that SWP-P3C starts	_____  _____  _____	CUE: Field Operator will complete the remaining steps 5.4.14 to 5.4.18 locally

**Terminating Cue:** HVK-CH1C, Chiller running

**RJPM-NRC08-S3**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**RJPM-NRC08-S3**

**JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** HVK-P1C is to be tagged out for scheduled maintenance.

**Initiating Cues:** Rotate divisions of HVK from Div 1 to Div 2 with HVK-CH1D in service with HVK-P1D. The 'C' chiller has been running for 3 days.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**PERFORM MAIN TURBINE BYPASS SYSTEM VALVE CYCLE TEST ON  
BYPASS VALVE #1**

**REASON FOR REVISION:**

2008 NRC Exam JPM

**S4**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1168</u>	<u>9/16/2008</u>
Preparer	KCN	Date
<u>Russell Zahorchak</u>	<u>0564</u>	<u>9/23/2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>10/01/2008</u>
Training Supervisor	KCN	Date

\* Indexing Information

## RJPM-NRC08-S4

<b>TASK DESCRIPTION:</b>	Perform Main Turbine Bypass System Valve Cycle Test on Bypass Valve #1
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<b>TASK REFERENCE:</b>	241001002001
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<b>K/A REFERENCE &amp; RATING:</b>	241000	K1.06	3.8/3.9	A1.07	3.8/3.7
		K3.01	4.2*/4.3*	A3.08	3.8/3.8
		K4.19	3.6/3.7	A4.06	3.9/3.9
		K6.10	3.6/3.7		

<b>TESTING METHOD:</b>	Simulate Performance				Actual Performance	<b>X</b>
	Control Room		Simulator	<b>X</b>	In-Plant	

<b>COMPLETION TIME:</b>	15 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	RO/SRO
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	No
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# RJPM-NRC08-S4

## SIMULATOR SETUP SHEET

**Task Description:** Perform Main Turbine Bypass System Valve Cycle Test on Bypass Valve #1

**Required Power:** Reactor Power ~75%

**IC No.:** 250

**Notes:** None

## RJPM-NRC08-S4

### DATA SHEET

<b>References for Development:</b>	STP-509-0101
<b>Required Materials:</b>	STP-509-0101
<b>Required Plant Condition:</b>	Reactor Power 75%
<b>Applicable Objectives:</b>	LEC-GPST-A0110.00 Obj H2
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-S4

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

Both Bypass valves are closed. No rods will be withdrawn while you are performing the surveillance. The Steam Seal Evaporator is aligned to Main Steam.

### **Initiating Cue:**

The CRS directs you to perform the Main Turbine Bypass System Valve Cycle Test (STP-509-0101) on Bypass Valve #1.

**RJPM-NRC08-S4**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
* 1. In the BYPASS VALVE TEST STATUS group,  Depress the TESTING pushbutton momentarily.	All Switch Operations take place on P680 panel section 7  Pushbutton momentarily depressed	_____	Independent Verifications are Automatically signed off
2.  Check the following occurs:  o The OFF light goes off.  o The TESTING light comes on  o The READY light comes on.	Light Off  Light On  Light On	_____ _____ _____	
* 3.  Depress and hold the TEST BPV 1 pushbutton	Pushbutton held depressed	_____	
PERFORMANCE STEP	STANDARD	S/U	COMMENTS

**RJPM-NRC08-S4**

<p>_____4.</p>	<p>Check the following occur:</p> <ul style="list-style-type: none"> <li>○ The READY light goes off.</li> <li>○ The TEST BYP 1 light comes on.</li> <li>○ Small positive current change on C85AM4, 1 BYPASS VALVE SERVO CURRENT meter.</li> <li>○ BPV 1 is traveling smoothly in the open direction as indicated on C85AM5, 1 BYPASS VALVE POSITION meter.</li> <li>○ Annunciator P680-07A-A07, TURBINE BYPASS VALVE OPEN alarms.</li> <li>○ The Fast Acting Solenoid operates properly as BPV 1 opens.</li> </ul>	<p>Light Off</p> <p>Light On</p> <p>Observe Small positive current change</p> <p>BPV-1 traveling smoothly in the open direction</p> <p>Annunciator in Alarm</p> <p>BPV-1 traveling smoothly in the open direction</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>The Fast Acting Solenoid can be verified by Bypass Valve (BPV) position indication or Servo current as the BPV opens. There is no sudden change in valve position during the closing stroke.</p> <p>Valve movement can best be observed at C85AM5, 1 BYPASS VALVE POSITION meter.</p> <p>The stroke time of BPV 1 is approximately 4 to 5 seconds, in either direction.</p>
<p>* _____5.</p>	<p>Verify BPV 1 is full open by one of the following:</p> <p>C85AM5, 1 BYPASS VALVE POSITION.</p> <p>ERIS point C85EA0012, BYPASS VALVE 1 POSITION.</p> <p>Only the FULL OPEN indicator light is on.</p>	<p>One of the three full open indication needs to be used</p> <p>ERIS Point indicates valve position 1.0 as full open</p>	<p>_____</p>	<p>Step 7.2.2.8 may be N/A'd if the FULL OPEN indicator was used to verify valve position in step 7.2.2.7.</p>

**RJPM-NRC08-S4**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
* 6. Release the TEST BPV 1 pushbutton	Pushbutton Released	—	
7. Check the following occur:  Small negative current change on C85AM4, 1 BYPASS VALVE SERVO CURRENT meter.  BPV 1 is traveling smoothly in the close direction as indicated on C85AM5, 1 BYPASS VALVE POSITION meter.	Observe Small negative current change  BPV 1 is traveling smoothly in the close direction	—  —	
* 8. Verify BPV 1 is full closed by one of the following indications:  C85AM5, 1 BYPASS VALVE  ERIS point C85EA0012, BYPASS VALVE 1 POSITION  Only the CLOSED indicator light is on.	Meter indicates BPV 1 is full Closed  ERIS Point indicates valve position 0.0 as full closed  Only Closed light is On	—	Step 7.2.4.4 may be N/A'd if the CLOSED indicator was used to verify valve position in step 7.2.4.3

**RJPM-NRC08-S4**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
<p>_____9.</p>	<p>Annunciator P680-07A-A07, TURBINE BYPASS VALVE OPEN clears.</p> <p>The TEST BYP 1 light goes off.</p> <p>The READY light comes on</p>	<p>Annunciator clears _____</p> <p>Light Off _____</p> <p>Light On _____</p>	
<p>_____10.</p>	<p>In the BYPASS VALVE TEST STATUS group,</p> <p>Depress the OFF pushbutton</p> <p>Check the following occurs:</p> <ul style="list-style-type: none"> <li>○ The TESTING light goes off.</li> <li>○ The READY light goes off.</li> <li>○ The OFF light comes on.</li> </ul>	<p>Pushbutton Depressed _____</p> <p>Light Off _____</p> <p>Light Off _____</p> <p>Light On _____</p>	

**Terminating Cue:** Bypass Valve #1 is closed and STP-509-0101 is complete for Bypass Valve #1.

**RJPM-NRC08-S4**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-S4**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** Both Bypass valves are closed. No rods will be withdrawn while you are performing the surveillance. The Steam Seal Evaporator is aligned to Main Steam.

**Initiating Cues:** The CRS directs you to perform the Main Turbine Bypass System Valve Cycle Test (STP-509-0101) , on Bypass Valve #1.

**RIVER  
BEND STATION**

Number: **RJPM-NRC08-S5**  
Revision: **5**  
Page 1 of 9

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**RESET THE REACTOR SCRAM**

**REASON FOR REVISION:**

2008 NRC Exam JPM

**S5**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1168</u>	<u>9/16/2008</u>
Preparer	KCN	Date
<u>Eric Stone</u>	<u>0348</u>	<u>9/23/2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>10/01/2008</u>
Training Supervisor	KCN	Date

\* Indexing Information

## RJPM-NRC08-S5

**TASK DESCRIPTION:** Reset the Reactor Scram

**TASK REFERENCE:** 212005001001

<b>K/A REFERENCE &amp; RATING:</b>	212000	K3.05	3.7/ 3.8	K3.06	4.0/ 4.1	
		K4.12	3.9/ 4.1	A2.14	3.9/ 4.0	
		A4.04	3.9/ 3.9	A4.07	4.0*/ 3.9*	
		A4.14	3.8/ 3.8			
<b>TESTING METHOD:</b>	Simulate Performance				Actual Performance	<b>X</b>
	Control Room		Simulator	<b>X</b>	In-Plant	

**COMPLETION TIME:** 10 min.

**MAX TIME:** N/A

**JOB LEVEL:** RO/SRO

**TIME CRITICAL:** No

**EIP CLASSIFICATION REQUIRED:** No

**PSA RISK DOMINATE:** No

**ALTERNATE PATH (FAULTED):** No

# RJPM-NRC08-S5

## SIMULATOR SETUP SHEET

**Task Description:** Reset the Reactor Scram

**Required Power:** Shutdown

**IC No.:** 251

**Notes:** None

## RJPM-NRC08-S5

### DATA SHEET

**References for Development:** AOP-0001, Reactor Scram

**Required Materials:** AOP-0001, Reactor Scram

**Required Plant Condition:** Shutdown

**Applicable Objectives:** HLO-061 Obj # 8

**Safety Related Task:** (If K/A less than 3.0)

**Control Manipulations:** N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-S5

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

A reactor scram was previously received. All SRMs and IRMs are operable, ARI was NOT initiated. No fuel failures based on DRMS readings

### **Initiating Cue:**

The CRS directs you to Reset the Reactor Scram in accordance with AOP-0001, through step 5.3.7.

**RJPM-NRC08-S5**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
_____ 1.	Verify minimum operable channels per trip system for Nuclear Instrumentation prior to resetting both divisions of RPS	_____	
* _____ 2.	Place the following switches to BYPASS:  C71A-S4A,CRD SCRAM DISCH VOL HI WTR VLV BYPASS  C71A-S4B,CRD SCRAM DISCH VOL HI WTR VLV BYPASS  C71A-S4C,CRD SCRAM DISCH VOL HI WTR VLV BYPASS  C71A-S4D,CRD SCRAM DISCH VOL HI WTR VLV BYPASS	_____  _____  _____  _____	
_____ 3.	Verify Reactor SCRAM initiation conditions have cleared and all Reactor parameters are normal and stabilized.	_____	

**RJPM-NRC08-S5**

<p>* 4.</p>	<p>Reset the Scram by placing the following switches to the RESET position:</p> <p>C71A -S5A, SCRAM RESET LOGIC A</p> <p>C71A -S5B, SCRAM RESET LOGIC B</p> <p>C71A -S5C, SCRAM RESET LOGIC C</p> <p>C71A -S5D, SCRAM RESET LOGIC D</p>	<p>Switch placed in Reset and released</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>5.</p>	<p>Check the following white lights on:</p> <p>CR1A and CR1B,RPS SCRAM SOV</p> <p>CR2A and CR2B,RPS SCRAM SOV</p> <p>CR3A and CR3B,RPS SCRAM SOV</p> <p>CR4A and CR4B,RPS SCRAM SOV</p>	<p>White lights on</p> <p>White lights on</p> <p>White lights on</p> <p>White lights on</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>5.</p>	<p>Check SCRAM DISCH VOL VENT &amp; DRN VLV POSN lights indicate red light only.</p>	<p>Valves indicate open</p>	<p>_____</p>	

**Terminating Cue:** The Scram is Reset in accordance with AOP-0001, through step 5.3.7.

**RJPM-NRC08-S5**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-S5**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** A reactor scram was previously received. All SRMs and IRMs are operable, ARI was NOT initiated. No fuel failures based on DRMS readings

**Initiating Cues:** The CRS directs you to Reset the Reactor Scram in accordance with AOP-0001, through step 5.3.7.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**PLACE FUEL BUILDING VENTILATION IN REFUELING MODE**

**REASON FOR REVISION:**

2008 NRC Exam JPM

**S6**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1168</u>	<u>9/16/2008</u>
Preparer	KCN	Date
<u>Eric Stone</u>	<u>0348</u>	<u>9/23/2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>10/01/2008</u>
Training Supervisor	KCN	Date

\* Indexing Information

**RJPM-NRC08-S6**

**TASK DESCRIPTION:** Place Fuel Building Ventilation in Refueling Mode

**TASK REFERENCE:**

**K/A REFERENCE & RATING:** 234000 K6.07 2.9/3.4

<b>TESTING METHOD:</b>	Simulate Performance				Actual Performance	<b>X</b>
	Control Room		Simulator	<b>X</b>	In-Plant	

**COMPLETION TIME:** 10 min.

**MAX TIME:** N/A

**JOB LEVEL:** RO/SRO

**TIME CRITICAL:** No

**EIP CLASSIFICATION REQUIRED:** No

**PSA RISK DOMINATE:** No

**ALTERNATE PATH (FAULTED):** No

# RJPM-NRC08-S6

## SIMULATOR SETUP SHEET

**Task Description:** Place Fuel Building Ventilation in Refueling Mode

**Required Power:** Shutdown

**IC No.:** 251

**Notes:** None

## RJPM-NRC08-S6

### DATA SHEET

<b>References for Development:</b>	SOP-0062, Fuel Building Ventilation System (Sys #406)
<b>Required Materials:</b>	SOP-0062, Fuel Building Ventilation System (Sys #406)
<b>Required Plant Condition:</b>	Shutdown
<b>Applicable Objectives:</b>	
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-S6

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

The plant is 4 days into Refueling Outage 15, Fuel Movement is scheduled to start next shift.

### **Initiating Cue:**

The CRS directs you to place the Fuel Building Ventilation in Refuel Mode, using HVF-FN3A.

**RJPM-NRC08-S6**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
_____ 1.	Notify Chemistry when altering ventilation system lineups involving filter trains.	_____	Section 5.5 <b>CUE: Chemistry has been notified</b>
* _____ 2.	Start one of the following: HVF-FN3A, EXH FLTR TRAIN	_____	
_____ 3.	Check the following:  Associated HVF-AOD31A, FAN 3A DISCH opens.  Associated HVF-AOD20A, FILTER 2A INLET opens.	_____  _____	
* _____ 4.	Stop the following fans:  HVF-FN8A, FUEL BLDG EXH FAN A  HVF-FN8B, FUEL BLDG EXH FAN B	_____  _____	
* _____ 5.	Check associated HVF-AOD6A, FUEL BLDG EXH FAN A DISCH closes.	_____	

**RJPM-NRC08-S6**

<p>* 6.</p>	<p>Verify closed the following dampers:                   HVF-AOD102, FUEL BLDG EXH FAN INLT                   HVF-AOD112, FUEL BLDG EXH FAN INLT                   HVF-AOD104, FUEL BLDG EXH ISOL                   HVF-AOD137, FUEL BLDG EXH ISOL</p>	<p>Red light off, green light on                   Red light off, green light on                   Red light off, green light on                   Red light off, green light on</p>	<p>_____                   _____                   _____                   _____</p>	
<p>7.</p>	<p>IF handling recently irradiated fuel OR at SRO direction if handling other irradiated fuel or components, THEN at FB 148'el, check Fuel Building pressure is less than or equal to -0.25" Water Gauge (WG) on HVF-PDI103, FUEL BUILDING PRESSURE MONITOR DIFFERENTIAL PRESSURE INDICATOR.</p>		<p>_____</p>	<p>CUE: Fuel Building pressure is - 0.42" Water Gauge (WG) on HVF-PDI103, FUEL BUILDING PRESSURE MONITOR DIFFERENTIAL PRESSURE INDICATOR.</p>
<p>8.</p>	<p>On Control Bldg 98' el, at EJS-SWG1A, verify EJS-ACB007, Fuel Bldg Filter Train Heater is closed.</p>	<p>Contact Field Operator and status EJS-ACB007</p>	<p>_____</p>	<p>Cue: Breaker is closed</p>

**RJPM-NRC08-S6**

_____9.	On Fuel Bldg 148' el, at HVF-PNL7A, verify HVF-FLT2AH HEATER CONTROL POWER AVAILABLE light is on.	Contact Field Operator and status HVF-PNL7A Heater	_____	Cue: Control Power Available light is on
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**Terminating Cue:** Fuel Building Ventilation is in Refuel Mode

**RJPM-NRC08-S6**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**RJPM-NRC08-S6**

**JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** The plant is 4 days into Refueling Outage 15, Fuel Movement is scheduled to start next shift.

**Initiating Cues:** The CRS directs you to place the Fuel Building Ventilation in Refuel Mode, using HVF-FN3A.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**ALIGNING IAS TO SVV**

**REASON FOR REVISION:**

2008 NRC Exam JPM – SRO/RO

**P1**

**PREPARE / REVIEW:**

Erich Weinfurter	1497	09-09-2008
Preparer	KCN	Date
Scott Shultz	0176	09-23-2008
Technical Review (SME)	KCN	Date
John Fralick	0788	10-01-2008
Training Supervisor	KCN	Date

\* Indexing Information

## RJPM-NRC08-P1

<b>TASK DESCRIPTION:</b>	Aligning IAS to SVV with Failure of Header to Pressurize
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<b>TASK REFERENCE:</b>	218000 A1.03      RO 3.2 / SRO 3.4
	218000 A2.03      RO 3.4 / SRO 3.6

<b>K/A REFERENCE &amp; RATING:</b>	300000 K1.03      RO 2.8 / SRO 2.9
	300000 K4.02      RO 3.0 / SRO 3.0

<b>TESTING METHOD:</b>	Simulate Performance	<b>X</b>			Actual Performance	
	Control Room		Simulator		In-Plant	<b>X</b>

<b>COMPLETION TIME:</b>	30 min.
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<b>MAX TIME:</b>	N/A
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<b>JOB LEVEL:</b>	All
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<b>TIME CRITICAL:</b>	No
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<b>EIP CLASSIFICATION REQUIRED:</b>	No
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<b>PSA RISK DOMINATE:</b>	No
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<b>ALTERNATE PATH (FAULTED):</b>	Yes
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# RJPM-NRC08-P1

## SIMULATOR SETUP SHEET

**Task Description:** Aligning IAS to SVV with Failure of Header to Pressurize

**Required Power:** N/A

**IC No.:** N/A

**Notes** This JPM task is simulated in the plant.

## RJPM-NRC08-P1

### DATA SHEET

<b>References for Development:</b>	AOP-0050 / Attachment 06, Rev. 025
<b>Required Materials:</b>	AOP-0050 / Attachment 06, Rev 025
<b>Required Plant Condition:</b>	Any.
<b>Applicable Objectives:</b>	Provide a backup source of air to the SRV's, to allow continued use of the SRV's for pressure control
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-P1

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues, I may provide cues during the performance of this JPM, I may ask follow-up questions as part of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied, you should inform me when you have completed the task.

### **Initial Conditions:**

The plant was operating at 100% power and it experienced a station blackout. SRVs are required to be cycled to stabilize Reactor Pressure

### **Initiating Cue:**

The CRS has directed you to implement AOP-0050, Attachment 6 IAS DIESEL AIR COMPRESSOR BACKUP TO SVV HEADER.

**RJPM-NRC08-P1**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
* 1.	Contact the Aux. Control Room, verify Diesel Air Compressor is lined up and operating to supply air to the IAS system.	—	<b>CUE:</b> Diesel air compressor running and lined up to the plant.
2.	Proceed to Turbine Building 95' elevation, northeast corner, next to the door to the Auxiliary Building and perform the following: 1. Verify the kit contains the following equipment: <ul style="list-style-type: none"> <li>• Contents:250' of Air Hose, with Quick Connect Fittings &amp; Whip Restraints</li> <li>• 2 - 24" Pipe Wrench</li> <li>• 2-3/4" Quick Connect fittings</li> <li>• 90 deg. elbow, to Cross-fitting with 2 Quick Connect fittings and bleed/shutoff valves.</li> <li>• 90 deg. elbow, to T-fitting with 1 Quick Connect fitting and a bleed valve.</li> <li>• Extra Miscellaneous 3/4" and 1" fittings</li> </ul>	—	<b>CUE:</b> Do not open locker. Routine inventories are performed to verify contents. All required kit contents obtained.
* 3.	Move the needed contents of this kit to Auxiliary Building 141 ft el	—	<b>CUE:</b> Simulate moving material

**RJPM-NRC08-P1**

<b>PERFORMANCE STEP</b>		<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
* 4.	On IAS-V345, IAS SUPPLY ROOT, behind HVR-FLT2, next to door to SBTG Train A, install a 90 deg elbow with T-fitting	Valve identified and elbow and T-fitting installed	_____	<b>CUE:</b> Elbow and T-fitting installed
* 5.	At SVV-V3000, AIR HEADER X-CONNECT DRAIN, located five feet northeast of PVLCS Skid A Accumulator Tank, install a quick connect fitting	Valve identified and fitting installed	_____	<b>CUE:</b> Quick connect fitting installed
* 6.	Make a hose connection between IAS-V345, IAS SUPPLY ROOT and SVV-V3000, AIR HEADER X-CONNECT DRAIN.	Hose connection made	_____	<b>CUE:</b> Hose connection made
* 7.	CLOSE the bleed valve on the T-fitting at IAS-V345, IAS SUPPLY ROOT EL 141'	Bleed valve on T-fitting closed	_____	<b>CUE:</b> Valve is closed
* 8.	OPEN IAS-V345, IAS SUPPLY ROOT	Valve IAS-V345 open	_____	<b>CUE:</b> Valve is open
* 9.	OPEN SVV-V3000, AIR HEADER X-CONNECT DRAIN	Valve SVV-V3000 is open	_____	<b>CUE:</b> Valve is open
* 10.	At the SVV Dryer Panel, observe SVV header pressure on SVV-PI38A or 38B. <u>IF</u> SVV header pressure can <u>NOT</u> be maintained greater than 101 psig, <u>THEN</u> disconnect the hookup per steps 3.8.1 through 3.8.6 and proceed to section 4 of this attachment.	SVV header pressure indicating > 101psig	_____	<b>CUE:</b> SVV Header pressure holding steady at only 90 psig  <b>(Alternate Path)</b>
* 11	Close IAS-V345, IAS SUPPLY ROOT	Valve IAS-V345 closed (Steps 11 and 12 maybe done in any order)	_____	<b>CUE:</b> Valve is closed
* 12	Close SVV-V3000, AIR HEADER X-CONNECT DRAIN	Valve SVV-V3000 closed (Steps 11 and 12 maybe done in any order)	_____	<b>CUE:</b> Valve is closed

**RJPM-NRC08-P1**

<b>PERFORMANCE STEP</b>		<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
* 13	At IAS-V345, IAS SUPPLY ROOT, open the bleed valve on the tee fitting	Bleed valve opened	—	<b>CUE:</b> Valve is open
* 14	Disconnect the hose from IAS-V345, IAS SUPPLY ROOT and SVV-V3000, AIR HEADER X-CONNECT DRAIN	Hose disconnected	—	<b>CUE:</b> Hose disconnected at both ends
* 15	Remove the tee fitting from IAS-V345, IAS SUPPLY ROOT	Fitting removed (Steps 15 and 16 maybe done in any order)	—	<b>CUE:</b> Fitting removed
* 16	At SVV-V3000, AIR HEADER X-CONNECT DRAIN, remove the quick connect fitting	Fitting removed (Steps 15 and 16 maybe done in any order)	—	<b>CUE:</b> Fitting removed
* 17	On IAS-V345, IAS SUPPLY ROOT, behind HVR-FLT2 next to door to SBTG Train A, install a 90° elbow with cross fitting	Fitting installed	—	<b>CUE:</b> Fitting installed
* 18	At SVV-V48, HDR A OUTBOARD LEAKAGE MONITORING CONNECTION, located 4 feet southeast of LPCS injection valve, E21-MOVF005, install a quick connect fitting	Fitting installed	—	<b>CUE:</b> Fitting installed
* 19	At SVV-V51, HDR B OUTBOARD LEAKAGE MONITORING CONNECTION, located 2 feet south of HPCS Injection Valve E22-MOVF004, install a quick connect fitting	Fitting installed	—	<b>CUE:</b> Fitting installed
* 20	Make a hose connection between IAS-V345, IAS SUPPLY ROOT and SVV-V48, HDR A OUTBOARD LEAKAGE MONITORING CONNECTION	Hose connection made	—	<b>CUE:</b> Connection made

**RJPM-NRC08-P1**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
* 21	Make a hose connection between IAS-V345, IAS SUPPLY ROOT and SVV-V51, HDR B OUTBOARD LEAKAGE MONITORING CONNECTION	Hose connection made	CUE: Connection made
* 22	On the cross fitting at IAS-V345, IAS SUPPLY ROOT, close the bleed valve	Bleed valve on cross-fitting closed	CUE: Valve is closed
* 23	Open IAS-V345, IAS SUPPLY ROOT	IAS-V345 open	CUE: Valve is open
* 24	Open SVV-V48, HDR A OUTBOARD LEAKAGE MONITORING CONNECTION	SVV-V48 open	CUE: Valve is open
* 25	Open SVV-V51, HDR B OUTBOARD LEAKAGE MONITORING CONNECTION	SVV-V51 open	CUE: Valve is open
* 26	Slowly open one or both shutoff valves on the cross fitting to supply either or both headers as needed. IF sufficient pressure can not be obtained with both shutoff valves open, THEN open only one shutoff at a time to develop sufficient pressure and flow to maintain the SRV pressure greater then 101 psig	Shutoff valves on cross fitting open and SVV pressure verified >101 psig	CUE: Both shutoff valves open and SVV header pressure 115 psig

**Terminating Cue:** SVV Header pressure maintained **greater than** 101 psig with IAS.

**RJPM-NRC08-P1**  
**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-P1**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** The plant was operating at 100% power and it experienced a station blackout. SRVs are required to be cycled to stabilize Reactor Pressure.

**Initiating Cues:** The CRS has directed you to implement AOP-0050, Attachment 6 IAS DIESEL AIR COMPRESSOR BACKUP TO SVV HEADER.

**JOB PERFORMANCE MEASURE**

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**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**PERFORM A MANUAL START OF THE HPCS DIESEL GENERATOR  
LOCALLY**

**REASON FOR REVISION:**

2008 NRC Exam JPM – SRO/RO

**P2**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>26 Aug 2008</u>
Preparer	KCN	Date
<u>Alfonso Croeze</u>	<u>0597</u>	<u>23 Sep 2008</u>
Technical Review (SME)	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>01 Oct 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

## RJPM-NRC08-P2

<b>TASK DESCRIPTION:</b>	Perform a Manual Start of the HPCS Diesel Generator Locally				
<b>TASK REFERENCE:</b>	264007001004				
<b>K/A REFERENCE &amp; RATING:</b>	264000, A4.04 3.7/3.7 2.1.30, 4.4/4.0				
<b>TESTING METHOD:</b>	Simulate Performance	<b>X</b>			Actual Performance
	Control Room		Simulator		In-Plant
<b>COMPLETION TIME:</b>	25 min.				
<b>MAX TIME:</b>	N/A				
<b>JOB LEVEL:</b>	All				
<b>TIME CRITICAL:</b>	No				
<b>EIP CLASSIFICATION REQUIRED:</b>	No				
<b>PSA RISK DOMINATE:</b>	No				
<b>ALTERNATE PATH (FAULTED):</b>	No				

## **RJPM-NRC08-P2**

### **SIMULATOR SETUP SHEET**

**Task Description:** Perform a Manual Start of the HPCS Diesel Generator Locally

**Required Power:** N/A

**IC No.:** N/A

**Notes:** **This JPM task is simulated in the plant.**

## RJPM-NRC08-P2

### DATA SHEET

<b>References for Development:</b>	SOP-0052, HPCS Diesel Generator (Sys #309), Rev.032 PEP-0026, Diesel Generator Operating Logs, Rev.12
<b>Required Materials:</b>	SOP-0052, HPCS Diesel Generator (Sys #309), Rev.032 PEP-0026, Diesel Generator Operating Logs, Rev.12
<b>Required Plant Condition:</b>	N/A
<b>Applicable Objectives:</b>	STM-309 Obj. NLO-03, NLO-05, HLO-03, HLO-05, HLO-08, HLO-10
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-P2

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

The plant is operating in Mode 1, at 100% power, steady state. It has been 10 days since the last run of the diesel.

### **Initiating Cue:**

The Control Room Supervisor has directed you to perform a local manual start of the HPCS Diesel Generator to support engineering readings.

**RJPM-NRC08-P2**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
_____1.	Establish communications with a Main Control Room Operator	Communications with Main Control Room	_____ <b>CUE:</b> Communications established
_____2.	Complete Section 4.2	Go to Section 4.2 Pre-Start Checks	_____ <b>CUE:</b> The Diesel Engine has been in standby with the circulating oil pump, turbo soakback oil pump and jacket water immersion heater in operation for at least 1 hour.  <ul style="list-style-type: none"> <li>• Lube oil level is greater than the lower round sightglass and less than the upper round sightglass.</li> <li>• Lube oil outlet temperature is 87°F.</li> <li>• Jacket water inlet temperature is 89°F.</li> </ul>
_____3.	Verify the DIV III D/G is in Maintenance per Section 6.7	Go to Section 6.7 Placing Diesel Generator in Maintenance Mode	
_____4.	At Engine Control Panel, E22-PNLS001, place ENGINE CONTROL (S1) switch to MAINT.	Places the ENGINE CONTROL (S1) Switch on E22-PNLS001 to MAINT	_____ <b>CUE:</b> Switch is in MAINT  Admin CRS is performing STP-000-0102

**RJPM-NRC08-P2**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
<p>_____ 5.</p>	<p>At H13-P601, check the following annunciates are in alarm:</p> <ul style="list-style-type: none"> <li>• P601-16A-D02, DIV III D/G IN MAINTENANCE MODE</li> <li>• P601-16A-H02, HPCS SYS NOT READY FOR AUTO START</li> </ul>	<p>Contact the Main Control Room to confirm that that the two annunciates have alarmed</p>	<p><b>CUE:</b> Both annunciates have alarmed and are currently in</p> <p>Return to continue Section 4.2</p>
<p>_____ 6.</p>	<p>Verify the following pumps are running:</p> <ul style="list-style-type: none"> <li>• E22-S001COP, HPCS D/G CIRCULATING OIL PUMP</li> <li>• E22-S001ACP, HP CORE SPRAY DSL TURBO LUBE OP</li> </ul>	<p>Verifies Circulating Oil is running based on observing indications on E22-PNLS001</p> <p>Verifies Diesel Turbo Lube Oil pump is running based on local observation.</p>	<p><b>CUE:</b> Both pumps are running normally</p>
<p>_____ 7.</p>	<p>Check that the oil level in the Lube Oil System is greater than the lower round sightglass and less than the upper round sightglass.</p>	<p>Checks the oil level in the sightglass</p>	<p><b>CUE:</b> Oil level is satisfactory</p>
<p>_____ 8.</p>	<p>Check that the Diesel Engine lube oil sump level is greater than the T7 mark and less than the FULL mark on the dipstick.</p>	<p>Checks the oil level in the sump using the dip stick, using the North side Oil Stick, the South stick is tagged as Do Not Use.</p>	<p><b>CUE:</b> Oil level is satisfactory</p>

**RJPM-NRC08-P2**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
<p>_____9.</p> <p>Check inlet air filters E22-FLTS001 as follows:</p> <p>Open covers on east end of air filters.</p> <p><u>IF</u> filters are dirty, <u>THEN</u> notify Maintenance to perform PMRQ 50029803-03 during next scheduled Division III Diesel Generator outage.</p> <p><u>IF</u> filters are torn, blocked, or otherwise damaged, <u>THEN</u> notify Maintenance to repair the filters prior to starting the Diesel Generator.</p> <p>Close the air filter covers.</p>	<p>Candidate locates the inlet filter E22-FLTS001.</p>		<p><b>CUE:</b> The inlet Air filters are located in the D/G engine room on the south west side HVAC loft.</p> <p>Once the Candidate reaches the bottom of the ladder notify them that the filters are intact and clean.</p>
<p>_____10.</p> <p><u>IF</u> Diesel Engine barring over is required, <u>THEN</u> perform the following:</p> <p>Open the 20 cylinder test valves.</p>	<p>Candidate states that they would open the 20 cylinder test valves by turning them counter-clockwise until it mechanically stops. Special tool is in the blue tool box near the door</p>		<p><b>CUE:</b> All cylinder test valves are open.</p>
<p>_____10.</p> <p>Obtain the Diesel Engine jacking device and manually bar over the Diesel Engine at least one complete revolution.</p>	<p>Candidate locates the Diesel Generator jacking device and the location on the Diesel Generator to connect the jacking device.</p> <p><u>IF</u> fluid is discharged from any cylinder, <u>THEN</u> notify the OSM/CRS.</p>		<p><b>CUE:</b> The candidate is to locate the point to connect the jacking device.</p> <p><b>CUE:</b> Diesel has been barred over one revolution and no fluid is discharged</p>

**RJPM-NRC08-P2**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
* 11.	Close the 20 cylinder test valves.		<p><b>CUE:</b> All cylinder test valves are closed.</p> <p>Return to Section 6.7 to restore the D/G to Operate</p>
* 12.	<p><u>WHEN</u> the condition that required the D/G to be placed in Maintenance no longer exists, <u>THEN</u> perform the following:</p> <p>Place the ENGINE CONTROL (S1) switch to AUTO.</p>		<p><b>CUE:</b> Switch is in AUTO</p>
* 13.	Depress the SAFETY RESET (S7) pushbutton.		<p><b>CUE:</b> The SAFETY RESET has been depressed</p>
* 14.	Check the ENGINE LOCKOUT RELAY (K15) is RESET and the associated white light is on.		<p><b>CUE:</b> White Light is Lit</p> <p>Return to continue Section 4.2</p>
15.	<p>At H13-P601, check the following annunciators reset:</p> <ul style="list-style-type: none"> <li>• P601-16A-D02, DIV III D/G IN MAINTENANCE MODE</li> <li>• P601-16A-H02, HPCS SYS NOT READY FOR AUTO START</li> </ul>		<p><b>CUE:</b> Both annunciators have reset</p>

**RJPM-NRC08-P2**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
____ 16.	Perform the requirements of PEP-0026, Diesel Generator Operating Logs.	Complete Data Sheet 1 of PEP-0026 before starting	<b>CUE:</b> PEP-0026 Data Sheet 1 is completed for this start  Section 4.2 completed go to Section 4.4 for Diesel Start
* ____ 17.	At H13-P601, place the following keyswitches to LOCAL:  • E22B-S8, HPCS DSL ENG CONTROL REMOTE/LOCAL SELECT  • E22B-S12, HPCS D/G VR & GOV CONT REMOTE/LOCAL SELECT	Contact the Main Control Room to have the keylock switches placed in LOCAL	<b>CUE:</b> Main Control Room reports the both keylock switches have been placed in LOCAL
____ 18.	Depress the manual fuel prime pushbutton on the Diesel Engine skid-mounted panel for greater than 3 seconds and less than 5 seconds.	At the Engine mounted panel depress the MANUAL FUEL PRIME pushbutton for between 3 and 5 second	<b>CUE:</b> Manual Fuel Prime pushbutton has been depressed for 4 second
* ____ 19.	At Engine Control Panel E22-PNLS001, momentarily depress the MANUAL START (S4) pushbutton.	Depress the MANUAL START pushbutton	<b>CUE:</b> MANUAL START pushbutton has been depressed and the sound of the Diesel starting can be heard in the background.

**RJPM-NRC08-P2**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
<p>____ 20.</p>	<p>Verify Diesel Engine starts and comes to at least 882 RPM, as indicated on CSH-SI267, ENGINE TACHOMETER.</p>		<p><b>CUE:</b> Engine started and operating at 890 RPM</p>
<p>____ 21.</p>	<p>Check the following:</p> <ul style="list-style-type: none"> <li>• No leaks</li> <li>• Local panel annunciates clear</li> <li>• CSH-TI130, CYLINDERS 1 THRU 20 TEMPERATURE indicates all cylinder exhaust temperature differentials are less than or equal to 200 °F.</li> <li>• The Turbocharger Mechanical Restriction Indicator indicates in the yellow band.</li> </ul>		<p><b>CUE: No leaks present, All local panel Annunciates have cleared, All cylinder exhaust temperatures are within 50°F of each other. Turbocharger Mechanical Restriction indicator is in the yellow band</b></p> <p><b>CUE: if asked Engineering will only need the Diesel run for 5 minutes</b></p>

**Terminating Cue:** The HPCS Diesel Generator is Operating from the local manual panel.

**RJPM-NRC08-P2**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**RJPM-NRC08-P2**

**JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:**

The plant is operating in Mode 1, at 100% power, steady state. It has been 10 days since the last run of the diesel.

**Initiating Cues:**

The Control Room Supervisor has directed you to perform a local manual start of the HPCS Diesel Generator to support engineering readings.

**RIVER  
BEND STATION**

Number: \***RJPM-NRC08-P3**  
Revision: **0**  
Page 1 of 10

**JOB PERFORMANCE MEASURE**

---



**TRAINING PROGRAM:**

**JOB PERFORMANCE MEASURE**

**LESSON PLAN:**

**EMERGENCY START OF DIESEL FIRE PUMP FPW-P1A**

**REASON FOR REVISION:**

2008 NRC Exam JPM – SRO/RO

**P3**

**PREPARE / REVIEW:**

<u>Erich Weinfurter</u>	<u>1497</u>	<u>10 Sept 2008</u>
Preparer	KCN	Date
<u>John Fralick</u>	<u>0788</u>	<u>01 Oct 2008</u>
Technical Review (SME)	KCN	Date
<u>Eric Stone</u>	<u>0348</u>	<u>23 Sept 2008</u>
Operations Validation	KCN	Date

\* Indexing Information

### RJPM-NRC08-P3

**TASK DESCRIPTION:** Emergency Start of Diesel Fire Pump FPW-P1A

**TASK REFERENCE:** 286018001004  
286020004004

**K/A REFERENCE & RATING:** 286000 K4.05 3.7/3.8  
K5.05 3.0/3.1  
A2.08 3.2/3.3  
A3.01 3.4/3.4  
A4.06 3.4/3.4

<b>TESTING METHOD:</b>	Simulate Performance	<b>X</b>			Actual Performance	
	Control Room		Simulator		In-Plant	<b>X</b>

**COMPLETION TIME:** 10 min.

**MAX TIME:** N/A

**JOB LEVEL:** All

**TIME CRITICAL:** No

**EIP CLASSIFICATION REQUIRED:** No

**PSA RISK DOMINATE:** Yes

**ALTERNATE PATH (FAULTED):** Yes

## **RJPM-NRC08-P3**

### **SIMULATOR SETUP SHEET**

**Task Description:** Emergency Start of Diesel Fire Pump FPW-P1A

**Required Power:** N/A

**IC No.:** N/A

**Notes:** **This JPM task is simulated in the plant.**

## RJPM-NRC08-P3

### DATA SHEET

<b>References for Development:</b>	SOP-0037, Fire Protection Water System Operating Procedure
<b>Required Materials:</b>	SOP-0037, Fire Protection Water System Operating Procedure, P&Ls and Section 4.2
<b>Required Plant Condition:</b>	N/A
<b>Applicable Objectives:</b>	STM-250, Obj# N04, N07
<b>Safety Related Task:</b>	(If K/A less than 3.0)
<b>Control Manipulations:</b>	N/A

Items marked with an "\*" are required to be performed, and are **Critical Steps**, failure to successfully complete a **Critical Step** requires the JPM to be evaluated as "Unsatisfactory". Comments describing the reason for failure are required in the comments section of the Verification of Completion sheet.

Items marked with an "^" are required to be performed in the sequence described, if not performed in the sequence described, appropriate cues other than described in the body of the JPM may be required to provide proper feedback.

## RJPM-NRC08-P3

If In-Plant or In the Control Room:

**Caution the Operator NOT to MANIPULATE the controls, but make clear what they would do if this were not a simulated situation.**

Read to the Operator:

I will explain the initial conditions, and provide initiating cues. I may provide cues during the performance of this JPM, and I may ask follow-up questions as part of this JPM. When you have completed the task successfully, the objective for this JPM will be satisfied, and you should inform me when you have completed this task.

### **Initial Conditions:**

The plant is operating in Mode 1, at 100% power, steady state. FPW-P1B Diesel Fire Pump is tagged out for pump replacement. A fire has occurred in the Auxiliary Boiler/ Water Treatment Building. Attempts to start FPW-P1A, Diesel Fire Pump and from the Auxiliary Control Room have failed. FPW-P2 does not have power because the fire has damaged NJS-LDC1K.

### **Initiating Cue:**

The CRS has directed you to perform a local manual start FPW-P1A, Diesel Driven Fire Pump, to aid in fire-fighting efforts.

**RJPM-NRC08-P3**

PERFORMANCE STEP	STANDARD	S/U	COMMENTS
1.	Place the selector switch on controller FPW-MST1A, DIESEL FIRE PUMP 1A CONTROLLER in MANUAL 1 or MANUAL 2.	Operator locates/identifies proper controls, simulates correct manipulation.	CUE: FPW-MST1A switch is in MANUAL 1
2.	Depress and hold local START pushbutton for 15 seconds or until engine starts for the following:  • FPW-P1A, DIESEL DRIVEN FIRE PUMP A	Operator locates/identifies proper controls, simulates correct manipulation.	CUE: Evaluator indicates that the diesel fire pump fails to crank.
3.	Place the selector switch on controller FPW-MST1A, DIESEL FIRE PUMP 1A CONTROLLER in MANUAL 1 or MANUAL 2.	Operator locates/identifies proper controls, simulates correct manipulation.	CUE: FPW-MST1A switch is in MANUAL 2

**RJPM-NRC08-P3**

<b>PERFORMANCE STEP</b>	<b>STANDARD</b>	<b>S/U</b>	<b>COMMENTS</b>
<p>_____ 4.</p>	<p>Depress and hold local START pushbutton for 15 seconds or until engine starts for the following:</p> <ul style="list-style-type: none"> <li>• FPW-P1A, DIESEL DRIVEN FIRE PUMP A</li> </ul>	<p>Operator locates/identifies proper controls, simulates correct manipulation.</p>	<p>Limit the maximum number of start attempts to six.</p> <p>Do <u>not</u> hold the START pushbutton for greater than 30 seconds.</p> <p><b>CUE:</b> Evaluator indicates that the diesel fire pump turns over but will not start.</p>
<p>* _____ 5.</p>	<p>Emergency start the diesel fire pumps as follows:</p> <p>Open FPW-SOV19A(B), FUEL SUPPLY SOLENOID by turning the knurled manual knob clockwise or IN to open the solenoid.</p>	<p>Operator locates/identifies proper component, simulates correct manipulation.</p>	<p>In the following mode, all other means of stopping the Fire Protection Diesel Engine are disabled, including overspeed protection. The engine continues to run until the Fuel Solenoid Manual Knob is returned to the OUT position.</p>
<p>* _____ 6.</p>	<p>Open FPW-V3009, FPW-P1A ENGINE COOLING SYSTEM BYPASS VALVE</p>	<p>Operator locates/identifies proper component, simulates correct manipulation.</p>	<p><b>CUE:</b> FPW-V3009 is OPEN</p>
<p>* _____ 7.</p>	<p>Throttle open 2 turns FPW-V179, FPW-P1A ENGINE COOLING SYSTEM BYPASS VALVE P1A(B) ENGINE COOLING SYSTEM BYPASS VALVE</p>	<p>Operator locates/identifies proper component, simulates correct manipulation.</p>	<p><b>CUE:</b> FPW-V179 is OPEN 2 turns Pressure on downstream gauge is reading the same as FPW-P13B</p>

**RJPM-NRC08-P3**

PERFORMANCE STEP		STANDARD	S/U	COMMENTS
* 8.	Engage the starter per the following:  a. Raise the Lever on either of the two starter contactors. b. Release the Lever as soon as the engine starts. c. IF engine fails to start, THEN repeat steps a & b above using the other starter contactor.	Operator locates/identifies proper component, simulates correct manipulation.	_____	<b>CUE: Engine Starts</b>  Evaluator should indicate that the engine starts and remains running after use of the first starter.
* 9.	Throttle open FPW-V179, FPW-P1A ENGINE COOLING SYSTEM BYPASS VALVE as needed to maintain cooling water pressure greater than 40 psig but less than 50 psig	Operator locates/identifies proper component, simulates correct manipulation, and verifies expected indications.	_____	Greater than 50 psig cooling water pressure can damage the Diesel Engine Cooling System. Do <u>not</u> exceed 50 psig cooling water pressure.  <b>CUE: Engine Cooling System pressure is 47psig</b>

**Terminating Cue:** FPW-P1A, Diesel Fire Pump is running.

**RJPM-NRC08-P3**

**VERIFICATION OF COMPLETION**

Operator: \_\_\_\_\_ SSN: \_\_\_\_\_

Evaluator: \_\_\_\_\_ KCN: \_\_\_\_\_

Date: \_\_\_\_\_ License (Circle one): RO / SRO No. of Attempts: \_\_\_\_\_

**Follow-up Questions:**

**Follow-up Question Response:**

Time to complete JPM: \_\_\_\_\_ minutes

Comments / Feedback:

**RESULT:**            **Satisfactory / Unsatisfactory**

**Note:** An "**Unsatisfactory**" requires comments and remedial training.

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **RJPM-NRC08-P3**

### **JPM Task Conditions/Cues**

(Operator Copy)

**Initial Conditions:** The plant is operating in Mode 1, at 100% power, steady state. FPW-P1B Diesel Fire Pump is tagged out for pump replacement. A fire has occurred in the Auxiliary Boiler/ Water Treatment Building. Attempts to start FPW-P1A, Diesel Fire Pump and from the Auxiliary Control Room have failed. FPW-P2 does not have power because the fire has damaged NJS-LDC1K.

**Initiating Cues:** The CRS has directed you to perform a local manual start FPW-P1A, Diesel Driven Fire Pump, to aid in fire-fighting efforts.



## **Narrative:**

Event 1) The crew will perform a breaker functional test of LPCS

Event 2) Due to a failure high on the Level 8 transmitter the crew will determine the equipment failure, and evaluate the Division 2 half scram, entering the appropriate Technical Specifications.

Event 3) A Safety Relief Valve will fail open, resulting in elevated suppression pool temperatures.

Event 4) Crew will lower power to 90% per AOP-0035 and attempt to close the valve using front and back panel switches and then pulling fuses.

Event 5) The removal of the fuses in Event 4 will result in a Steam Leak in the drywell due to the closure of the SRV and resultant stress this places on the steam piping. This steam leak will progress into a steam line rupture. The crew will take actions to reduce the steam leak by a Reactor Scram and entry into EOP's upon receipt of a 1.68 psid signal.

Crew will take action to makeup to the RPV using feedwater and condensate, restarting the feedwater pumps which will trip on Level 8 resulting from the steam line rupture if Reactor pressure is still high. If pressure is lowered sufficiently injection with condensate will be required.

Event 6) Following the EOP entry, High pressure injection from the HPCS system will fail due to a failure of the HPCS injection valve to open. Crew will attempt to dispatch personnel to open the valve locally. Valve will not be open prior to termination.

Event 7) Following the EOP entry the crew will recognize that the Division 1 Diesel Generator started but failed to tie into the safety bus due to a bus fault. Bus fault will not be cleared prior to termination.

The scenario will terminate once the crew has restored level to 10 to 51 inch level band using Feedwater/Condensate injection

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

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Event Description: Perform breaker functional on LPCS pump in accordance with SOP-0032 Section 4.4.

Time	Position	Applicant's Actions or Behavior
		<p><b>CUES:</b></p> <ul style="list-style-type: none"> <li>• When directed by CRS</li> </ul>
	CRS	Direct Breaker Functional
	BOP	<p>Start E21-C001, LPCS pump per SOP-0032 section 4.4</p> <p>Verify E21-C001, LPCS pump amps &lt;157 amps.</p> <p>Expected Annunciator P601-19A-F07 Div 1 ADS Logic LPCS/LPCI Opr Permissive</p> <p>Secure E21-C001, LPCS pump.</p> <p>Verify E21-F011, LPCS minimum flow valve, open.</p> <p>Document performance in Control Room Log</p> <p>Initiate action to verify LPCS breaker charging springs are charged in accordance with OSP-0022.</p> <p><i>Following any safety related 4160V or 480V breaker operation; a visual check shall be made to verify that the charging springs have returned to the charged position.</i></p>
	CRS	Initiate action to declare LPCS operable.
	BOP	Turn LPCS INOP switch to OFF

Op-Test No: <u>  1  </u> Scenario No.: <u>  1  </u> Event No.: <u>  2  </u>		Page 4 of 10
Event Description: <u>Level transmitter B21-ESN080B fails high.</u>		
Time	Position	Applicant's Actions or Behavior
		<p><b>CUES:</b></p> <ul style="list-style-type: none"> <li>• Reactor ½ Scram on Div. 2</li> <li>• Annunciator P680-06A-A04 Scram Trip High Reactor Water Level LEVEL 8</li> <li>• Annunciator P680-05A-A10 RPS Trip Logic B or D Activiated</li> </ul>
	ATC	<p>Recognize Division 2 half scram due to Level 8 signal.</p> <p>Verify no single rod scrams, by visual check of Rod Positions.</p> <p>References ARP- P680-06A-A04 Scram Trip High Reactor Water Level LEVEL 8</p>
	BOP	<p>Obtain back panel information to determine failed component.</p> <p>Reports that B21-ESN680B is has a failed upscale signal and B21-ESN683B trip light is on</p>
	CRS	<p>Directs ATC to review ARP P680-06-A04, Scram Trip High Reactor Water Level LEVEL 8</p> <p>Enter TS LCO 3.3.1.1. Function 4 (Condition A) and Function 5 (Condition A). Action for 3.3.1.1 is already met by resultant half scram. (Level 8 Trip)</p> <p>Enter TS LCO 3.3.6.1 Function 5b. (Condition A – Place channel in trip within 12 hours) (Level 3 Isolation)</p> <p>Initiate action for repair of failed component by contacting I&amp;C / Work Management.</p>
		<b>Half Scram remains in for duration of scenario</b>
		Note: STP-000-0001 Step 7 & 8 are reference for Tech Spec review

Op-Test No:   1   Scenario No.:   1   Event No.:   3&4  

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Event Description: B21-RVF051D fails open

Time	Position	Applicant's Actions or Behavior
		<p><b>CUES:</b></p> <ul style="list-style-type: none"> <li>• Red light on Acoustic Monitor Panel</li> <li>• Annunciator P601-19A-A09 Main Steam Safety Relief Valve Open</li> <li>• Annunciator P601-19A-B09 ADS/SRV Valve Leaking</li> <li>• Main Steam line flow rise on P680</li> <li>• SRV Tail pipe temperature rise and red indication on P845 recorder (will come in a short time later)</li> </ul>
	CRS, ATC, BOP	Makes plant announcement that SRV is open.
	CRS	<p>Directs the implementation of AOP-35, Stuck Open SRV</p> <ul style="list-style-type: none"> <li>• Reduce Reactor Power to <math>\leq 90\%</math> CTP</li> <li>• Enter TRM 3.4.4 Condition A for Stuck Open SRV</li> </ul> <p>References</p> <ul style="list-style-type: none"> <li>• Technical Specification 3.6.2.1 for suppression pool temperature</li> <li>• Tech Spec 3.4.4 for a failed SRV</li> <li>• Tech Spec 3.6.1.6 Low-Low Set</li> <li>• AOP-7, Loss of Feedwater Heating</li> <li>• AOP-0024, Thermal Hydraulic Stability Controls</li> <li>• Tech Spec 3.6.5.3 Drywell Penetration</li> </ul>
	ATC	<p>Reduces Reactor Power to less than or equal to 90% CTP with recirculation flow.</p> <p>Reference AOP-07 Loss of Feedwater Heating</p> <p>References AOP-0024, Thermal Hydraulic Stability Controls</p> <p>ATC may reduce power per AOP-07 due to loss of Feedwater Heating</p>

Op-Test No:  1  Scenario No.:  1  Event No.:  3&4

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Event Description:  B21-RVF051D fails open (Continued).

Time	Position	Applicant's Actions or Behavior
	BOP	<p>Recognizes that SRV F051D is open</p> <p><b>CRITICAL TASK:</b> Implements AOP-0035 Stuck Open SRV as directed.</p> <ul style="list-style-type: none"> <li>• Places the SRV control switch in OPEN on P601</li> <li>• Cycles control switch on P601</li> <li>• Cycles control switch on P631</li> </ul> <p><b>NOTE: When fuses are pulled, the SRV will close</b></p> <ul style="list-style-type: none"> <li>• Removes fuses for SRV F051D per AOP-0035 Attachment 1</li> <li>• Loss of Indicator lights for SRV F051D due to loss of power</li> <li>• Loss of Acoustic Monitor Panel light</li> </ul> <p>Observe Close indication of SRV by Lower Steam flow</p> <p>May receive annunciators for high Suppression Pool Level and Temperature</p> <p>Aligns RHR for suppression pool cooling as directed (Hardcard Operation)</p>
	CRS	<p>Notifications to Reactor Engineer for Thermal Limits Duty Manager Work Control</p>

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

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Event Description: Steam leak in the drywell following SRV closure following removal of fuses per AOP-0035 which progresses into a steam line rupture.

Time	Position	Applicant's Actions or Behavior
		CUES: <ul style="list-style-type: none"> <li>• DRMS Alarms on Drywell Atmos. RMS-DSPL230/1GP112</li> <li>• Slow rise of Drywell temperature on ERIS</li> <li>• Slow rise of Drywell pressure on ERIS</li> </ul>
	CRS,ATC, BOP	Recognized indications of steam leak in the drywell.
	CRS	Direct reactor scram and AOP-0001.  Directs the reference / implementation of: <ul style="list-style-type: none"> <li>• AOP-001 Reactor Scram</li> <li>• AOP-002 Turbine Trip</li> <li>• EOP-01, RPV Control, prior to 1.68 psid</li> <li>• EOP-02, Primary Containment Control on High Suppression Pool level</li> </ul>
	ATC	Reference/Implement actions of: <ul style="list-style-type: none"> <li>• AOP-0001               <ul style="list-style-type: none"> <li>- Place C71A-S1, REACTOR SYSTEM MODE SWITCH, to SHUTDOWN.</li> <li>- Check all Control Rods are fully inserted.</li> </ul> </li> </ul> <p><b><u>CRITICAL TASK:</u></b></p> <p>Restore makeup to the RPV with either feedwater or condensate as feedwater pumps will trip on Level 8 on the steam line rupture transient.</p> <p>RPV pressure will be below 500 psig within 1 minute, the restart of the Feedwater pumps can be discontinued as Condensate pumps has sufficient head to feed the vessel.</p> <p>ATC OPENS Feed Water Pump Bypass valve FWS-MOVF109</p> <p>Injects with Condensate by allowing the Feedwater Reg valves AUTO control to refill the vessel to normal band</p>



Op-Test No:   1   Scenario No.:   1   Event No.:   6  

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Event Description: E22-MOVF004 fails to open on HPCS initiation signal.

Time	Position	Applicant's Actions or Behavior
		CUES: <ul style="list-style-type: none"> <li>• E22-MOVF004 indicates de-energized.</li> <li>• No Injection flow indicated into the RPV</li> </ul>
	BOP	Recognize that E22-MOVF004 failed to open on high drywell pressure initiation signal.  Attempts to manually open the injection valve <ul style="list-style-type: none"> <li>• Places E22-MOVF004 control switch in OPEN on P601</li> </ul> When manual attempt fails, notify CRS to initiate action to open E22-MOVF004 locally
	CRS	Contact Work Control for outside personnel for assistance in opening E22-MOVF004 as needed for adequate core cooling.
		<b>Will not be able to open the Injection Valve prior to the end of the scenario</b>

Op-Test No:  1  Scenario No.:  1  Event No.:  7

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Event Description:  Loss of ENS-SWG1A due to bus fault (after EOP entry).

Time	Position	Applicant's Actions or Behavior
		CUES: <ul style="list-style-type: none"> <li>• Red light fails to light, white light extinguish on ENS-ACB07 Output breaker</li> <li>• Amber Trip light on ENS-ACB07</li> <li>• Bus voltage reads zero</li> <li>• Annunciators P877-31-C3, D3, D4, E2, F2, G1, H3, H4</li> </ul>
	BOP	Recognize loss of ENS-SWG1A and failure of Div 1 DG output breaker to tie onto bus due to bus fault.
	CRS	Contact Work Control for outside personnel for assistance in clearing the bus fault and closing ENS-ACB07.
		<b>Will not be able to close in the breaker and energize the bus prior to the end of the scenario</b>



**SIMULATOR EXAM**

**NRC EXAM SCENARIO #1**

**HLO IC#237**

LPCS breaker functional, Level transmitter B21-ESN080B fails high, SRV B21-RVF51D fails open, Drywell steam leak, Steam line rupture, E22-MOVF004 fails to open Loss of ENS-SWG1A

**PREPARE / REVIEW:**

<u>John Hedgepeth</u>	<u>09/23/2008</u>
Preparer	Date
<u>Angie Orgeron</u>	<u>09/23/2008</u>
Technical Review (SME)	Date
<u>John Fralick</u>	<u>09/23/2008</u>
Training Supervisor	Date
<u>J. A. Clark</u>	<u>09/23/2008</u>
Operation Management Review	Date

## **I. DESCRIPTION OF SCENARIO**

The crew assumes the shift at 100 % power. The crew will perform a breaker functional; on LPCS as PMT for breaker inspection. B21-ESN080B will fail high and cause a half scram. After Tech Specs have been addressed SRV B21-RVF051D will fail open. When the fuses are removed the SRV will go closed. A small drywell steam leak will occur and progress to a steam line rupture when plant is shutdown. HPCS injection valve will fail to open and ENS-SWG1A will fault resulting in a total loss of low pressure ECCS ejection systems.

## **II. TERMINAL OBJECTIVES**

1. Recognize and respond to a failure of B21-ESN080B level transmitter.
2. Recognize and respond to B21-RVF051D failing open.
3. Recognize and respond to a steam leak in the drywell.
4. Recognize and respond to a steam line rupture in the drywell.
5. Recognize and respond to a failure of the HPCS injection to open.
6. Recognize and respond to a fault on ENS-SWG1A.

### **III. PERFORMANCE OBJECTIVES**

#### **A. Shift/Team**

1. Recognize and respond to a failure of B21-ESN080B level transmitter.
2. Recognize and respond to B21-RVF051D failing open.
3. Recognize and respond to a steam leak in the drywell.
4. Recognize and respond to a steam line rupture in the drywell.
5. Recognize and respond to a failure of the HPCS injection to open.
6. Recognize and respond to a fault on ENS-SWG1A.

#### **B. SRO**

1. Direct LPCS breaker functional and declare LPCS operable.
2. Direct actions of ARP-680-06 for failed level transmitter.
3. Direct actions of AOP-0035 for the failed open SRV.
4. Direct reactor scram due to steam leak in the drywell.
5. Direct actions to restore RPV level IAW EOP-01.

**C. BOP**

1. Implement actions of AOP-0035 to close the SRV.
2. Implement ARP action for the drywell steam leak.
3. Recognize and report the failure of HPCS injection valve.
4. Recognize and report the fault on ENS-SWG1A.

**D. ATC**

1. Recognize and report half scram and no single rod scram due to level transmitter failure.
2. Lower power to <90% for the failed open SRV.
3. Implement actions of AOP-001 and 002 after manual reactor scram.
4. Restore reactor level control with feedwater and /or condensate.

**IV. INITIAL CONDITIONS/SHIFT TURNOVER**

INITIAL CONDITION	TRAINING FOCUS	EQUIPMENT STATUS	REQUIRED DOCUMENTS
<p><b>IC HLO IC # 237</b></p>	<p>Large Break LOCA with LPCS as the only ECCS injection system EOP-1, RPV Control</p> <p>EOP-2, Primary Containment Control</p>	<p><b>Power:</b> 100%</p> <p><b>Core:</b> BOL</p> <p><b>Equipment OOS:</b></p> <ul style="list-style-type: none"> <li>• RHR-PIB and C pump tagged</li> <li>• Div. II line fill pump tagged</li> </ul> <p><b>STPs Due:</b></p> <ul style="list-style-type: none"> <li>• none</li> </ul> <p><b>LCOs:</b></p> <ul style="list-style-type: none"> <li>• LCO 3.0.3. from 3.5.1. due to Div. II line fill pump trip&amp; LPCS OOS</li> </ul> <p><b>Evolutions in progress:</b></p> <ul style="list-style-type: none"> <li>• Start LPCS Pump for breaker functional after breaker inspection</li> </ul>	

V. GENERAL INSTRUCTIONS

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Simulator Setup</b>	<b>Snapped to IC HLO IC # 237</b> <b>Plant Configuration:</b> Verify reactor power is 100% Stop the Div II line fill pump. Place a clearance cover over the pump switch. Rack out and tag out RHR-P1B and C. Place LPCS, RHR-P1B and C OOS switched to on. Post the Div. II component OOS signs.	

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Simulator Setup (cont.)</b>	<p><b>Instructor Station Commands:</b></p> <p><b><u>EVENT ACTIONS:</u></b></p> <p><b>T7 = RPV Pressure &lt;800 psig (rrpdome &lt; 800 psig)</b></p> <p><b>T12 + Mode switch not in RUN (rp:s1(4) != 1)</b></p> <p><b><u>MALFUNCTIONS:</u></b></p> <p><b>T2 B21002B</b> B21-ESN080B fails high</p> <p><b>T3 MSS005A</b> B21-RVF051D fails open</p> <p><b>T5 MSS001</b> Steam leak in the drywell</p> <p><b>HPCS002</b> E22-MOVF004 fails to open</p> <p><b>T7 ED003H</b> ENS-SWG1A bus fault</p> <p><b>T12 MSS002</b> Steam line rupture in the drywell</p>	

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Simulator Setup (cont.)</b>	<p style="text-align: center;"><b><u>REMOTE FUNCTIONS:</u></b></p> <p style="text-align: center;">None</p> <p style="text-align: center;"><b><u>LAMP OVERRIDES:</u></b></p> <p style="text-align: center;">None</p>	

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Event 0</b>	<b>RUN</b>	CREW: Board Walkdown and Turnover
<p><b>Critical Tasks:</b> None</p> <p><b>Brief Description:</b> Perform breaker functional on LPCS in accordance with SOP-0032 Section 4.4</p>		
<b>Event 1</b>	<p><b>ROLE PLAY:</b> <b>As Building operator report LPCS Pump breaker charging springs are charged.</b></p>	<p>SRO: Direct LPCS breaker functional and declare LPCS operable</p> <p>RO: Perform the breaker functional in accordance with SOP-0032 Section 4.4</p> <p>SRO: Make operability determination for LPCS pump</p>
<p><b>Critical Tasks:</b> none</p> <p><b>Brief Description:</b> Level transmitter B21-ESN080B fails high causing a half scram to occur</p>		
<b>Event 2</b>	<b>T2</b>	<p>SRO: Direct implementation of ARP-680-06A</p> <p>Determine Tech Spec3.3.1.1. applicability</p> <p>Determine Tech Spec3.3.6.1. applicability</p> <p>Initiate action to repair the failed level transmitter</p> <p>ATC: Recognize half scram from level 8 signal</p> <p>Determine actual high level does not exist by two independent indications</p> <p>Implement actions of ARP-680-06A</p>

Event Number	MFS/OR #/CAE	Expected Operator Action
<p><b>Critical Tasks:</b> Complete actions to close the SRV</p> <p><b>Brief Description:</b> B21-RVF051D fails open</p>		
	<p><b>ROLE PLAY:</b></p> <p><b>When asked as back panel operator:</b></p> <p><b>Perform actions to operate the Div II SRV control switch</b></p> <p><b>Perform actions to remove the fuses for the SRV</b></p> <p><b>Report 10 LEDs lit for an open SRV</b></p> <p><b>Report 0 LEDs lit for a closed SRV</b></p>	<p>UO: Recognize and report B21-RVF051D fails open</p> <p>Implement AOP-035</p> <p>Recognize and report when the SRV indicates closed</p> <p>When directed start suppression pool cooling with RHR-A</p> <p>Recognize and report failure to manually scram</p> <p>Verify the Main Turbine is tripped</p> <p>Report HPCS F004 failure to open</p> <p>SRO Direct action per EOP-02 when primary containment parameters exceeded</p> <p>Direct implementation of AOP-035</p> <p>Direct suppression pool cooling with RHR-A</p> <p>Reference Tech Spec 3.6.2.1 and 3.6.1.6. and 3.6.5.3.</p> <p>ATC: Reduce power to &lt;90% with recirc. Flow</p> <p>Reference AOP-07 Loss of feedwater heating</p>

Event Number	MFS/OR #/CAE	Expected Operator Action
<p><b>Critical Tasks:</b> none</p> <p><b>Brief Description:</b> Steam leak in the drywell following SRV closure following removal of fuses per AOP-0035.</p>		
	<p><b>ROLE PLAY:</b> <b>As back panel operator:</b> <b>When requested give the results of a demanded leakage report from 'Insight' top ten values list if P601 leakage annunciator is not in. If alarm is in give 7 gpm unidentified leakage.</b></p>	<p>UO:       Recognize and report the indication of a steam leak in the drywell               Implement actions of ARP-DSPL230               Demand a leakage report</p> <p>ATC:       Implement actions of AOP-001, 002 and EOP-01</p> <p>SRO:       Request a leakage report               Direct a manual scram due to drywell parameters               Direct actions of AOP-001, 002 and EOP-01</p>
<p><b>Critical Tasks:</b> Restore RPV level with condensate and feedwater</p> <p><b>Brief Description:</b> Steam leak progresses into steam line rupture.</p>		

Event Number	MFS/OR #/CAE	Expected Operator Action
		<p>SRO: Re-enter and implement EOP-1 (DWP&gt;1.68, RWL&lt;9.7)</p> <ul style="list-style-type: none"> <li>• Direct verification of ECCS and Emergency Diesel Generator initiations</li> <li>• Direct implement of AOP-0003, Automatic Isolations</li> </ul> <p>UO: Implement EOP-1 as directed</p> <ul style="list-style-type: none"> <li>• Verify ECCS initiations</li> <li>• Verify Div. 2 &amp; 3 Emerg. Diesel Generators start</li> <li>• Verify Drywell pressure actuations and isolations occur</li> </ul>
	<p><b>ROLE PLAY:</b> When directed as back panel operator report that EOP enclosure 20 has been installed</p>	<p>SRO: Enter EOP-2 (Cont. &gt; 90°F, DWT &gt; 145°F)</p> <ul style="list-style-type: none"> <li>• Direct operation of all available CTMT cooling</li> <li>• Direct implementation of Enclosure 20 (DW Cooling)</li> <li>• Direct operation of all available Drywell Cooling</li> </ul> <p>ATC: Restore RPV level with condensate and feedwater</p>

<p><b>Critical Tasks:</b> none</p> <p><b>Brief Description:</b> E22-MOVF004 fails to open on HPCS initiation signal. Loss of ENS-SWG1A due to bus fault.</p>		
		<p><b>UO:</b> Recognize and report E22-MOVF004 fails to open Recognize and report when ENS-SWG1A faults</p> <p><b>SRO</b> Contact Work control Center for maintenance assistance to open MOVF004  Contact Work control Center for maintenance assistance to repair the fault on ENS-SWG1A</p>
	<b>FREEZE</b>	
Termination Criteria met and at the direction of the floor instructor		<p><b>TERMINATION CRITERIA:</b></p> <ol style="list-style-type: none"> <li>1. Primary containment parameters are addressed as needed per EOP-02</li> <li>2. RPV water level has been restored into normal band with condensate and feedwater</li> </ol>

**VI. TERMINATION CRITERIA**

1. Primary containment parameters are addressed as needed per EOP-02
2. RPV water level has been restored into normal band with condensate and feedwater

**VII. REFERENCES**

**A. Plant Procedures**

1. AOP-0001, Reactor Scram
2. AOP-0002, Main Turbine and Generator Trips
3. AOP-0003, Automatic Isolations
4. AOP-0006, Condensate/Feedwater Failures
5. EOP-1, RPV Control
6. EOP-2, Primary Containment Control

**IX. QUANTITATIVE SUMMARY**

Total Malfunctions	5	Perform breaker functional on LPCS, Level transmitter B21-ESN080B fails high, B21-RVF051D fails open, Steam leak in the drywell following SRV closure, steam leak progresses into steam line rupture, E22-MOVF004 fails to open , loss of ENS-SWG1A due to bus fault.
Malfunctions after EOP entry	2	Loss of ENS-SWG1A due to bus fault, E22-MOVF004 fails to open
Abnormal Events	3	B21-RVF051D fails open, AOP-1 REACTOR SCRAM, AOP-2 TURBINE TRIP
Major Transients	1	Steam leak progresses into steam line rupture.
EOPs entered	2	EOP-1, EOP-2
EOP Contingency Procedures used	1	Alternate level control
Simulator Run Time	60	Minutes
EOP Run Time	30	Minutes
Critical Tasks	2	Complete actions to close the SRV RPV water level has been restored into normal band with condensate and feedwater



## **Common Turnover**

- **C51-K601G (IRM G)** in Bypass (failed upscale)
- **VMS-CP1 (Vibration Monitor Computer #1)** is broken
- **SWC fans in manual**
- **NPS-ACB- 09 (13.8KV Norm Supply Brkrs)** are Danger tagged STX-XNS1A removed.
- **FWS-MOVS(17A/B AND 22A/B) EMERGENCY USE ONLY** (Caution Tags)
- **NJS-SWG 1J cross tied to the NPS B side**



## Narrative:

Event 1) The crew will perform a startup of the 'A' Feedwater Pump, BOP will startup Lube Oil system and ATC will start the feedwater pump.

Event 2) The crew will raise power with Reactor Recirculation flow at ~2% CTP per hour.

Event 3) The crew will respond to a upscale failure RMS-RE16A. (Tech Spec)

Event 4) Trip of the running CRD pump B, the BOP will start the alternate CRD pump and restore flow and pressure. The ATC operator will be monitoring for accumulator faults and CRD high temperatures.

Event 5) Equipment failure of one of the steam flow transmitters causes a steam flow-feed flow mismatch in the 3 element circuitry in the level control system.

This result in a lower flow demand, and a resultant lowering of level. Since there are 4 steam flow inputs, the loss of 1, bias the level setpoint to about 20" vessel level.

The ATC operator can take manual control of the master controller or go the single level control and allow the system to automatically control level

Event 6) The plant suffers a loss of offsite power. This results in a loss of all Condensate and Feedwater flow, and power to the Reactor Protection System. Vessel level will lower, but a Reactor Scram has already occurred from the loss of power to RPS.

The Div. I & II diesel generators start and supply their associated buses. Div. III diesel generator fails to start on the loss of power signal resulting in the loss of HPCS injection.

RCIC will also fail to start and inject meaning that no high pressure injection sources of necessary size are available. Before level drops below -186" the CRS will direct the opening of 7 ADS/SRV to lower pressure and allow injection by low pressure ECCS systems, per Alternate Level Control .

Event 7) Following the EOP entry the crew will recognize that the RCIC Controller is failed down scale, resulting in no injection. The BOP can place the RCIC Flow Controller into manual and slowly open the governor valve to start injection. RCIC may be restored prior to termination.

Event 8) Following the EOP entry the crew will recognize that the Division 3 Diesel Generator failed to start, and the safety related bus is de-energized. The diesel generator will not be started prior to termination.

The scenario will terminate once the crew has restored level to 10 to 51 inch level band using RCIC and/or Low Pressure RCCS systems

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

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Event Description: Start FWS-P1A per SOP-0009.

Time	Position	Applicant's Actions or Behavior
		<b>CUE: Per turnover sheet</b>
	CRS	Direct Startup of FWS-P1A. Starting a SOP-0009 step 4.5.10
	ATC	<p>Start up FWS-P1A in accordance with SOP-0009 Section 4.5 (Starting at 4.5.10)</p> <ul style="list-style-type: none"> <li>• Verify FWR-FV2A Rx FWP P1A Min Flow valve is operable and unisolated</li> <li>• Verify proper cooling water alignment, by contacting the field Operator</li> <li>• HWC in Service direct field Operator to CLOSE P73-PIT-R115A-V2 drain valve, than verify open P73-VF114A Outlet Pressure Gauge Isolation.</li> <li>• Reset Feedwater pump logic by depressing the FWS-P1A STOP pushbutton</li> <li>• Start the pump FWS-P1A by depressing and holding the START button.</li> <li>• Monitor pump amps is below 311 amps</li> <li>• Open FWS-MOV26A RX FWP P1A DISCHARGE VALVE</li> <li>• Verify Closed FWS-MOV109, Feedwater Pump Bypass</li> <li>• Field Operator reports that seal leakage and seal temperatures, lube oil temperature, gear increaser temperature, seal cooler temperatures are normal</li> <li>• Have the field Operator place the hydrogen injection in AUTO for the FWS-P1A pump per SOP-0009 section 4.2.25</li> </ul>



Op-Test No.:  2  Scenario No.:  2  Event No.:  3 

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Event Description: RMS-RE16A upscale failure.

Time	Position	Applicant's Actions or Behavior
		<p><b>CUE:</b></p> <p><b>Annunciator</b></p> <p><b>ARP-P863-74A-B06 DIV 1 RX BLDG CONTMT PAM AREA RADN ALARM</b></p>
	CRS	<p>Direct BOP to reference ARPs</p> <p>ARP P863-71A-B06 references ARP-DRMS-DSPL230 Alarm 1GP016, which in turn references:</p> <p>Reference TS 3.3.3.1</p> <ul style="list-style-type: none"> <li>• Verify operability of RMS-RE16B.</li> </ul> <p>Contact I&amp;C Maintenance for investigation of failed radiation monitor.</p>
	BOP	<p>Reference H13-P863-71A-B06 and ARP-DRMS-DSPL230</p> <ul style="list-style-type: none"> <li>• Notify CRS of malfunction</li> <li>• Verify RMS-RE16B is operable</li> </ul>

Op-Test No.:  2  Scenario No.:  2  Event No.:  4 

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Event Description: CRD Pump B trips

Time	Position	Applicant's Actions or Behavior
		<p><b>CUE:</b></p> <p><b>Annunciator H13-P601-22A-A01, CRD PUMP A or B AUTO TRIP</b></p> <p><b>Annunciator H13-P601-22A-B02, CRD PUMP B OVERLOAD PRE-TRIP WARNING</b></p> <p><b>Annunciator H13-P601-22A-F01, CHARGING WATER LOW PRESSURE</b></p>
	CRS,BOP, ATC	Recognize trip of CRD Pump B
	CRS	<p>Direct entry into ARP</p> <p>Contacts maintenance to investigate failed component.</p> <p>Direct unit operator to start standby CRD pump following initial investigation</p> <p>Upon receipt of Accumulator Trouble annunciator, Enter TS 3.1.5 Control Rod Scram Accumulators</p> <ul style="list-style-type: none"> <li>- Condition A on 1<sup>st</sup> fault.</li> <li>- Condition B on subsequent faults.</li> </ul>
	BOP	<p>Enters ARP</p> <p>Dispatches operator to pump area to investigate and verify CRD pump A prepared for start</p> <p>Starts CRD Pump A per ARP Operator Actions</p> <ul style="list-style-type: none"> <li>• Start C11-C001AP, CRD AUX OIL PUMP A.</li> <li>• Place Flow Controller C11-R600 to MANUAL</li> <li>• Close C11-R600 C11-F001A/B</li> <li>• Verify white light comes on for C11-C001A, CRD PUMP A.</li> <li>• Start C11-C001A, CRD PUMP A</li> <li>• Verify Pump Amps stabilize below 45 amps</li> <li>• Adjust C11-R600, CRD HYDRAULICS FLOW FLOW CONTROLLER C11-F002A/B to obtain a system flow rate of 45 gpm</li> </ul> <p>When Flow controller C11-R600 is nulled out place in AUTO</p>

Op-Test No.:   2   Scenario No.:   2   Event No.:   4  

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Event Description: CRD Pump B trips (Continued)

Time	Position	Applicant's Actions or Behavior
	ATC	<p>Anticipate/acknowledge Annunciators:</p> <p>ARP-P680-07A-C03 ACCUMULATOR TROUBLE. ( ~7 minutes following pump trip)</p> <p>ARP-P680-07A-D01 CONT RD DRIVE HYDRAULIC SYS HIGH TEMP</p> <p>Respond to ARP-P680-07A-C03 ACCUMULATOR TROUBLE.</p> <ul style="list-style-type: none"> <li>• Determine which rod is alarming by depressing ACKN ACCUM FAULT pushbutton</li> <li>• Notify CRS upon 1<sup>st</sup> and 2<sup>nd</sup> accumulator faults</li> </ul> <p>Respond to ARP-P680-07A-D01 CONT RD DRIVE HYDRAULIC SYS HIGH TEMP</p> <ul style="list-style-type: none"> <li>• Verify normal CRD flow and differential pressure</li> <li>• Notify CRS of high temperatures</li> </ul>

Op-Test No.:  2  Scenario No.:  2  Event No.:  5 

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Event Description:  Steam line flow input to Feedwater Level Control Systems fails high 

Time	Position	Applicant's Actions or Behavior
		<p><b>Cue:</b></p> <p>Initially, a crew member may notice lowering reactor water level on C33R606 A,B,C or lowering steam line flow indication on C33-R603D</p> <p>Annunciator H13-P680-03A-B08, <b>REACTOR HIGH/LOW WATER LEVEL</b></p>
	CRS, ATC, BOP	Recognize reactor water level transient in progress
	CRS	Direct entry into AOP-0006 Condensate & Feedwater Failures
	ATC	<p>Place Feedwater Master controller to MANUAL</p> <p>Manually control reactor water level with master controller open and close pushbuttons</p>
	CRS, ATC, BOP	<p>Identify one of four steam line flow input (C33-R503D) has failed causing level transient.</p> <p>Indicated by Steam Flow / Feed Flow mismatch on recorder C33-R607</p>
	CRS	<p>Contact maintenance to investigate failed component.</p> <p>May direct transferring to Single Element control to restore FWLC to Auto control per SOP-0009.</p>

Op-Test No.: 2 Scenario No.: 2 Event No.: 6

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Event Description: Loss of offsite power.

Time	Position	Applicant's Actions or Behavior
		<p><b><u>CUES:</u></b> Multiple Annunciators including many on the P808 Right Side</p>
	CRS,ATC,B OP	Recognize loss of offsite power
	ATC	<p>Recognize loss of condensate and feed water.</p> <ul style="list-style-type: none"> <li>• Trip light indications on the Condensate Pumps</li> <li>• Trip light indications on the Feedwater Pumps</li> </ul> <p>Recognize reactor scram due to the loss of both RPS buses</p> <ul style="list-style-type: none"> <li>• No lights on above the Scram pushbuttons</li> </ul> <p>All lights lit on the APRM indications below the Full core display.</p> <p>Perform AOP-0001 actions</p> <ul style="list-style-type: none"> <li>- Place Mode Switch to Shutdown</li> <li>- Verify all rods in</li> </ul>

	CRS	<p>Directs entry into:</p> <ul style="list-style-type: none"> <li>• AOP-0001 Reactor Scram</li> <li>• AOP-0002 Turbine Trips</li> <li>• AOP-0004 Loss of Offsite Power</li> </ul> <p>Enters EOP-0001, RPV Control when level drops below 9.7 inches for level and pressure control.</p> <p><b>CRITICAL TASK-Restore reactor water level may be achieved by either of 2 paths. Path 2 requires early recognition and response to Event 7 (RCIC controller failure).</b></p> <p><b>PATH 1:</b></p> <p>Transitions to Alternate Level Control when reactor water level can not be restored and maintained above top of active fuel.</p> <ul style="list-style-type: none"> <li>• Give direction to Inhibit ADS</li> </ul> <p>Before level drops below -186 inches, transition to Emergency Depressurization</p> <ul style="list-style-type: none"> <li>• Direct opening of 7 ADS/SRVs</li> <li>• Direct injection with Low Pressure ECCS systems to restore reactor water level above top of active fuel.</li> </ul> <p>Once level is restored above top of active fuel, transition back to Normal Level Control at EOP-0001 (1).</p> <p><b>CRITICAL TASK-Restore offsite power</b></p> <p>When power is restored to Fancy Point, direct UO to restore power to the plant per AOP-0004.</p>

Op-Test No.:  2  Scenario No.:  2  Event No.:  6

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Event Description:  Loss of Offsite power. (Continued)

Time	Position	Applicant's Actions or Behavior
	BOP	When directed takes actions per AOP-0004 Loss of Offsite Power <ul style="list-style-type: none"> <li>• Initiates RCIC</li> </ul> Recognizes failure of HPCS DG to start on the loss of bus voltage Upon entry into Alternate Level Control and when directed, Inhibit ADS Open 7 ADS/SRVs when directed by CRS Inject with LPCS, LPCI A/B/C as needed to restore level to above top of active fuel. When power is restored to Fancy Point, restore offsite power to the plant. Perform EOP-0002 actions as directed by CRS.
	CRS	Request EOP-0005 Enclosure 33 to prevent isolation of RCIC (If Path 2 is utilized). Direct actions of EOP-0002.







**SIMULATOR EXAM**

**NRC EXAM SCENARIO #2 HLO IC # 238**

Start FWS-P1A, Raise reactor power, RMS-RE16A fails upscale, CRD pump B trips, Steam line flow input to Level Control system fails low, Loss of offsite power, RCIC controller fails high, HPCS D/G fails to start on initiation signal

**PREPARE / REVIEW:**

_____ John Hedgepeth Preparer	_____ 09/23/2008 Date
_____ Angie Orgeron Technical Review (SME)	_____ 09/23/2008 Date
_____ John Fralick Training Supervisor	_____ 09/23/2008 Date
_____ J. A. Clark Operation Management Review	_____ Date

## **I. DESCRIPTION OF SCENARIO**

The scenario begins with the plant at 75% power. The crew will start FWS-P1A IAW SOP-0009 Feedwater System. After the third feedwater pump has been started the crew will raise reactor power to 85% at 2% per hour. During the power ascension, RMS-RE16A will fail upscale. This will require Tech Spec review. After actions have been taken per the appropriate ARP's, CRD-P1B will trip. This will require Tec Spec review and start of the standby CRD pump as guided by the ARP. Steam line flow indication and input to the RPV level control system will fail low. The crew will take manual control of the RPV level control system and restore RPV level into the normal band. Loss of offsite power will occur with a failure of HPCS diesel generator to start and RCIC flow controller will fail low. The crew can take manual control of the RCIC controller to inject into the RPV to restore level otherwise Emergency Depressurization will be required to restore reactor water level with low pressure ECCS systems.

## **II. TERMINAL OBJECTIVES**

1. Start FWS-P1A per SOP-0009 Feedwater System.
2. Raise power with reactor recirculation flow. Raise reactor power to 85% at 2% per hour per RE guidance.
3. Recognize and respond to RMS-RE16A upscale failure per ARP.
4. Recognize and respond to CRD Pump B trips per ARP.
5. Recognize and respond to a steam flow transmitter failure per AOP-007
6. Recognize and respond to loss of offsite power per AOP-004.
7. Recognize and respond to RCIC controller failure.
8. Recognize and respond to HPCS DG failure to start on initiation signal.

### **III. PERFORMANCE OBJECTIVES**

#### **A. Control Room Supervisor (CRS) – SRO**

1. Direct crew to start FWS-P1A IAW SOP-0009 Feedwater System.
2. Direct crew to raise power with reactor recirculation flow to 85% at 2% per hour.
3. Direct crew response to RMS-RE16A upscale failure.
4. Direct crew response to CRD Pump B trip.
5. Direct crew response to a steam flow transmitter failure .
6. Direct crew response to a loss of offsite power.
7. Direct crew response to RCIC controller failure.
8. Direct crew response to HPCS DG fails to start on initiation signal.

#### **B. At-The-Controls (ATC) Operator – RO**

1. Start of FWS-P1A per SOP-0009.
2. Raise power with reactor recirculation flow to 85% at 2% per hour .
3. Respond to a failure of steam flow transmitter failure.
4. Respond to a Loss of offsite power.

#### **C. Unit Operator (UO) – RO**

1. Start FWS-P1A IAW SOP-0009 Feedwater System.
2. Respond to RMS-RE16A upscale failure.
3. Respond to a CRD Pump B trip.
4. Respond to a Loss of offsite power.
5. Recognize and respond HPCS DG fails to start on initiation signal.
6. Recognize and respond RCIC controller failure low.

**IV. INITIAL CONDITIONS/SHIFT TURNOVER**

INITIAL CONDITION	TRAINING FOCUS	EQUIPMENT STATUS	REQUIRED DOCUMENTS
<p>HLO IC # 238</p>	<p><b>GOP-0005</b>, Power Maneuvering</p> <p><b>AOP-004</b>, Loss of Offsite Power</p> <p><b>AOP-007</b>, Condensate and Feedwater failures</p> <p><b>EOP-1</b>, RPV Control</p> <p><b>EOP-2</b>, Primary Containment Control</p>	<p><b>Power:</b> 75%</p> <p><b>Core:</b> BOL, xenon equilibrium</p> <p><b>Equipment OOS:</b></p> <ul style="list-style-type: none"> <li>• CNM-P1B</li> <li>• NNS-ACB24</li> </ul> <p><b>STPs Due:</b></p> <ul style="list-style-type: none"> <li>• NONE</li> </ul> <p><b>LCOs:</b></p> <ul style="list-style-type: none"> <li>• NONE</li> </ul> <p><b>Evolutions in progress:</b></p> <ul style="list-style-type: none"> <li>• Start FWS-P1A then commence power ascension to 85% at 2% per hour using reactor recirculation flow per GOP-5</li> </ul>	<p><b>GOP-0005</b>, Power Maneuvering Marked for current plant conditions</p>

V. GENERAL INSTRUCTIONS

Event	IC / Malfunctions / Overrides / Remotes	Cues / Actions
<b>Simulator Setup</b>	<u>INITIAL CONDITION:</u> <b>HLO IC # 238</b>	<b>PLANT CONFIGURATION:</b> <ul style="list-style-type: none"> <li>• CNM-P1B tagged out</li> <li>• FWS P1A ready to be started</li> <li>• NNS-SWG1C aligned to NNS-SWG1A.</li> <li>• NNS-ACB24 tagged out</li> <li>• CRD-P1B running</li> </ul>
	<u>TRIGGERS:</u> None	
	<u>MALFUNCTIONS:</u> <ul style="list-style-type: none"> <li>• <b>T3 RMS016A</b> RMS-RE16A upscale failure.</li> <li>• <b>T4 CRD001B</b> CRD Pump B trips</li> <li>• <b>T5 FWS017D</b> Steam line flow input to Feedwater Level Control Systems fails low</li> <li>• <b>T6 ED001</b> Loss of offsite power.</li> <li>• <b>RCIC003A</b> RCIC speed controller fails low</li> <li>• <b>HPCS003</b> HPCS DG fails to start on initiation signal</li> </ul>	
	<u>REMOTE FUNCTIONS:</u> <ul style="list-style-type: none"> <li>• <b>NONE</b></li> </ul>	

Event	IC / Malfunctions / Overrides / Remotes	Cues / Actions
	<p><b><u>LAMP OVERRIDES:</u></b></p> <ul style="list-style-type: none"> <li>• For CNM-P1A Tag Out</li> <li>• For NNS-ACB09 Tag Out</li> <li>• For NNS-ACB24 Tag Out</li> <li>•</li> </ul>	
<b>Simulator Setup Continued</b>	<p><b><u>ANNUNCIATOR OVERRIDES:</u></b></p> <ul style="list-style-type: none"> <li>• NONE</li> </ul>	
	<p><b><u>SWITCH OVERRIDES:</u></b></p> <ul style="list-style-type: none"> <li>• NONE</li> </ul>	
	<p><b>FREEZE</b></p>	<p>Provide Crew with Shift Turnover sheet</p>
<b>Event 0</b>	<b>RUN</b>	<b>CREW:</b> Board Walkdown and Turnover

Event	IC / Malfunctions / Overrides / Remotes	Cues / Actions
<p><b>Critical Tasks:</b> None</p> <p><b>Brief Description:</b> The crew takes the shift and performs all actions to start FWS-P1A IAW SOP-009. Actions are complete through step 4.5.10.</p>		
<p><b>Event 1</b> When the crew has assumed the shift.</p>	<p><b>Start FWS-P1A</b></p> <hr/> <p><b>ROLE PLAY:</b> As Turbine Building operator: When asked, report the in plant actions to start FWS-P1A are complete. If requested, take direction to perform HWC manipulations.</p>	<p><b>SRO:</b> Conduct prejob brief Direct the start FWS-P1A IAW SOP-009</p> <p><b>BOP/ATC:</b> Verify CNM-H/A68A, RX FWP 1A MIN FLOW CONTROLLER in AUTO and set at 68%. Momentarily depress FWS-P1A, RX FWP P1A STOP pushbutton to reset any trips Start FWS-P1A, RX FWP P1A by maintaining the START pushbutton depressed until FWR-FV2A, RX FWP P1A MIN FLOW Valve has opened and the pump has started. Check motor amps at FWS-A03 are greater than 200 but less than or equal to 311. Open FWS-MOV26A, RX FWP P1A DISCH VLV.</p>
<p><b>Critical Tasks:</b> None</p> <p><b>Brief Description:</b> Power ascension to 85% at 2% per hour using reactor recirculation flow</p>		
<p><b>Event 2</b></p>	<p><b>ROLE PLAY:</b> If contacted as RE state that a rodline adjustment will be needed at 85%.</p>	<p><b>CRS:</b> Directs ATC to raise reactor power to 85% at 2% per hour, with reactor recirc. flow.</p> <p><b>ATC:</b> Raises reactor recirc flow</p>

Event	IC / Malfunctions / Overrides / Remotes	Cues / Actions
<p><b>Critical Tasks:</b> None <b>Brief Description:</b> RMS-RE16A upscale failure.</p>		
Event 3	INSERT T3	<p>CRS: Direct crew response to RMS-RE16A upscale failure Reference Tech Spec 3.3.3.1</p>
	<p><b>ROLE PLAY:</b> If called, respond as RP to perform any surveys that are requested If called, respond as I&amp;C to investigate RE16A failure</p>	<p>UO: Respond to RMS-RE16A upscale failure. ARP-863-74A-B06 ARP-DRMS-DSPL230 Determine RE16B status</p>
<p><b>Critical Tasks:</b> None <b>Brief Description:</b> CRD Pump B trip</p>		
Event 4	INSERT T4	<p>CRS: Direct crew response to CRD Pump B trip Direct start of the standby pump Enter Tech. Spec. 3.1.5 when the second accumulator fault occurs. Condition A on 1<sup>st</sup> fault Condition B on subsequent faults</p> <p>UO: Respond to a CRD Pump B trip ARP-601-22 Start aux. oil pump</p>

Event	IC / Malfunctions / Overrides / Remotes	Cues / Actions
	<p><b>ROLE PLAY:</b>  <b>If called as building operator,:</b></p> <ul style="list-style-type: none"> <li>• Respond to tripped CRD pump, no problems found and standby CRD pump is ready to start.</li> <li>• No problem found at the pump breaker</li> <li>• Reset CRDM high temperature recorder after standby pump has started and record CRDM's with high temperature readings</li> </ul>	<p>Manually close flow controller  Start CRD pump  Slowly open flow controller and place in Auto.</p> <p>ATC    Respond to Accumulator Trouble ARP-P680-7A  Respond to Cont rod drive system high temp ARP-P680-7A</p>
<p><b>Critical Tasks:</b>  None.</p> <p><b>Brief Description:</b> Steam flow transmitter failure that causes the RPV level to lower and core inlet sub-cooling to a point that would challenge core thermal limits.</p>		
<b>Event 5</b>	<b>INSERT T5</b>	<p>CRS:    Direct the actions for Steam line flow input to Feedwater Level Control system failure low</p>
	<p><b>ROLE PLAY:</b>  <b>As I&amp;C to investigate the steam flow indication failure</b></p>	<p>UO:    Respond to Steam line flow input to Feedwater Level Control system fails low</p> <p>Place level control in manual and restore RPV level</p> <p>Take action as required per AOP-007 Condensate and Feedwater failures</p> <p>Identify failed steam flow input with a steam flow/feed flow mismatch or 'D' steam flow indication failed low</p>

<p><b>Critical Tasks:</b></p> <ol style="list-style-type: none"> <li>1. Restore reactor water level by either taking manual control of RCIC controller or/and utilizing low pressure ECCS pumps following Emergency Depressurization.</li> <li>2. Restore offsite power</li> </ol> <p><b>Brief Description:</b> Loss of offsite power, RCIC controller fails low, HPCS D/G failure to start on initiation signal</p>		
<p><b>Event 6</b></p>	<p><b>INSERT T6</b></p>	<p>CRS: Direct the actions for Loss of offsite power. Direct the actions for RCIC controller fails low. Direct the actions for HPCS D/G failure to start on initiation signal. Direct actions to restore RPV level to normal band with RCIC. Direct implementation of EOP-0001 'RPV Control'. Direct implementation of AOP-04 Loss Of Offsite Power. Direct implementation of EOP-0002 Containment Control</p> <p>ATC Implement EOP-0001 'RPV Control' as directed by the CRS. Implement EOP-0002 'Containment Control' actions as directed by CRS.</p> <p>UO: Respond to Loss of offsite power. Respond to RCIC controller fails low. Respond to HPCS D/G fails to start on initiation signal. Restore power to the plant per AOP-0004 when Load Dispatcher provides power to Fancy Point.  Implement EOP-0002 'Containment Control' actions as directed by CRS.</p>
	<p><b>ROLE PLAY :</b> After the plant is stable, and RCIC is restoring level call as System Dispatcher to inform the crew that power has been restored to fancy point  When requested as EM perform actions to Reset all tripped protective relays and document relay targets per SOP-0080, POST TRIP CHECKS AND RESETS ON RSS#1, RSS#2, AND MAIN GENERATOR/UNIT PROTECTION</p>	
<p>WHEN Termination Criteria are met or at Lead Examiner discretion</p>	<p><b>FREEZE</b></p>	<p><b>TERMINATION CRITERIA:</b></p> <ol style="list-style-type: none"> <li>1. Reactor water level restored to normal by either RCIC injection or LP ECCS following Emergency Depressurization.</li> <li>2. Offsite Power restored</li> </ol>

**IX. QUANTITATIVE SUMMARY**

Total Malfunctions	<u>6</u>	RMS-RE16A upscale failure, CRD Pump B trip , Steam line flow input to Feedwater Level Control Systems fails low, Loss of offsite power, RCIC controller fails low, HPCS DG fails to start on initiation signal
Malfunctions after EOP entry	<u>2</u>	RCIC controller failure, HPCS DG fails to start on initiation signal
Abnormal Events	<u>4</u>	AOP-1 (Scram); AOP-0002 (Turbine Main Gen Trip); AOP-6 Condensate and Feedwater Failures, AOP-4 Loss of Offsite Power
Major Transients	<u>1</u>	Loss of offsite power.
EOPs entered	<u>2</u>	EOP-0001, RPV Control; EOP-0002 Containment Control
EOP Contingencies used	<u>1</u>	Alternate Level Control
Simulator Run Time	<u>75</u>	Minutes
EOP Run Time	<u>25</u>	Minutes
Critical Tasks	<u>2</u>	Restore reactor water level to normal with either RCIC or LP ECCS, Restore offsite power
Tech Specs Exercised	<u>Yes</u>	Tech Spec for RMS-RE16A, CRD Tech. Spec. 3.1.5

## **VII. REFERENCES**

### **A. Plant Procedures**

1. GOP-0005, Power Maneuvering
2. ARP-P863-71
3. ARP-P601-22
4. ARP-P680-03, 07
5. AOP-0001, Reactor Scram
6. AOP-0002, Main Turbine and Generator Trips
7. AOP-0006, Condensate and Feedwater Failures
8. AOP-0004 Loss of Offsite Power
9. EOP-0001, RPV Control
10. OSP-0053, Emergency and Transient Response Support Procedure

### **B. Technical Specifications and Technical Requirements Manual**



## **Common Turnover**

- **VMS-CP1 (Vibration Monitor Computer #1)** is broken
- **NPS-ACB- 09 (13.8KV Norm Supply Brkrs)** are Danger tagged STX-XNS1A removed.
- **FWS-MOVS(17A/B AND 22A/B)** EMERGENCY USE ONLY (Caution Tags)
- **NJS-SWG 1J** cross tied to the NPS B side

Facility: River Bend Station Scenario No.: 3 Op-Test No.: 3

Examiners: TBD Operators: CRS – Control Room Supervisor  
ATC – At The Controls Operator  
BOP– Unit Operator (BOP)

Initial Conditions: Reactor power 100%.

Turnover: Div 1 DG monthly run is in progress. Diesel has been running at full load for > 1 hour. After turnover, unload and secure diesel in accordance with STP-309-0201 (currently at Step 7.3.2.) CCS-P1A tagged out for breaker inspection. Div I DG is inoperable.

Event No.	Malf. No.	Event Type*	Event Description
1		N (BOP,SRO)	Unload and secure Div 1 DG.
2	NMS011F	I (ATC, RO)	APRM 'F' upscale failure (Tech Spec)
3	CRDM 4029	C (ATC,SRO)	Single rod scram on APRM failure. (Tech Spec)
4	MGEN005 A	C (SRO,BOP)	Isophase Bus Duct Cooling Fan A Trip (GML-FN1)
5	MGEN005 B	C (SRO, BOP)	Isophase Bus Duct Cooling Fan B Trip (GML-FN2)
6	TMS003	C (ALL)	Turbine High Vibration
7		R (ATC)	Insert Reactor Scram
8	CRD014	M (ALL)	Anticipated Transient Without Scram (hydraulic lock)
9	SLC001A SLC002B	C (BOP,SRO)	SLC pumps both fail

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

Total Malfunctions = 6 (APRM F, Single Rod Scram, GML-FN1, GML-FN2, ATWS, SLC)  
Malfunctions after EOP = 1 (SLC Pumps)  
Abnormal Events = 2 (Single Rod scram, Turbine Vibration)  
Major Transients = 1 (ATWS)  
EOP entered = 2 (EOP-0001, EOP-0002)  
EOP contingencies = 1 (EOP-0001A)  
Critical Tasks = 2 (Trip the turbine, Insert all Control Rods)

## **NARRATIVE:**

EVENT 1) BOP Operator unloads and secures Division 1 Diesel Generator

EVENT 2&3) APRM 'F' fails upscale. This will cause a reactor half scram. The CRS will reference TS 3.3.1.1 and recognize only three APRMs per channel are required also TS 3.3.2.1 and TR 3.3.2.1 and recognize only 6 APRMs are needed for rod blocks. The crew should recognize that one APRM may be bypassed then bypass the APRM and reset the half scram. APRM 'F' fails upscale resulting in a Single Rod Scram of rod 40-29.

EVENT 4&5) Trip of GML-FN1. GML-FN2 will be started and then subsequently trip also. This requires that Generator loading be reduced to ~52% of full power.

EVENT 6) As a result of starting to lower generator load, the turbine starts to experience high vibration. This vibration requires a Turbine Trip when it reaches 10 mils for 15 minutes or 12 mils immediate.

EVENT 7) As a result of the lowering power or high turbine vibration, the reactor is scrammed

EVENT 8&9) When the scram is inserted, a hydraulic lock will prevent rods from inserting. The crew will take actions in accordance with EOP-1A. Suppression Pool Temperature will require boration. Neither Standby Liquid Control system is available to inject Boron into the Core to shutdown the reactor.

### Termination Criteria:

- All rods in as the result of resetting and initiating additional scram signals
- Reactor Level and pressure controlled in assigned bands or efforts underway to restore to assigned bands.
- All previously elevated primary containment parameters restored or are being addressed.

Op-Test No.:  3  Scenario No.:  3  Event No.:  1

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Event Description:  Begin unloading of Div 1 DG .

Time	Position	Applicant's Actions or Behavior
		CUE: Direction from turnover sheet.
	CRS	Direct unloading and securing EGS-EG1A per STP-309-0201 starting at step 7.3.2.
	BOP	Reduce reactive load on the diesel by using the Voltage Regulator switch to lower KVARs (But not less than 0 KVARs) Reduce MWe load on the diesel by utilizing the governor control switch in the LOWER direction (to approximately 175 KW) Unload the diesel per STP-309-0201 Loading Time chart at step 7.3.2 Trip the ENS-ACB07, STBY D/G A OUTPUT BRKR Respond to Annunciator P877-31A-ENS-SWG1A SPLY OR DIST BRFR INOPERATIVE per ARP Contact the field Operator to complete the shutdown of the Diesel Generator in accordance with STP-309-0201 steps 7.3.6 to 7.3.23

Op-Test No.:   3   Scenario No.:   3   Event No.:   2  

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Event Description: APRM F upscale failure

Time	Position	Applicant's Actions or Behavior
		<p><b>CUE:</b></p> <p><b>Annunciator H13-P680-06A-A02, NEUTRON MONITORIG SYSTEM</b></p> <p><b>H13-P680-06A-A03, APRM B or F UPSCALE TRIP OR INOP</b></p> <p><b>H13-P680-06A-C01, APRM UPSCALE</b></p> <p><b>H13-P680-05A-A10, RPS TRIP LOGIC B OR D ACTIVATED,</b></p> <p><b>H13-P680 indications of Division 2 half scram.</b></p>
	ATC	<p>Directs ATC to review ARP P680-06-A03 APRM B OR F UPSCALE TRIP OR INOP</p> <p>References to Tech Specs</p> <ul style="list-style-type: none"> <li>• 3.3.1.1 for APRM RPS inputs only 3 required</li> <li>• 3.3.2.1 for APRM rod blocks only 6 required</li> </ul> <p>Bypass APRM 'F' when directed.</p> <p>Reset Div 2 ½ scram when directed.</p>
	CRS	<p>Review Tech Spec 3.3.1.1 Function 2.</p> <p>Review TRM 3.3.2.1 Function 5.</p> <p>Verified minimum operable channels exist for both.</p> <p>Directs ATC operator to bypass APRM F and reset Div 2 half scram.</p>

Op-Test No.:  3  Scenario No.:  3  Event No.:  3

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Event Description: Single rod scram on APRM F upscale half scram signal (Control Rod 40-29)

Time	Position	Applicant's Actions or Behavior
		<p><b>CUE:</b></p> <p><b>Annunciators H13-P680-07A-B02 CONTROL ROD DRIFT,H13-P680-06A-C03 ACCUMULATOR TROUBLE</b></p> <p><b>Scram valves open indication on RCIS display for control rod 40-29</b></p>
	ATC	<p>Recognize single rod scram on control rod 40-29 by depressing the ROD DRIFT pushbutton and observing the red light on 40-29.</p> <p>Enter AOP-0061 for Mispositioned Control Rod</p> <p>Notify Reactor Engineering for recovery directions</p> <p>Request a MON Core Monitoring calculation case from Rx Engineer</p>
	CRS	<p>Direct entry into AOP-0061, MISPOSITIONED CONTROL ROD</p> <p>Contact Reactor Engineering concerning single rod scram</p> <p>Notify Work Management to investigate cause of single rod scram</p> <p>Initiate a Condition Report</p> <p>Notify duty manager of AOP entry.</p>

Op-Test No.:  3  Scenario No.:  3  Event No.:  4

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Event Description: Isophase Bus Duct Cooling Fan 1 Trip.

Time	Position	Applicant's Actions or Behavior
		<p><b>CUE:</b></p> <p><b>Annunciators:</b></p> <p><b>H13-P870-54A-A01 ISOL PHASE BUS DUCT COOLING SYS TROUBLE</b></p> <p><b>H13-P870-54A-B01 ISOL PHASE BUS DUCT COOLING SYS FAILURE</b></p>
	BOP	Recognize that Isophase Bus Duct Cooling Fan 1(GML-FN1) has tripped as indicated by amber light above switch.
	CRS	Direct BOP to start GML-FN2 DUCT FAN
	BOP	Start GML-FN2 DUCT FAN by depressing the START pushbutton per SOP-0067.
	ATC	Review AOP-0001, Reactor Scram and AOP-0002, Turbine Trip

Op-Test No.:  3  Scenario No.:  3  Event No.:  5

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Event Description: Isophase Bus Duct Cooling Fan 2 Trip

Time	Position	Applicant's Actions or Behavior
		<p><b>CUE:</b></p> <p><b>Annunciator:</b></p> <p><b>H13-P870-54A-A01 ISOL PHASE BUS DUCT COOLING SYS TROUBLE</b></p> <p><b>H13-P870-54A-B01 ISOL PHASE BUS DUCT COOLING SYS FAILURE</b></p>
	BOP	Recognize that Isophase Bus Duct Cooling Fan 2 (GML-FN2) has tripped as indicated by amber light above switch
	CRS	Direct the ATC to lower power to 52% within 20 minutes
	ATC	<p>Use the Voltage Regulator Control on P680 set VAR loading to 0 VARS</p> <p>Using Recirc. Flow start lowering power to 52% CTP</p> <p>Monitor Power to Flow Map to know when entering the Monitored and Restricted Regions (entry into the Exclusion Region results in Automatic SCRAM)</p> <p>Time may be available to start inserting Control Rods</p>
		<b>NEXT EVENT WILL OCCUR PRIOR TO REACHING 52%.</b>





Op-Test No.:   3   Scenario No.:   3   Event No.:   8  

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Event Description: Anticipated Transient Without Scram (Hydraulic Lock)

Time	Position	Applicant's Actions or Behavior
		<p><b>CUE: All rods are not fully inserted following positioning of the reactor mode switch to SHUTDOWN during the previous event.</b></p>
	ATC	<p>Recognize that all control rods did not insert following the mode switch being placed in SHUTDOWN.</p> <ul style="list-style-type: none"> <li>• Arm and depress the 4 manual scram pushbuttons</li> <li>• Arm and depress the A &amp; B ARI MANUAL INITIATION pushbuttons.</li> <li>• When directed: <ul style="list-style-type: none"> <li>○ Transfer Reactor Recirculation Pumps to SLOW.</li> <li>○ Trip both Reactor Recirculation Pumps to OFF</li> <li>○ Terminate injection with Condensate &amp; Feedwater to lower level to &lt;-56"</li> <li>○ May request trip of RCIC at Level 2</li> </ul> </li> <li>• Inject with condensate and feedwater to maintain assigned level band.</li> </ul> <p><b><u>CRITICAL TASK:</u></b></p> <ul style="list-style-type: none"> <li>• Drive rods utilizing Enclosure 14</li> <li>• Reset the scram using Enclosure 12, allow SDV to drain and re-scram. Continuing this until all controls are fully inserted.</li> </ul>

	BOP	<p>When directed,</p> <ul style="list-style-type: none"><li>• Terminate and prevent injection from HPCS</li><li>• Inhibit ADS</li><li>• Stabilize pressure between 800-1090 psig</li><li>• Inject with Standby Liquid Control using the keylock switch</li><li>• Maximize CRD per hard card</li><li>• Install Enclosure 12, 14, 16, &amp; 20 as directed.</li><li>• Start RHR in Suppression Pool Cooling per hard card as directed.</li><li>• Reject Suppression Pool to Radwaste as directed.</li></ul>
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Op-Test No.:  3  Scenario No.:  3  Event No.:  8 (Continued)  Page 11 of 12

Event Description:  Anticipated Transient Without Scram (hydraulic lock) (Continued)

Time	Position	Applicant's Actions or Behavior
	CRS	<p>Enter EOP-0001, then transition to EOP-0001A, directs the following:</p> <ul style="list-style-type: none"> <li>• Terminate and prevent injection from HPCS</li> <li>• Inhibit ADS</li> <li>• Transfer Reactor Recirculation Pumps to LFMGs/then to OFF.</li> <li>• Stabilize reactor pressure 800-1090 psig</li> <li>• Terminate injection to lower level to &lt;-56" (Typical band is -60" to -140")</li> <li>• Direct implementation of Enclosures 16 and 20</li> <li>• Injection with Standby Liquid Control</li> <li>• Maximizing CRD</li> <li>• Installation of Enclosure 12 &amp; 14</li> </ul> <p>Enter EOP-0002 due to elevated primary containment parameters (Suppression Pool temperature and level), directs the following:</p> <ul style="list-style-type: none"> <li>• Place RHR in Suppression Pool Cooling</li> <li>• Reject Suppression Pool to Radwaste</li> </ul>





**SIMULATOR EXAM**

**NRC EXAM SCENARIO #3**

**HLO IC #239**

Unload and secure Div 1 DG, APRM 'F' upscale failure, Single rod scram, Trip of both Isophase Bus Duct Cooling fans, Turbine High Vibration, Anticipated Transient Without Scram, SLC pumps both fail

**PREPARE / REVIEW:**

<hr/> John Hedgepeth Preparer	<hr/> 09/23/2008 Date
<hr/> Angie Orgeron Technical Review (SME)	<hr/> 09/23/2008 Date
<hr/> John Fralick Training Supervisor	<hr/> 09/23/2008 Date
<hr/> J. A. Clark Operation Management Review	<hr/> 09/23/2008 Date
<hr/>	

## **I. DESCRIPTION OF SCENARIO**

The crew assumes the shift at 100% power. Unloads the diesel. Div 2 half scram due to upscale failure of APRM F and single rod scram. Trip of both Isophase Bus Duct Cooling fans. As power is reduced high vibration condition on the main turbine. ATWS with failure of Standby Liquid Control.

## **II. TERMINAL OBJECTIVES**

1. Unload Div I diesel generator IAW plant procedures
2. Recognize and respond to Div 1 half scram due to upscale failure of APRM F and single rod scram
3. Recognize and respond to Trip of both Isophase Bus Duct Cooling fans
4. Recognize and respond to high vibration condition on the main turbine.
5. Recognize and respond to ATWS condition IAW plant procedures
6. Recognize and respond to failure of SLC.

### **III. PERFORMANCE OBJECTIVES**

#### **A. Shift/Team**

1. Unload and secure the Div I diesel.
2. Respond to Div 1 half scram due to upscale failure of APRM F and single rod scram.
3. Lower reactor power due to Trip of both Isophase Bus Duct Cooling fans.
4. Trip the main turbine when turbine vibration limits are exceeded.
5. Respond to a hydraulic ATWS.

#### **B. SRO**

1. Direct the shut down of the Div I diesel generator.
2. Direct the response to Div 1 half scram due to upscale failure of APRM F and single rod scram.
3. Direct the lowering of reactor power due to the trip of both Isophase Bus Duct Cooling fans.
4. Direct the actions in response to a hydraulic ATWS and primary containment parameters.

**C. ATC**

1. Recognize Div 1 half scram due to upscale failure of APRM F.
2. Recognize single rod scram on control rod 40-29.
3. Recognize high vibration condition on the main turbine.
4. Recognize that all control rods have not fully inserted.
5. Perform actions required by AOP-0001, AOP-0002, EOP-0001, EOP-0001A, & EOP-0002 as directed by CRS.

**D. BOP**

1. Unload the diesel per STP.
2. Recognize trip of both isophase bus duct cooling fans.
3. Recognize high vibration condition on the main turbine.
4. Recognize failure of initial SLC pump.
5. Perform actions required by EOP-0001, EOP-0001A, & EOP-0002 as directed by CRS.

**IV. INITIAL CONDITIONS/SHIFT TURNOVER**

INITIAL CONDITION	TRAINING FOCUS	EQUIPMENT STATUS	REQUIRED DOCUMENTS
<p>IC HLO IC #239</p>	<p>EOP-1, RPV Control  EOP-1A, RPV Control-ATWS  EOP-2, Primary Containment Control</p>	<p><b>Power:</b> 100%</p> <p><b>Core:</b> BOL</p> <p><b>Equipment OOS:</b></p> <ul style="list-style-type: none"> <li>• CCS-P1A pump tagged</li> <li>• Div. I Standby D/G running at full load for &gt; one hour</li> </ul> <p><b>STPs Due:</b></p> <ul style="list-style-type: none"> <li>• STP-000-0102, Power Distribution Alignment Check, is due in 6 hours</li> </ul> <p><b>LCOs:</b></p> <ul style="list-style-type: none"> <li>• LCO 3.8.1 due to Div. I D/G OOS</li> </ul> <p><b>Evolutions in progress:</b></p> <ul style="list-style-type: none"> <li>• Shut down Div I diesel generator per STP-309-0201</li> </ul>	<p><b>STP-309-021 DIVISION I DIESEL GENERATOR OPERABILITY TEST</b></p>

V. GENERAL INSTRUCTIONS

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Simulator Setup</b>	<b>Snapped to HLO IC #239</b> <b>Plant Configuration:</b> Verify reactor power is 100% Verify CCS-P1A is not running. Lockout CCS-P1A and place a clearance cover over the Lockout switch.	Tagout A CCS pump

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Simulator Setup (cont.)</b>	<p><b>Instructor Station Commands:</b></p> <p><b><u>EVENT ACTIONS:</u></b></p> <p><b>T6</b> Rx Power less than 88% (crqnm0d &lt; 0.88)</p> <p><b>T10</b> Iso fan B sw to start (zdi1564) != 0</p> <p><b><u>MALFUNCTIONS:</u></b></p> <p><b>T2 NMS011F</b> APRM 'F' upscale failure</p> <p><b>T2 CRDM 4029</b> Scrammed</p> <p><b>T6 TMS003 s12 r10:00</b> Turbine High Vibration</p> <p><b>T4 MGEN005A</b> Iso Phase bus duct fan A trip</p> <p><b>T10 MGEN005B d10</b> Iso Phase bus duct fan B trip</p> <p><b>CRD014 s88</b> ATWS hydraulic lock</p> <p><b>SLC001A</b> SLC pump suction valve fails to open</p> <p><b>SLC001B</b> SLC pump suction valve fails to open</p> <p><b>T4 p870_54a:b_1 Fail On</b> Isol Phase bus duct cooling sys failure</p>	

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Simulator Setup (cont.)</b>	<p style="text-align: center;"><b><u>REMOTE FUNCTIONS:</u></b></p> <p><b>T1 DI_EGS-SDEAS1 877-31C</b> Stby diesel engine A stop</p> <p><b>T1 DI_EGS-SDEAS2 877-31C</b> Stby diesel engine A stop</p> <p style="text-align: center;"><b><u>LAMP OVERRIDES:</u></b></p> <p style="text-align: center;">For CCS-P1A tag out</p>	

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Event 0</b>	<b>RUN</b>	CREW: Board Walkdown and Turnover
<p><b>Critical Tasks:</b> None</p> <p><b>Brief Description:</b> Unload and secure Div I diesel generator</p>		
<b>Event 1</b>	<p><b>ROLE PLAY:</b> <b>As Ctrl Bldg. Operator, all actions required at the local panels for STP-309-0201</b></p>	<p>SRO: Direct the UO to unload and secure the Div I D/G</p> <p>UO: Unload and secure Div I D/G per STP-309-0201 Lower load and vars Open the D/G output breaker Direct the control building operator to secure the D/G</p>
<p><b>Critical Tasks:</b> None</p> <p><b>Brief Description:</b> APRM-F fails upscale, control rod 40-29 scrams</p>		
<b>Event 2/3</b>		<p>SRO: Direct implementation of AOP-0061 Direct ATC to bypass APRM-F Direct the ATC to reset the half scram Refer to T.S. 3.3.1.1, 3.3.2.1</p>

Event Number	MFS/OR #/CAE	Expected Operator Action
	<p><b>ROLE PLAY:</b></p> <p><b>If requested as back panel operator report all other APRM are normal</b></p> <p><b>If requested, as RE report that you will run a monitored case to determine if any thermal limits have been exceeded. After about 10 minutes report as RE that no limits have been exceeded and you will develop a plan to recover rod 40-29</b></p> <p><b><u>INSTRUCTOR NOTE:</u></b></p> <p><b>When 1/2 scram is reset delete malfunction CRDM4029, this will allow the rod is settle to position “00”</b></p>	<p>ATC:      Recognize APRM-F failure</p> <p>              Recognize and report half scram</p> <p>              Recognize and report single rod scram</p> <p>              Implement AOP-0061 Mispositioned control rod</p>

**Critical Tasks:**

None

**Brief Description:**

Trip of 'A' iso phase bus fan and trip of 'B' iso phase fan after it has been started

**Event 4/5**

- SRO: Direct the response to loss of iso phase bus fans  
Direct the lowering of reactor power due to the trip of both  
Isophase Bus Duct Cooling fans
  
- UO: Recognize and respond to a loss of iso phase bus fans  
Recognize trip of both iso phase fans
  
- ATC Lower Rx power as directed by the SRO

**Critical Tasks:**

Trip the main turbine as required by AOP-002 (10 mils for 15 minutes or 12 mils immediately)

**Brief Description:**

Turbine vibration due to the rapid down power

<b>Event 6/7</b>	<b>ROLE PLAY:</b>  None	SRO: Direct actions of AOP-001 and 002  ATC: Implement actions of AOP-001 and 002.  Trip the turbine at 10 mils for 15 minutes or 12 mils immediately  Insert a manual scram
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**Critical Tasks:**

Insert all control rods

**Brief Description:**

Hydraulic ATWS with failure of both SLC pumps to operate

**Event 8**

CREW: Recognize ATWS condition; diagnosis hydraulic ATWS.  
SRO: Enters and directs the actions of EOP-1 and EOP-1A.  
Direct tripping of the Main Turbine per AOP-0002.  
ATC: Enter AOP-0001 and AOP-0002.  
Monitor rising turbine vibration levels.  
Take actions as directed by the SRO for EOP-1 and EOP-1A  
UO: Implements Enclosure 12 and 14 until all controls rod are in.  
Inhibit ADS  
Terminate and prevent HPCS  
SRO: When all rods in, exits EOP-1A and enters EOP-1.

**TERMINATION CRITERIA**

All control rods have been inserted

## **REFERENCES**

### **A. Plant Procedures**

1. AOP-0001, Reactor Scram
2. AOP-0002, Main Turbine and Generator Trips
3. AOP-0003, Automatic Isolations
4. EOP-1, RPV Control
5. EOP-1A, RPV Control - ATWS
6. EOP-2, Primary Containment Control
7. Technical Specifications
8. EIP-2-001, Classification of Emergencies

**QUANTITATIVE SUMMARY**

Total Malfunctions	6	APRM-F, single control rod scram, Isophase bus fan 'A' trip, Isophase bus fan 'B' trip, ATWS, SLC failure
Malfunctions after EOP entry	1	SLC pump fails to start
Abnormal Events	2	Single Rod Scram, Turbine vibration
Major Transients	1	ATWS
EOPs entered	2	EOP-1, EOP-2
EOP Contingency Procedures used	1	EOP-1A
Simulator Run Time	60	Minutes
EOP Run Time	30	Minutes
Critical Tasks	2	Trip the main turbine, insert all control rods



## **Common Turnover**

- **C51-K601G (IRM G)** in Bypass (failed upscale)
- **VMS-CP1 (Vibration Monitor Computer #1)** is broken
- **SWC fans in manual**
- **NPS-ACB- 09 (13.8KV Norm Supply Brkrs)** are Danger tagged STX-XNS1A removed.
- **FWS-MOVS(17A/B AND 22A/B) EMERGENCY USE ONLY** (Caution Tags)
- **NJS-SWG 1J cross tied to the NPS B side**

Facility: <u>River Bend Station</u>	Scenario No.: <u>4</u>	Op-Test No. <u>Back-up</u>
Examiners: <u>TBD</u>	Operators: <u>SRO</u>	
_____	<u>ATC</u>	
_____	<u>BOP</u>	
Initial Conditions: <u>Startup is in progress. Reactor pressure is 90 psig</u>		
Turnover: <u>Continue power ascension. Warm up RCIC and place in standby prior to exceeding 150 psig. CNM-P1C has a low oil level. Start CNM-P1B, secure CNM-P1C to support oil addition.</u>		

Event No.	Malf. No.	Event Type*	Event Description
1		N (ALL)	Start CNM-P1B/Secure CNM-P1C.
2		N (SRO, BOP)	Place RCIC in standby per SOP-0035
3		R (ATC,SRO)	Raise power with control rods
4	B21005	(ALL)	B21-PTN078A RPV Pressure fails upscale (Tech Spec.)
5	ED005F	C (BOP,SRO)	Div 3 HPCS 125VDC Bus Fault (Tech Spec)
6	RCIC004	M (ALL)	RCIC Steam Leak in the RCIC Room
7		R (ATC)	Insert a manual reactor scram in accordance with EOP-0003 before RCIC room temperature reaches Maximum Safe Operating Temperature
8	RPS001B	C (ATC)	RPS fails to insert control rods. Rods will be inserted with Alternate Rod Insertion.
9	RCIC007 RCIC008	C (BOP,CRS)	RCIC Inboard and Outboard Containment Isolation Valve (E51-F063 & E51-F064 Fail to Close

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

Total Malfunctions	=5 B21-PTN078A failure, Div 3 125 VDC bus failure, RCIC Steam Leak, Failure to Scram, RCIC Isolation Failure
Malfunctions after EOP	=2 RCIC Isolation failure, RPS Failure
Abnormal Events	=2 AOP-0001, AOP-0003
Major Transients	=1 RCIC Steam Leak
EOP entered	=2 EOP-0001, EOP-0003
EOP contingencies	=1 Emergency Depressurization
Critical Tasks	=3 Initiate ARI, Emergency Depressurize, Isolate RCIC

**Narrative:**

- Event 1) Rotate CNM pumps per turnover sheet.
- Event 2) Place RCIC in standby per SOP-0035
- Event 3) Raise power with control rods
- Event 4) B21-PTN078A fails upscale (Tech Spec.) This will cause a reactor half scram
- Event 5) Div 3 HPCS 125VDC Bus Fault (Tech Spec)
- Event 6) RCIC Steam Leak in the RCIC Room
- Event 7) Insert a manual reactor scram in accordance with EOP-0003 before RCIC room temperature reaches Maximum Safe Operating Temperature
- Event 8) RPS fails to insert control rods. Rods will be inserted with Alternate Rod Insertion.
- Event 9) RCIC Inboard and Outboard Containment Isolation Valve (E51-F063 & E51-F064 Fail to Close

The scenario will terminate when All rods are inserted, the reactor is depressurized and RCIC is isolated.

Op Test No.: Scenario No.: 4 Event No.: 1

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**Event Description:** Started SNM-P1B/Secure CNM-P1C.

Time	Position	Applicants Actions or Behaviors
		CUE: Per the turnover sheet
	CRS	Directs ATC Start the CNM-P1B and shutdown CNM-P1C.
	ATC	Rotates the CNM pumps per SOP-0007 <ul style="list-style-type: none"> <li>• Open CNM-AOV43B PUMP 1B DISCH VENT</li> <li>• Contact Aux Control Room to verify sufficient Demins and Filters</li> <li>• Start CNM-P1B CNDS Pump 1B</li> <li>• Verify CCS-MOV67B CNDS PMP 1B MOT CLR and CCS-MOV68B CNDS PMP 1B BRG CLR are open</li> <li>• Open CNM-MOV3B CNDS PUMP 1B DISCH, when the valve is full open depress the STOP pushbutton</li> <li>• Close CNM-AOV43B PUMP 1B DISCH VENT</li> <li>• Contact field Operator to Secure Oxygen Injection per SOP-0123 (Role Play</li> <li>• Depress the Close pushbutton CNM-MOV3C CNDS PUMP 1C DISCH</li> <li>• When Condensate pump 'C' is below 100 amps, then depress STOP pushbutton on CNM-P1C CNDS Pump 1C</li> <li>• Close CNM-MOV3C CNDS PUMP 1C DISCH, when the valve is full closed depress the STOP pushbutton</li> <li>• Verify CCS-MOV67C and CCS-MOV68C are closed</li> </ul>

Op Test No.: Scenario No.: 4 Event No.: 2

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**Event Description:** Place RCIC in standby per SOP-0035

Time	Position	Applicants Actions or Behaviors
		CUE: Per the turnover sheet
	CRS	Directs BOP to place RCIC in standby per SOP-0035 RCIC System.
	BOP	<p>As directed by the CRS place RCIC in Standby per SOP-0035.</p> <p>Place the following switches in RESET and check the white lights above the switches are off:</p> <ul style="list-style-type: none"> <li>• E51A-S16, RCIC DIV 1 ISOLATION RESET</li> <li>• E51A-S25, RCIC DIV 2 ISOLATION RESET</li> </ul> <p>Place the following switches in NORMAL:</p> <ul style="list-style-type: none"> <li>• E51A-S16, RCIC DIV 1 ISOLATION RESET</li> <li>• E51A-S25, RCIC DIV 2 ISOLATION RESET</li> </ul> <p>Close the following valves:</p> <ul style="list-style-type: none"> <li>• E51-F026, RCIC STM SUPPLY DR POT DN STREAM ISOL VALVE</li> <li>• E51-F025, RCIC STM SPLY DR POT UP STREAM ISOL VALVE</li> </ul> <p>NOTE: While warming up the RCIC System, the possibility exists for a RCIC Steam Line isolation due to steam flashing in the RCIC Steam Line <math>\Delta P</math> Transmitters.</p> <p>Verify the following valves are closed:</p> <ul style="list-style-type: none"> <li>• E51-F076, RCIC WARMUP LINE SHUT OFF VALVE</li> <li>• E51-F063, RCIC STEAM SUPPLY INBD ISOL VALVE</li> </ul> <p>Open E51-F064, RCIC STEAM SUPPLY OUTBD ISOL VALVE.</p> <p>NOTE: The following step causes Annunciators, P602-21A-B02, RCIC WARMUP LINE ISO VLV E51-F076 NOT FULLY CLOSED, and P601-21A-B03, RCIC TURBINE STEAM SPLY WATER DRAIN TRAP LVL HI to alarm, as condensate builds up in the drain line.</p>

Op Test No.: Scenario No.: 4 Event No.: 2

Page 5 of 12

**Event Description:** Place RCIC in standby per SOP-0035 (Continued)

Time	Position	Applicants Actions or Behaviors
	BOP	<p>Throttle E51-F076, RCIC WARMUP LINE SHUT OFF VALVE open to pressurize the RCIC Steam Line while monitoring pressure on E51-R602, RCIC TURB STM PRESS.</p> <p>Cycle the following valves to drain condensate from the RCIC Steam Line:</p> <ul style="list-style-type: none"> <li>• E51-F025, RCIC STM SPLY DR POT UP STREAM ISOL VALVE</li> <li>• E51-F026, RCIC STM SUPPLY DR POT DN STREAM ISOL VALVE</li> <li>• E51-F054, RCIC STM SPLY DR TRAP BYPASS VALVE</li> </ul> <p>WHEN RCIC Steam Line pressure has equalized with Reactor pressure, THEN open E51-F063, RCIC STEAM SUPPLY INBD ISOL VALVE.</p> <p>Close E51-F076, RCIC WARMUP LINE SHUT OFF VALVE.</p> <p>Open the following valves:</p> <ul style="list-style-type: none"> <li>• E51-F026, RCIC STM SUPPLY DR POT DN STREAM ISOL VALVE</li> <li>• E51-F025, RCIC STM SPLY DR POT UP STREAM ISOL VALVE</li> </ul> <p>Verify E51-R600, RCIC PUMP FLOW FLOW CONTROLLER HYVC002 in Auto at 600 gpm.</p> <p>Open E51-C002, RCIC TRIP &amp; THROTTLE VALVE OPERATOR and verify RCIC TRIP &amp; THROTTLE VALVE POSITION red light is on.</p> <p>Verify all RCIC alarms are clear and inoperability status lights are off.</p>

Op Test No.: Scenario No.: 4 Event No.: 3

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**Event Description:** Raise power with control rods.

Time	Position	Applicants Actions or Behaviors
		CUE: Per the turnover sheet.
	CRS	Directs ATC to raise reactor power by performing Step 50 of reactivity control plan, then await further instructions from Reactor Engineering.
	ATC	<p>Raise reactor power with control rods per the Startup Package RCP-15-023 Step 50</p> <p>A1 Sequence Starting with rod 52-41 12 to 48.</p> <ul style="list-style-type: none"> <li>• On the ROD SELECT MODULE, select the rod to be moved</li> <li>• Depress and hold C11A-S334, WITHDRAWL Pushbutton</li> <li>• Check that the new rod notch position displayed is the next highest even number</li> </ul>

Op Test No.:    Scenario No.: 4    Event No.: 4    Page 7 of 12		
Event Description: B21-PTN078A Fails upscale (Tech Spec.)		
Time	Position	Applicants Actions or Behaviors
		<b>CUES:</b> <ul style="list-style-type: none"> <li>Annunciator P680-06A-A05 RPS-A TRIP REACTOR VESSEL HIGH PRESSURE</li> <li>Annunciator P601-05A-A09 RPS TRIP LOGIC A OR C ACTIVATED (1/2 Scram)</li> </ul>
	CRS	Directs ATC & BOP to review ARP's  References to Tech Specs <ul style="list-style-type: none"> <li>3.3.1.1 Function 3 for Reactor Vessel Steam Dome Pressure High RPS inputs (Condition A)</li> <li>3.3.6.1 Function 5d for Reactor Steam Dome Pressure – High (Condition A)</li> </ul>
	ATC	References P680-06A-A05 RPS-A TRIP REACTOR VESSEL HIGH PRESSURE  P601-05A-A09 RPS TRIP LOGIC A OR C ACTIVATED  Verifies no single rod scrams
	BOP	Reports from back panel that Master Unit B21-N678A is pegged high and assoc. slave B21-N679A is now tripped.  References: STP-000-0001 Step 10 & 11

Op Test No.: Scenario No.: 4 Event No.: 5

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**Event Description:** Div 3 HPCS 125VDC Bus Fault (Tech Spec)

Time	Position	Applicants Actions or Behaviors
		<p><b>CUES:</b></p> <ul style="list-style-type: none"> <li>• Annunciator <ul style="list-style-type: none"> <li>○ H13-P601-16A-A02 DIV III D/G ELECT PROTECTION GEN TRIP/LOCKOUT</li> <li>○ H13-P601-16A-C03 DIV III D/G ENGINE OVERSPEED</li> <li>○ H13-P601-16A-D01 DIV III D/G FUEL TRANSFER SYSTEM INOPERATIVE</li> <li>○ H13-P601-16A-E02 DIV III 125VDC SYSTEM TROUBLE</li> <li>○ H13-P601-16A-E04 DIV III D/G SYSTEM TROUBLE</li> <li>○ H13-P601-16A-F04 125VDC ISOLATOR POWER LOSS OR CARD OUT OF FILE</li> <li>○ H13-P601-16A-G04 125VDC ISOLATOR POWER LOSS OR CARD OUT OF FILE</li> <li>○ H13-P601-16A-G05 HPCS/DIV III SAFETY TRIP UNIT TROUBLE</li> <li>○ H13-P601-16A-H02 HPCS SYSTEM NOT READY FOR AUTO START</li> <li>○ H13-P601-16A-H03 HPCS CONTROL PWR FAILURE OR BRKR IN LOWER POSITION</li> <li>○ H13-P601-16A-H05 HPCS SYSTEM INOPERATIVE</li> <li>○ H13-P863-75A-A11 DIV 3 DG VENT SYS</li> <li>○ H13-P808-85A-A10 DIV III D/G INOP BY SWP</li> </ul> </li> <li>• Postage Stamps <ul style="list-style-type: none"> <li>○ HPCS LOGIC POWER FASILURE</li> <li>○ HPCS TRIP UNT FILE PWR FAIL</li> </ul> </li> </ul>
	ATC, BOP,CRS	Recognize that Div 3 HPCS 125VDC Bus has faulted
	CRS	References to Tech Specs <ul style="list-style-type: none"> <li>• Enters TS 3.8.9 Condition E <ul style="list-style-type: none"> <li>○ Declares HPCS inop (TS 3.5.1 Condition B)</li> <li>○ Declares SWP-P2C inop (TS 3.7.1 Condition E)</li> </ul> </li> <li>• Request Work Control Assistance</li> </ul>
	BOP	Refer to Applicable ARP's

Op Test No.: Scenario No.: 4 Event No.: 6

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**Event Description:** RCIC Steam Leak in the RCIC Room

Time	Position	Applicants Actions or Behaviors
		CUES: Annunciators: P601-21-A06 RCIC ISOLATION MS TNL HI AMBIENT TEMP P601-21-B06 RCIC ISOLATION RCIC RM HI AMBIENT TEMP P601-21-C06 RCIC ISOL FROM STM TNL HI TEMP IMMINENT P601-21-H02 AIR TEMP MON R611RCIC RM TEMP HIGH P601-21-H03 AIR TEMP MON R611 RCIC RM DIFF TEMP HIGH
	CRS	Directs the implementation of; <ul style="list-style-type: none"> <li>• EOP-003 Secondary Containment Control</li> <li>• Directs Isolating RCIC Steam by closing: ( Per EOP-0003 step SC9)               <ul style="list-style-type: none"> <li>○ E51-MOVF063 Inboard RCIC Steam Supply Valve</li> <li>○ E51-MOVF064 Outboard RCIC Steam Supply Valve</li> </ul> </li> </ul>
	BOP	Implements the actions of EOP-003 Secondary Containment Control <ul style="list-style-type: none"> <li>• Takes control switches to CLOSE for:               <ul style="list-style-type: none"> <li>○ E510MOVF063 Inboard RCIC Steam Supply Valve</li> <li>○ E51-MOVF064 Outboard RCIC Steam Supply Valve</li> </ul> </li> <li>• Recognizes that the valves fail to Close.</li> <li>• Obtain room temperatures for RCIC Room and RHR A.</li> </ul>

Op Test No.: Scenario No.: 4 Event No.: 7

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**Event Description:** Insert a manual reactor scram in accordance with EOP-0003 before RCIC room temperature reaches Maximum Safe Operating Temperature

Time	Position	Applicants Actions or Behaviors
		<p><b>CUES:</b> Scram has been inserted, and all rods are not inserted; the reactor is NOT shut down</p>
	CRS	<p>Directs the implementation of;</p> <ul style="list-style-type: none"> <li>• Directs inserting a Manual Scram prior to RCIC and RHR A room temperatures reaches Maximum Safe Operating Temperature (per EOP-003step SC-14)</li> <li>• When Maximum Safe Operating Temperatures are reached in more than one area, direct Emergency Depressurization.</li> </ul>
	ATC	<p>Implements the actions of EOP-0001</p> <ul style="list-style-type: none"> <li>• Initiates Manual Scram</li> <li>• Recognizes that all rods did not insert (<i>Cascades into next event</i>)</li> </ul>
	UO	<ul style="list-style-type: none"> <li>• Supply room temperature information to CRS from back panel.</li> </ul> <p><b><u>CRITICAL TASK:</u></b></p> <ul style="list-style-type: none"> <li>• When directed, open 7 ADS valves.</li> </ul>

Time	Position	Applicants Actions or Behaviors
Op Test No.:    Scenario No.: 4    Event No.: 8    Page 11 of 12		
<b>Event Description:</b> RPS fails to insert control rods. Rods will be inserted with Alternate Rod Insertion.		
		<p><b>CUES:</b></p> <p>Scram has been inserted, and all rods are not inserted; the reactor is NOT shut down</p>
	CRS	<p>Enters EOP-1 for scram condition present and power is above 5%</p> <p>Transitions to EOP-1A. Directs the following</p> <ul style="list-style-type: none"> <li>• Initiate ARI</li> </ul>
	ATC	<p>Recognizes all control rods are NOT fully inserted and power is above 5% after the Mode switch has been placed in SHUTDOWN</p> <p><b><u>CRITICAL TASK:</u></b></p> <ul style="list-style-type: none"> <li>• Initiate ARI by arming and pressing the two ARI buttons above the P680 Full Core Display</li> <li>• Verifying Annunciator ARI INITIATED P680-07A-D03 is lit</li> <li>• Verifying All rods have inserted using ARI by observing the Full Core Display</li> </ul>
	CRS	<p>Reenters EOP-1 for scram condition present</p> <p>Directs the restoration of Normal Level and Pressure Bands</p>

Op Test No.:    Scenario No.: 4    Event No.: 9			Page 12 of 12
<b>Event Description:</b> RCIC Inboard and Outboard Containment Isolation Valve (E51-F063 & E51-F064 Fail to Close)			
Time	Position	Applicants Actions or Behaviors	
		<b>CUES:</b> <ul style="list-style-type: none"> <li>• E510MOV063 Inboard RCIC Steam Supply Valve, red light on, green light off</li> <li>• E51-MOV064 Outboard RCIC Steam Supply Valve, red light on, green light off</li> </ul>	
	BOP	Recognizes failure of RCIC Steam Line to isolate  Notifies the CRS of the Failure to Isolate  Contacts the Reactor Building Operator to manually close the E51-MOV064 Outboard RCIC Steam Supply Valve	
	CRS	<u><b>CRITICAL TASK:</b></u> Direct Work Management to dispatch additional personal to close the Valves by overriding the breaker thermal trips.	



**SIMULATOR EXAM**

**NRC EXAM SCENARIO #4 HLO IC# 240**

Warm-up and place RCIC in standby, Rotate CNM pumps, B21-PTN078A failure, E22-S001 Bus fault (125 VDC), RCIC Steam Leak in the RCIC Room , Rods will be inserted with Alternate Rod Insertion., RCIC Inboard and Outboard Containment Isolation Valve Fail to Close

**PREPARE / REVIEW:**

<u>John Hedgepeth</u>	<u>09/24/2008</u>
Preparer	Date
<u>Angie Orgeron</u>	<u>09/24/2008</u>
Technical Review (SME)	Date
<u>John Fralick</u>	<u>09/24/2008</u>
Training Supervisor	Date

## **I. DESCRIPTION OF SCENARIO**

The crew assumes the shift at 2% power and reactor pressure 90 psig. The crew will warm up and place RCIC in standby. To support oil addition, CNM-P1B will be started and CNM-P1C will be secured. During the power ascension B21-PTN078A will fail high. A steam leak will develop in the RCIC room. A scram will be inserted and ARI will insert the control rods. RCIC steam isolation valves will fail to close and Emergency Depressurization will be required.

## **II. TERMINAL OBJECTIVES**

1. Warm up and place RCIC in standby.
2. Shift CNM pumps to support oil addition.
3. Respond to the failed B21-PTN078A.
4. Respond to the RCIC room steam leak.
5. Emergency Depressurization when required by EOP-0003.

### **III. PERFORMANCE OBJECTIVES**

#### **A. Shift/Team**

1. Warm up and place RCIC in standby.
2. Shift CNM pumps to support oil addition.
3. Respond to the failed B21-PTN078A.
4. Respond to the RCIC room steam leak.
5. Emergency Depressurization when required by EOP-0003.

#### **B. SRO**

1. Direct warm up and place RCIC in standby.
2. Direct start of CNM-P1B and secure CNM-P1C.
3. Direct the ATC to raise reactor power with control rods per the approved Reactivity Control Plan.
4. Direct response to the failed pressure transmitter.
5. Direct the response to the failure of Div III DC bus.
6. Direct the response to a steam leak in the RCIC room.
7. Direct Emergency Depressurization when secondary containment parameters are exceeded.

**C. ATC**

1. Start CNM-P1B and secure CNM-P1C.
2. Raise reactor power with control rods per the approved Reactivity Control Plan.
3. Response to the failed pressure transmitter.
4. Insert the control rods with ARI when the manual methods do not work.

**D. BOP**

1. Warm up and place RCIC in standby.
2. Response to the failure of Div III DC bus.
3. Response to a steam leak in the RCIC room.
4. When directed open 7 ADS/SRVs.

**IV. INITIAL CONDITIONS/SHIFT TURNOVER**

<b>INITIAL CONDITION</b>	<b>TRAINING FOCUS</b>	<b>EQUIPMENT STATUS</b>	<b>REQUIRED DOCUMENTS</b>
<p><b>IC #240</b></p>	<p>Primary system leak into secondary containment EOP-0003 Secondary Containment Control / Rad. Release</p> <p>EOP-1, RPV Control Emergency Depressurization</p>	<p><b>Power:</b> 2% RPV pressure 90 psig</p> <p><b>Core:</b> BOL</p> <p><b>Equipment OOS:</b></p> <ul style="list-style-type: none"> <li>• none</li> </ul> <p><b>STPs Due:</b></p> <ul style="list-style-type: none"> <li>• none</li> </ul> <p><b>LCOs:</b></p> <ul style="list-style-type: none"> <li>• none</li> </ul> <p><b>Evolutions in progress:</b></p> <ul style="list-style-type: none"> <li>• Place RCIC in standby per SOP-35</li> <li>• Continue plant start up</li> </ul>	

V. GENERAL INSTRUCTIONS

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Simulator Setup</b>	<b>Snapped to IC# 240</b> <b>Plant Configuration:</b> Verify reactor power is 2% Verify that CNM-P1C is in service RPV pressure is 90 psig Reactivity Control Plan for start up is available for an A-1 sequence, complete to step #50	

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Simulator Setup (cont.)</b>	<b>Instructor Station Commands:</b> <u><b>EVENT ACTIONS:</b></u> none <u><b>MALFUNCTIONS:</b></u> <b>T4 B21005</b> B21-PTN078A fails high <b>T5 ED005F</b> E22-S001 Bus Fault(125vdc) <b>T6 RCIC004</b> Steam leak in the RCIC room <b>RPS001B</b> RPS fails to insert rods manual methods <b>RCIC007</b> RCIC F063 fails to isolate <b>RCIC008</b> RCIC F064 fails to isolate	

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Simulator Setup (cont.)</b>	<p style="text-align: center;"><b><u>REMOTE FUNCTIONS:</u></b></p> <p style="text-align: center;">none</p> <p style="text-align: center;"><b><u>LAMP OVERRIDES:</u></b></p> <p style="text-align: center;">none</p>	

Event Number	MFS/OR #/CAE	Expected Operator Action
<b>Event 1</b>	<b>RUN</b>	CREW: Board Walkdown and Turnover
<p><b>Critical Tasks:</b> none</p> <p><b>Brief Description:</b> The crew will warm up and place RCIC in standby.</p>		
<b>Event 1</b>		SRO: Direct warm up and place RCIC in standby RO: Place RCIC in standby per SOP-035
<p><b>Critical Tasks:</b> none</p> <p><b>Brief Description:</b> To support oil addition, CNM-P1B will be started and CNM-P1C will be secured</p>		
<b>Event 2</b>		SRO Direct start of CNM-P1B and secure CNM-P1C RO: Swap CNM pumps per SOP
<p><b>Critical Tasks:</b> None</p> <p><b>Brief Description:</b> Raise reactor power with control rods per the approved RCP</p>		

Event Number	MFS/OR #/CAE	Expected Operator Action	
Event 3		SRO:	Direct the ATC to raise reactor power with control rods per the approved RCP
<p><b>Critical Tasks:</b> None</p> <p><b>Brief Description:</b> During the power ascension B21-PTN078A will fail high.</p>		ATC:	Withdraw control rods per the RCP
Event 4	<p><b>ROLE PLAY:</b> <b>As Back panel operator:</b> <b>When asked for the status of B21-PTN078A, report that B21-N678A is pegged high and the associated slave B21-N679A is tripped.</b></p>	SRO:	Direct response to the failed pressure transmitter Reference T.S. 3.3.1.1.
		ATC	Recognize and report the failed instrument Recognize and report half scram and no single rod scram Reference ARP-P680-06
		UO	Retrieve back panel information from the trip unit

Event Number	MFS/OR #/CAE	Expected Operator Action
<p><b>Critical Tasks:</b> none</p> <p><b>Brief Description:</b> Div III 125 VDC bus will fault.</p>		
<p><b>Event 5</b></p>		<p>UO: Recognize and report a loss of Div III 125 VDC bus Respond to the bus fault per ARP-P601-16</p> <p>SRO: Direct actions of ARP-P601-16 Reference T.S. 3.8.9 Direct repairs to Div III DC bus Declare HPCS and SWP-P2C inoperable</p>

Event Number	MFS/OR #/CAE	Expected Operator Action
<p><b>Critical Tasks:</b> Initiate ARI to insert all control rods. Emergency depressurize when required by EOP-3. Isolate the RCIC steam leak</p> <p><b>Brief Description:</b> A steam leak will develop in the RCIC room. A scram will be inserted and ARI will insert the control rods. RCIC steam isolation valves will fail to close and Emergency Depressurization will be required</p>		
<p><b>Event 6, 7, 8, 9</b></p>	<p><b>ROLE PLAY:</b>   <b>When requested, provided RCIC room temperatures from INSIGHT.</b>   <b>When requested, provide RHR A room temperatures as 10°F below current RCIC room temperature.</b>   <b>All other area temps are normal.</b>   <b>When requested, as E.M. manually drive E51-MOVF064 closed from the breaker. This will be delayed until actions to depressurize have been taken.</b></p>	<p>SRO:      Direct the response to a steam leak in the RCIC room per EOP-3   Direct a manual reactor scram due to secondary containment parameters   Direct E.D. when secondary containment parameters are exceeded   Request maintenance assistance to manually close the failed RCIC i valves   Direct actions of AOP-1 and AOP-3</p>

Event Number	MFS/OR #/CAE	Expected Operator Action
		<p>ATC:        Initiate a manual actor scram</p> <p>              Initiate ARI to fully insert all control rods</p> <p>              Maintain RPV level and pressure in the given bands</p> <p>              Perform actions of AOP-1 and AOP-3</p> <p>UO:         Attempt to isolate the RCIC steam supply valves</p> <p>              Open 7 ADS/SRVs when directed by the CRS</p>
Termination Criteria met and at the direction of the floor instructor	<b>FREEZE</b>	<p><b><u>TERMINATION CRITERIA</u></b></p> <ol style="list-style-type: none"> <li>1. Initiate ARI to insert all control rods.</li> <li>2. Emergency depressurize when required by EOP-3.</li> <li>3. Isolate the RCIC steam leak</li> </ol>

**VI. TERMINATION CRITERIA**

1. Initiate ARI to insert all control rods.
2. Emergency depressurize when required by EOP-3.
3. Isolate the RCIC steam leak

**VII. REFERENCES**

**A. Plant Procedures**

1. AOP-0001, Reactor Scram
2. AOP-0003, Automatic Isolations
3. EOP-1, RPV Control
4. EOP-3, Secondary Containment Control
5. Technical Specifications

**IX. QUANTITATIVE SUMMARY**

Total Malfunctions	5	B21-PTN078A fails, Div III 125 VDC fault, RCIC steam leak, failure to scram, RCIC isolation failure
Malfunctions after EOP entry	2	RCIC isolation failure, failure to scram
Abnormal Events	2	AOP-0001, AOP-0003
Major Transients	1	RCIC steam leak
EOPs entered	2	EOP-0001, EOP-0003
EOP Contingency Procedures used	1	Emergency Depressurization
Simulator Run Time	60	Minutes
EOP Run Time	30	Minutes
Critical Tasks	3	Initiate ARI to insert all control rods, Emergency depressurize when required by EOP-3, Isolate the RCIC steam leak

