
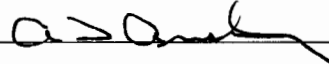


Training Id: **2013 NRC RO Admin CO-1**

Revision: **0.0**

Title: **Determine Containment Water Level**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Jerry Randall	12/13/2013
Facility Reviewer	 Aaron Armstrong	1/3 / 2014
Approximate Duration: 30 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time:	_____	Stop Time:	_____	Completion Time	_____
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Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. N2-EOP-6.23, Containment Water Level Determination

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operators ability to determine Containment Water Level when containment level is above 224 feet.

#### 2. Task Information:

- a. N2-EOP06-01001-23, Implement N2-EOP-6.23, Containment Level Determination.
- b. 2.1.25 (3.9) Ability to interpret reference materials, such as graphs, curves, tables, etc.

#### 3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Classroom
Time Critical Task	No
Alternate Path	No
LOD >1.0	Yes

#### 4. Recommended Start Location

- a. Training Classroom

#### 5. JPM Setup (if required)

- a. Ensure book carts are available for the operators to use and that there is an up to date copy of N2-EOP-6.23.
- b. Ensure a calculator is available for each operator.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.



**INITIAL  
CONDITIONS**

Given:

- Approximately one day ago the plant experienced a large break LOCA
- In order to maintain adequate core cooling, operators have been injecting into the RPV with systems whose suction source is outside the primary containment.
- The EOP Director has been monitoring the Primary Containment Pressure Limit (PCPL) per N2-EOP-RPV.
- Primary Containment Water Level has just exceeded 224 feet
- The EOP Director has directed the performance of N2-EOP-6.23, Containment Level Determination. Steps 6.1 through 6.6 have been completed.
- The EOP Director has determined Primary Containment Water Level is to be logged every 30 minutes.
- You are the RO assigned to determine and log Containment Water Level per N2-EOP-6.23.
- Another operator has been assigned to monitor the Fuel Zone Level Instruments.

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

**INITIATING  
CUE**

**(Operators Name),** Given the plant parameters found on the provided log, document the Primary Containment Water Level (PCWL) for 06:00 to 11:00. Additionally, on the log provided, document any required actions based on PCWL trend. Another operator will be taking care of all actions for monitoring the Fuel Zone instruments.

**START TIME**

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
2.	Obtain a copy of the reference material and review / utilize the correct section of the procedure.	P	SAT / UNSAT  <i>STD: Obtains N2-EOP-6.23</i>
<b>Evaluators Note:</b>	The Answer Key attached to this JPM provides the grading criteria for the below step. Documentation of the correct $\Delta P$ is not required for successful completion of the below step. The operator need only determine the correct Primary Containment Water Level within $\pm 1$ foot in order to meet the intent of the critical step.		
3.	Using N2-EOP-6.23, Step 6.7 and Figure 1a, determines containment water level.	P	<b>*PASS / FAIL</b>  <i>STD: Calculates the <math>\Delta P</math> by subtracting Suppression Chamber Pressure from Primary Containment Inlet N2 Pressure. Uses the <math>\Delta P</math> to determine PCWL on Figure 1a. Documents the PCWL on the provided LOG. PCWL values have to be within <math>\pm 1</math> foot of the value on the answer key. Documents ALL PCWL's from 06:00 to 11:00 on the provided log.</i>
<b>Evaluators Note:</b>	The operator should notice that the $\Delta P$ between 08:00 and 09:30 has remained the same and RPV injection flow has been constant. The operator should identify that Step 6.10 now applies and that the EOP DIRECTOR should be notified of a constant PCWL with no change in injection.		
<b>Evaluators Note:</b>	If the operator informs the EOP DIRECTOR of the constant $\Delta P$ before completion of all PCWL logs, provide the following cue:  <b>Cue:</b> <i>The EOP DIRECTOR has been informed, continue logging all PCWL's through 11:00. Ensure you document your notification on the log.</i>		
<b>Evaluators Note:</b>	The critical aspect of the below step is for the operator to determine the EOP DIRECTOR needs to be notified of a constant PCWL with continuous injection. It is not necessary to get the exact time frame documented to pass the below step.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
4.	When logging the PCWL, determines the $\Delta P$ has not changed but RPV injection flow has remained constant. Informs the EOP DIRECTOR.	P	<b>*PASS / FAIL</b>  <i>STD: Informs the EOP DIRECTOR that the <math>\Delta P</math> has not changed but RPV Injection has remained the same. Documents the need to inform the EOP DIRECTOR on the provided log.</i>

<b>TERMINATING CUE</b>	<i>The Operator logged all PCWL readings through 11:00 and documents the need to inform the EOP DIRECTOR of the constant <math>\Delta P</math> with continuous injection.</i>
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<b>STOP TIME</b>	
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Time	RPV Injection Flow	Injection Temperature	2CMS*PI7A SUPPR CHAMBER PRESS	2CPS-PI127, PRIMARY CONTMT INLET N2 PRESS	$\Delta P$	Primary Containment Water Level (Allowed Range)
		$^{\circ}\text{F}$	PSIG	PSIG	PSID	Feet
6:00	Constant	68	20	20	0	224 $\pm$ 1
6:30	Constant	68	22	21	1	226 $\pm$ 1
7:00	Constant	68	22	20	2	228 $\pm$ 1
7:30	Constant	68	15	12.5	2.5	230 $\pm$ 1
8:00	Constant	68	17	13.5	3.5	232 $\pm$ 1
8:30	Constant	68	20	16.5	3.5	232 $\pm$ 1
9:00	Constant	69	25	21.5	3.5	232 $\pm$ 1
9:30	Constant	69	22	18.5	3.5	232 $\pm$ 1
10:00	Constant	69	23	19	4	234 $\pm$ 1
10:30	Constant	69	26	21	5	236 $\pm$ 1
11:00	Constant	69	32	26.5	5.5	238 $\pm$ 1

**Are any actions required to be taken based on the above readings?**

**Document any actions required here:**

**Inform the EOP Director that the  $\Delta P$  was constant with a constant injection rate for a period of time**

## JPM Handout

### INITIAL CONDITIONS

#### Given:

- Approximately one day ago the plant experienced a large break LOCA
- In order to maintain adequate core cooling, operators have been injecting into the RPV with systems whose suction source is outside the primary containment.
- The EOP Director has been monitoring the Primary Containment Pressure Limit (PCPL) per N2-EOP-RPV.
- Primary Containment Water Level has just exceeded 224 feet
- The EOP Director has directed the performance of N2-EOP-6.23, Containment Level Determination. Steps 6.1 through 6.6 have been completed.
- The EOP Director has determined Primary Containment Water Level is to be logged every 30 minutes.
- You are the RO assigned to determine and log Containment Water Level per N2-EOP-6.23.
- Another operator has been assigned to monitor the Fuel Zone Level Instruments.

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

### INITIATING CUE

**(Operators Name),** Given the plant parameters found on the provided log, document the Primary Containment Water Level (PCWL) for 06:00 to 11:00. Additionally, on the log provided, document any required actions based on PCWL trend. Another operator will be taking care of all actions for monitoring the Fuel Zone instruments.

Time	RPV Injection Flow	Injection Temperature	2CMS*PI7A SUPPR CHAMBER PRESS	2CPS-PI127, PRIMARY CONTMT INLET N2 PRESS	$\Delta P$	Primary Containment Water Level
		°F	PSIG	PSIG	PSID	Feet
6:00	Constant	68	20	20		
6:30	Constant	68	22	21		
7:00	Constant	68	22	20		
7:30	Constant	68	15	12.5		
8:00	Constant	68	17	13.5		
8:30	Constant	68	20	16.5		
9:00	Constant	69	25	21.5		
9:30	Constant	69	22	18.5		
10:00	Constant	69	23	19		
10:30	Constant	69	26	21		
11:00	Constant	69	32	26.5		

**Are any actions required to be taken based on the above readings?**



**Document any actions required here:**

Training Id: **2013 NRC RO Admin CO-2**

Revision: **0.0**

Title: **Develop and get Approval for a Temporary Note**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 <u>David Huff</u>	<u>12/18/2013</u>
Validated By	<u>Doug Mizener</u>	<u>12/13/2013</u>
Facility Reviewer	 <u>Aaron Armstrong</u>	<u>1/3/2014</u>
Approximate Duration: <u>30 minutes</u>		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. CNG-OP-1.01-1005, Temporary Notes, Temporary Labels, Operator Aids, and Permanent Labels



## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operators ability to develop and get approval for a Temporary Note.

#### 2. Task Information:

- a. NS-OM502-00004, Install and Use Authorized Labels.
- b. 2.1.15 (2.7) Knowledge of administrative requirements for temporary management directives, such as standing orders, night orders, operations memos, etc.

#### 3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Classroom
Time Critical Task	No
Alternate Path	No
LOD >1.0	Yes

#### 4. Recommended Start Location

- a. Training Classroom

#### 5. JPM Setup (if required)

- a. Ensure book carts are available for the operators to use and that there is an up to date copy of CNG-OP-1.01-1005 available.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

**INITIAL  
CONDITIONS**

Given:

- The plant is at 100% power.
- The crew has recently discovered that 2SWP\*TIK35A, CONTROL ROOM CHILLER 2HVK\*CHL1A SVCE WTR OUTLET TEMP controller is difficult to place in MANUAL CONTROL.
- Specifically, when shifting the controller from AUTO to MANUAL, the operators have to hold the MAN pushbutton down for 2 to 3 seconds to get the controller to shift into MANUAL.
- I&C has been contacted and have setup a repair schedule. The controller is scheduled to be repaired in one week.
- While waiting for repairs, I&C has said that the controller will still function and if it is necessary for the operators to shift the controller from AUTO to MAN, the operators will need to hold down the MAN pushbutton for 2 to 3 seconds.
- The Control Room Supervisor has determined a Temporary Note is to be developed and posted next to the controller explaining this condition.
- The controller is located on 2CEC\*PNL870.
- CR-2014-002568 is tracking the repair of the controller.
- You are the operator assigned to develop the Temporary Note.

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

**INITIATING  
CUE**

**(Operators Name),** Develop and get approval to post a Temporary Note for 2SWP\*TIK35A per CNG-OP-1.01-1005, Section 5.2.

**START TIME**

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <i><b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.</i>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
2.	Obtain a copy of the reference material and review / utilize the correct section of the procedure.	P	SAT / UNSAT  <i>STD: Obtains a copy of CNG—OP-1.01-1005 and reviews section 5.2.</i>
<b>Evaluators Note:</b>	The remaining steps may be performed in any order.		
<b>Evaluators Note:</b>	The answer key attached to this JPM may be used to assist in the grading of the below steps. The operator may choose to use different words on the TEMPORARY LABEL and TEMPORARY LABEL LOG than what is listed on the answer key. This is acceptable as long as the intent of the TEMPORARY NOTE and LOG is consistent with the intent of the below steps. The Evaluator may use their judgment as to whether or not the intent of the below steps are met.		
<b>Evaluators Note:</b>	The operator may choose to fill out all portions of the Temporary Note and Log prior to presenting the note to the SM for approval. This is an acceptable action.		
3.	Using the provided blank Temporary Note, documents the following information: <ul style="list-style-type: none"> <li>A note stating that in order to place 2SWP*TIK35A in MANUAL, the MAN button must be depressed for 2 to 3 seconds.</li> </ul>	P	<b>*PASS / FAIL</b>  <i>STD: On the provided Temporary Note, documents that in order to place 2SWP*TIK35A in MANUAL, the MAN pushbutton must be depressed for 2 to 3 seconds. Or words to that effect.</i>
4.	Presents the Temporary Note to the SM for approval.  <b>Cue:</b> As the SM, when presented with the Temporary Note, sign on the block labeled "SM" and give it back to the operator.	P	<b>*PASS / FAIL</b>  <i>STD: Once at a minimum, the note information is documented on the provided Temporary Note, provides the Temporary Note to the SM for approval.</i>
5.	Documents the following additional data on the temporary note: <ul style="list-style-type: none"> <li>The date</li> </ul>	P	SAT / UNSAT  <i>STD: On the provided Temporary Note, places today's date.</i>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
6.	<ul style="list-style-type: none"> <li>The Temporary Note Number</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> From the Temporary Notes Log, takes the next sequential number of O-14-03. Documents this number on the provided Temporary Note.
7.	Fills out the provided Attachment 1, Temporary Notes Log as follows: <ul style="list-style-type: none"> <li>Temporary Note Number</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> Takes the next sequential number of O-14-03. Documents this number on the provided Temporary Notes Log.
8.	<ul style="list-style-type: none"> <li>Date</li> </ul>	P	SAT / UNSAT  <b>STD:</b> Documents today's date in the DATE block on the Temporary Notes Log.
9.	<ul style="list-style-type: none"> <li>Requested By</li> </ul>	P	SAT / UNSAT  <b>STD:</b> The operator documents their name in the REQUESTED BY block on the Temporary Notes Log.
<b>Evaluators Note:</b>		At a minimum, in the LOCATION block of the Temporary Notes Log, the operator must put P870. They may choose to add additional information such as 2SWP*TIK35A, however it is not required.	
10.	<ul style="list-style-type: none"> <li>Location</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> Documents the temporary note location of P870 in the LOCATION block of the provided Temporary Notes Log.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
11.	<ul style="list-style-type: none"> <li>Content of Temporary Note</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Documents the content of the temporary note in the <b>CONTENT OF TEMPORARY NOTE</b> block of the provided Temporary Notes Log. The wording the operator uses does not have to match exactly with that on the Temporary Note. The operator may choose to paraphrase.</p>
12.	<ul style="list-style-type: none"> <li>Comments</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Places the Condition Report Number CR-2014-002568 in the <b>COMMENTS</b> block of the <b>TEMPORARY NOTES LOG</b>.</p>
13.	<ul style="list-style-type: none"> <li>Shift Manager Approval Signature</li> </ul> <p><b>Cue:</b> As the SM, when presented with the Attachment 1, sign in the block labeled "Shift Manager Approval Signature".</p>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Presents the completed <b>TEMPORARY NOTES LOG</b> to the Shift Manager for approval.</p>
<b>Evaluators Note:</b>	<p>Unless the operator would like to perform an additional review of all the paperwork, then when the operator requests the SM sign the Temporary Notes Log, inform the operator that another operator will perform the action of attaching the Temporary Note to the panel and their task is complete.</p>		

<b>TERMINATING CUE</b>	The Operator has presented the completed Temporary Notes Log and Temporary Note to the SM for review and approval.
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<b>STOP TIME</b>	
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## Evaluator's Answer Key

Do Not Provide to Candidate

### CR TEMP NOTE

**No.** O-14-03

**Date** Today's Date

**SM** Eval. Sign Here

When placing 2SWP\*TIK35A in MANUAL

control, hold in the MAN pushbutton for

2 to 3 seconds.

## Evaluator's Answer Key

### Do Not Provide to Candidate

#### Attachment 1, Temporary Notes Log

Temporary Note Number	Date	Requested By (Please Print)	Location	Content of Temporary Note	Shift Manager Approval Signature	Comments (1)	Shift Manager Removal Signature and Date
O-13-036	09/17/13	Toothaker	P632, 2MSS*TRSH1002	Printer turned off due to excessive paper use.	<i>Roger Orgell</i>	CR-2013-006789	<i>Todd Kelly 10/05/13</i>
O-13-037	11/10/13	Tanguay	P851 2TML-P4	Pump in PTL, auto starts when placed in standby	<i>John Manly</i>	CR-2013-007724	
O-13-038	12/15/13	Hoskins	P873 Div. 1 H2O2 Sample Path Selector Switch	2CMS*PNL66A Inop when lined up to Suppression Pool	<i>Todd Kelly</i>	CR-2013-008645	<i>Mark Greer 12/30/13</i>
O-14-01	01/12/14	Andrus	P623 2MSS*AOV7D	Amps less than required. Below minimum amperage	<i>Mark Greer</i>	CR-2014-001104	
O-14-02	02/20/14	Wilcox	P851 2MSS-PV28A	Dual Indication.	<i>Tom Tanguay</i>	CR-2014-002193	
O-14-03	Today's Date	Operators Name	P870	When placing 2SWP*TIK35A in MANUAL, depress the MAN pushbutton for 2 to 3 seconds.	Evaluator, Sign Here	CR-2014-002568	



## JPM Handout

### INITIAL CONDITIONS

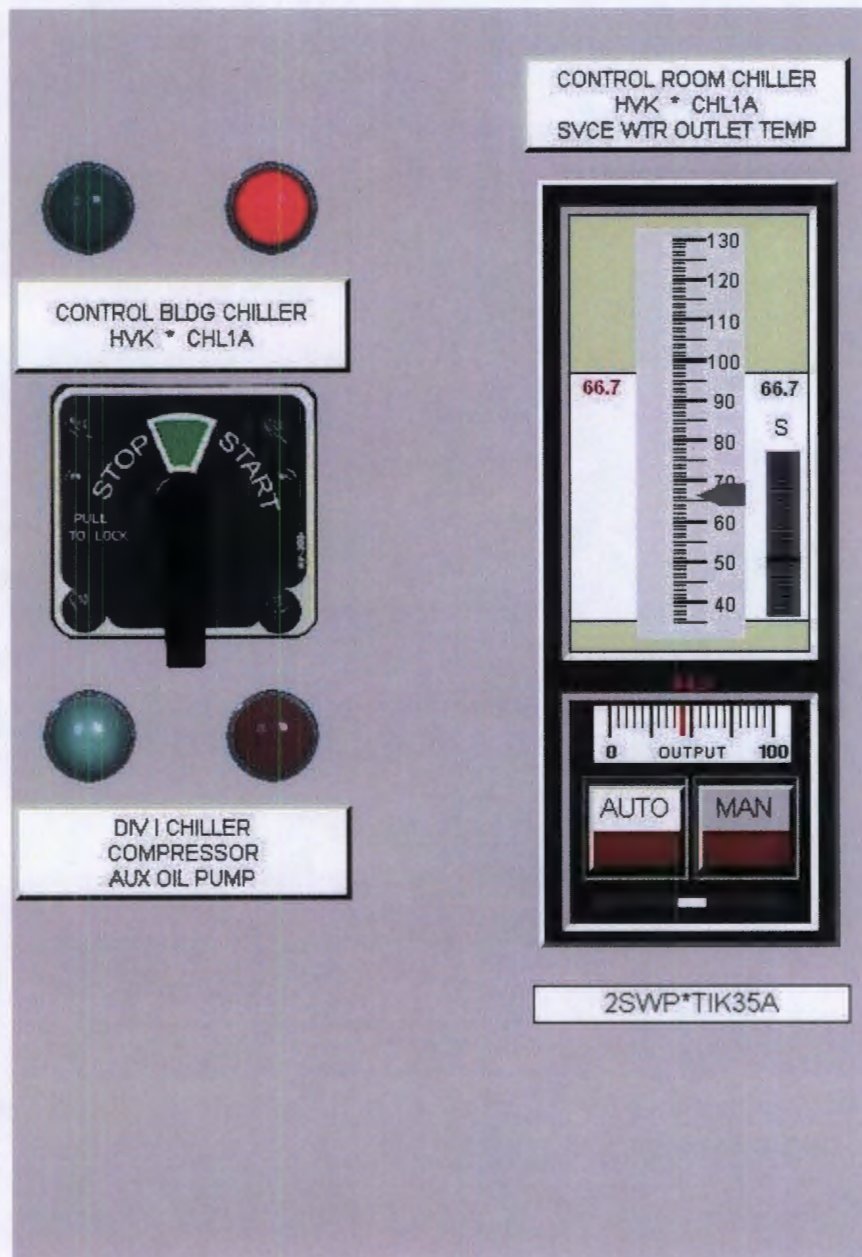
Given:

- The plant is at 100% power.
- The crew has recently discovered that 2SWP\*TIK35A, CONTROL ROOM CHILLER 2HVK\*CHL1A SVCE WTR OUTLET TEMP controller is difficult to place in MANUAL CONTROL.
- Specifically, when shifting the controller from AUTO to MANUAL, the operators have to hold the MAN pushbutton down for 2 to 3 seconds to get the controller to shift into MANUAL.
- I&C has been contacted and have setup a repair schedule. The controller is scheduled to be repaired in one week.
- While waiting for repairs, I&C has said that the controller will still function and if it is necessary for the operators to shift the controller from AUTO to MAN, the operators will need to hold down the MAN pushbutton for 2 to 3 seconds.
- The Control Room Supervisor has determined a Temporary Note is to be developed and posted next to the controller explaining this condition.
- The controller is located on 2CEC\*PNL870.
- CR-2014-002568 is tracking the repair of the controller.
- You are the operator assigned to develop the Temporary Note.

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

### INITIATING CUE

**(Operators Name),** Develop and get approval to post a Temporary Note for 2SWP\*TIK35A per CNG-OP-1.01-1005, Section 5.2.



**CR TEMP NOTE**

**No.** \_\_\_\_\_

**Date** \_\_\_\_\_

**SM** \_\_\_\_\_

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### Attachment 1, Temporary Notes Log

Temporary Note Number	Date	Requested By (Please Print)	Location	Content of Temporary Note	Shift Manager Approval Signature	Comments (1)	Shift Manager Removal Signature and Date
O-13-036	09/17/13	Toothaker	P632, 2MSS*TRSH1002	Printer turned off due to excessive paper use.	<i>Reger Orzell</i>	CR-2013-006789	<i>Todd Kelly 10/05/13</i>
O-13-037	11/10/13	Tanguay	P851 2TML-P4	Pump in PTL, auto starts when placed in standby	<i>John Manly</i>	CR-2013-007724	
O-13-038	12/15/13	Hoskins	P873 Div. 1 H2O2 Sample Path Selector Switch	2CMS*PNL66A Inop when lined up to Suppression Pool	<i>Todd Kelly</i>	CR-2013-008645	<i>Mark Greer 12/30/13</i>
O-14-01	01/12/14	Andrus	P623 2MSS*AOV7D	Amps less than required. Below minimum amperage	<i>Mark Greer</i>	CR-2014-001104	
O-14-02	02/20/14	Wilcox	P851 2MSS-PV28A	Dual Indication.	<i>Tom Tanguay</i>	CR-2014-002193	

1. During the quarterly review, initiate a Permanent Label Request for Notes exceeding a year with exception of Notes required due to an extended outage or equipment deficiency. For Notes exceeding a year, annotate in the "Comments" block either "Label Requested", "WO #\_\_\_\_\_", or "Extended Outage".

Training Id: **2013 NRC RO Admin EC**Revision: **0.0**Title: **Defeat the Reactor Building Ventilation LOCA Isolation Signals****Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Jerry Randall	12/13/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 45 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. N2-EOP-6.26, Defeating Reactor Building Ventilation LOCA Isolation Signals

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operators ability to describe how the Reactor Building Ventilation LOCA Isolation Signals are defeated.

#### 2. Task Information:

- a. N2-EOP06-01001-26, Implement N2-EOP-6.26, Defeat Reactor Building Ventilation LOCA Isolation Signals
- b. 2.2.41 (3.5) Ability to obtain and interpret station electrical and mechanical drawings

#### 3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Classroom
Time Critical Task	No
Alternate Path	No
LOD > 1.0	Yes

#### 4. Recommended Start Location

- a. Training Classroom

#### 5. JPM Setup (if required)

- a. Print out enough copies of N2-EOP-6.26 for each operator to have one.

- b. Ensure a copy of the following ESKs have been printed out for use by the operators. Print out enough copies so that each operator may have a set. It is best to print out the ESKs on 11X17 sheets:
- 1) 07HVR01 through 12 (17 drawings in all)
  - 2) 06HVR01, Sheet 1 (2HVR\*UC413A)



## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>The plant has experienced a LOCA and Secondary Containment high temperatures.</li> <li>Drywell pressure is 10 psig and RPV Water level is 5 inches.</li> <li>The EOP Director has directed performance of N2-EOP-6.26, Defeating Reactor Building Ventilation LOCA Isolation Signals.</li> <li>You are the operator assigned to perform N2-EOP-6.26.</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<b>(Operators Name)</b> , Complete the attached worksheet regarding Defeating the Reactor Building Ventilation LOCA Isolation Signals.
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<b>START TIME</b>	
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	<b>PERFORMANCE</b>	<b>ACT. CODE</b> P / S / NA	<b>EVALUATOR</b>
1.	Provide repeat back of initiating cue <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of the reference material and review / utilize the correct section of the procedure.	P	SAT / UNSAT  <b>STD:</b> Obtains copies of N2-EOP-6.26 and HVR ESKs
<b>Evaluators Note:</b>	The following steps may be performed in any order.		
<b>Evaluators Note:</b>	The Answer Key attached to this JPM will be used to assist in grading of the below steps.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>Evaluators Note:</b>	Due to the nature of this type of JPM, the answers given on the worksheet by the operator may not match exactly what is on the provided answer key. This is acceptable as long as the intent is met as determined by the Evaluator. If there is a question by Evaluator as to the intent of what information the operator is attempting to provide, the Evaluator may verbally question the operator to ascertain the intent. When grading the below steps, the Evaluator should take into account any information gained through verbal discussion with the operator.		
<b>Evaluators Note:</b>	The operator may include additional components not listed on the answer key that may be affected by the LOCA isolation signal. This is acceptable.		
1.	Determine which conditions will cause the Reactor Building Ventilation System to isolate.	P	<b>*PASS / FAIL</b>  <b>STD:</b> Documents the following information in Block 1 of the provided Worksheet: <ul style="list-style-type: none"> <li>• Above Refuel Floor High Radiation and/or RE14A or B in ALARM.</li> <li>• Below Refuel Floor High Radiation and/or RE32A or B in ALARM.</li> <li>• RB Ventilation System Low Flow Condition (or similar)</li> <li>• LOCA Signal (High DW Pressure or Low RPV Water Level)</li> </ul>
2.	Determine which Division 1 components in the Reactor Building Ventilation System are directly affected by a system isolation.	P	<b>*PASS / FAIL</b>  <b>STD:</b> Documents the following information in Block 2 of the provided Worksheet: <ul style="list-style-type: none"> <li>• 2HVR*AOD1A</li> <li>• 2HVR*AOD9A</li> <li>• 2HVR*AOD10A</li> <li>• 2HVR*UC413A</li> </ul> The operator may also use noun name descriptions for the components.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>Evaluators Note:</b>	Step 3 below should be graded by both reviewing the information the operator documented in Block 3 as well as a verbal discussion between the Evaluator and operator as to how the LOCA isolation is defeated.		
3.	Describe how the Division 1 LOCA Isolation is defeated for the Reactor Building Ventilation System.	P	<b>*PASS / FAIL</b>  <b>STD:</b> Documents in Block 3 how the Division 1 RB Ventilation LOCA signal is defeated. If necessary, provides a verbal description to the Evaluator of how the isolation is defeated. Key information needed: <ul style="list-style-type: none"> <li>• ESK Location of the contact where Lead R4 is lifted</li> <li>• Description of the affected relays 3-1- and 62-</li> <li>• How AOD1A, 9A or 10A is prevented from closing on a LOCA signal</li> <li>• How 2HVR*UC413A is prevented from starting on a LOCA signal.</li> </ul>
4.	Determines what will happen to the Reactor Building Ventilation System if an Above Refuel Floor Radiation Monitor RE14A and B experience a high radiation condition above their ALARM setpoint when the LOCA signal isolation is defeated.		<b>*PASS / FAIL</b>  <b>STD:</b> On the provided worksheet in Block 4, circles ISOLATE
<b>TERMINATING CUE</b>	The Operator has completed the JPM worksheet and returned it to the Evaluator. The Evaluator has discussed any unclear information contained on the worksheet		
<b>STOP TIME</b>			

## Evaluator's Answer Key

Do Not Provide to Candidate

<b>1.</b>	<p><b>List ALL the conditions which would cause a running Reactor Building Ventilation system to isolate (setpoints are not required, just a description of the isolation signals):</b></p> <ul style="list-style-type: none"> <li>• Above Refuel Floor High Radiation / RE14A or B in Alarm</li> <li>• Below Refuel Floor High Radiation / RE32A or B in Alarm</li> <li>• RB Ventilation Low Flow Condition</li> <li>• LOCA Signal -or- High Drywell Pressure / Low RPV Level</li> </ul> <p>The operator may choose to add additional isolation signals. That is acceptable provided at least the above information is provided.</p>
<b>2.</b>	<p><b>Which Division 1 components in the Reactor Building Ventilation System are directly affected by a system isolation?</b></p> <ul style="list-style-type: none"> <li>• 2HVR*AOD1A</li> <li>• 2HVR*AOD9A</li> <li>• 2HVR*AOD10A</li> <li>• 2HVR*UC413A</li> </ul> <p>The operator may list additional components affected (i.e. Supply/Exhaust Fans tripping). That is acceptable, but not required because the additional components will only trip when the above AOD's close.</p>

## Evaluator's Answer Key

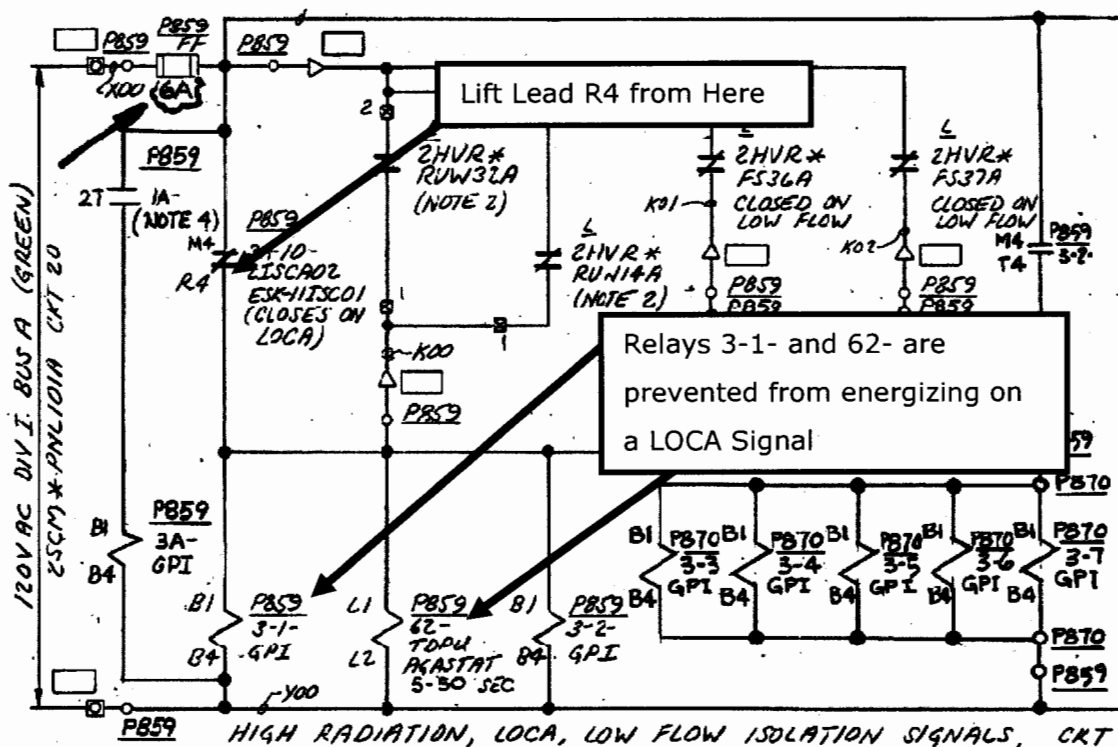
Do Not Provide to Candidate

3.	<p><b>Using the provided Reactor Building Ventilation Drawings, describe how N2-EOP-6.26, Step 6.1.1 is used to prevent the Division 1 Reactor Building Ventilation components from isolating on a LOCA Signal. Document as much information as possible in the space below. Additionally at the end of this JPM, you will be given the opportunity to verbally explain to the Evaluator how the isolations are defeated. ONLY describe Division 1 components.</b></p>
	<ul style="list-style-type: none"> <li>• N2-EOP-6.23, Step 6.1.1 requires the operator to lift the lead on Contact 4 of relay 2A-10-2ISCA02 in 2CEC*PNL859.</li> <li>• The contact from which the lead is lifted can be found on ESK 07HVR10 Sheet 1 on the upper left hand side of the drawing.</li> <li>• When the lead (R4) is lifted, it prevents the following relays from energizing when a LOCA signal is present:             <ul style="list-style-type: none"> <li>○ Relay 3-1-</li> <li>○ Relay 62-</li> </ul> </li> <li>• If energized, Relay 3-1- would send a signal to the following contacts to OPEN:             <ul style="list-style-type: none"> <li>○ 2HVR*AOD1A Contact 3-2- M1 to R1.</li> <li>○ 2HVR*AOD9A Contact 3-2- M2 to R2.</li> <li>○ 2HVR*AOD10A Contact 3-2- M3 to R3.</li> </ul> </li> <li>• Each of the above contacts can be found on ESK 07HVR06, Sheet 1.</li> <li>• AOD1A/9A/10A will close if their associated solenoid valves deenergize.</li> <li>• By preventing a LOCA signal from opening the above contacts, it prevents the associated AOD solenoids from deenergizing thus preventing the AODs from isolating.</li> <li>• Additionally preventing Relay 62- from energizing will prevent 2HVR*UC413A from starting.</li> <li>• Relay 62-, Contact 5 to 1 for UC413A can be found on ESK 06HVR01, towards the upper left.</li> <li>• If Contact 5 to 1 cannot shut, then UC413A cannot start on a LOCA signal.</li> </ul>

# Evaluator's Answer Key

Do Not Provide to Candidate

## Division 1 LOCA isolation Signal from ESK 07HVR10, Sheet 1:



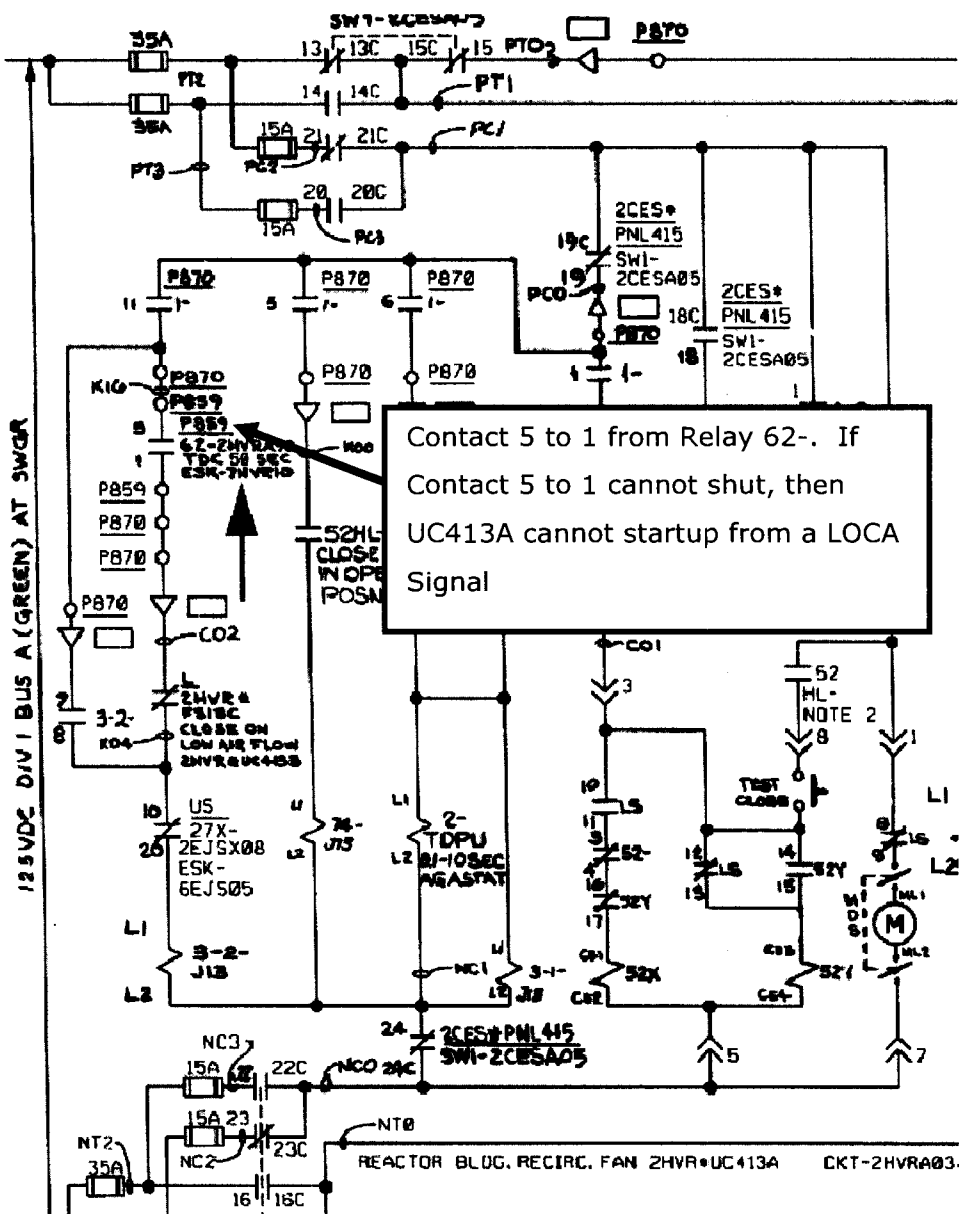




## Evaluator's Answer Key

## Do Not Provide to Candidate

**2HVR\*UC413A from ESK 06HVR01:**



## Evaluator's Answer Key

Do Not Provide to Candidate

**4. Once the actions of N2-EOP-6.26 have been performed and Reactor Building Ventilation has been restarted, what would happen to the system if the Above Refuel Floor Radiation Monitors RE14A and B experienced radiation levels above their ALARM setpoint? (circle one)**

Continue to Run

Isolate

## JPM Handout

### INITIAL CONDITIONS

Given:

- The plant has experienced a LOCA and Secondary Containment high temperatures.
- Drywell pressure is 10 psig and RPV Water level is 5 inches.
- The EOP Director has directed performance of N2-EOP-6.26, Defeating Reactor Building Ventilation LOCA Isolation Signals.
- You are the operator assigned to perform N2-EOP-6.26.

**Evaluator:** *Ask trainee if he/she has any questions after presenting initial conditions*

### INITIATING CUE

**(Operators Name)**, *Complete the attached worksheet regarding Defeating the Reactor Building Ventilation LOCA Isolation Signals.*

## JPM Worksheet

<b>1.</b>	<b>List ALL the conditions which would cause a running Reactor Building Ventilation system to isolate (setpoints are not required, just a description of the isolation signals):</b>
<b>2.</b>	<b>Which Division 1 components in the Reactor Building Ventilation System are directly affected by a system isolation?</b>

**3.**

**Using the provided Reactor Building Ventilation Drawings, describe how N2-EOP-6.26, Step 6.1.1 is used to prevent the Division 1 Reactor Building Ventilation components from isolating on a LOCA Signal. Document as much information as possible in the space below. Additionally at the end of this JPM, you will be given the opportunity to verbally explain to the Evaluator how the Isolations are defeated. ONLY describe Division 1 components.**

4.

Once the actions of N2-EOP-6.26 have been performed and Reactor Building Ventilation has been restarted, what would happen to the system if the Above Refuel Floor Radiation Monitors RE14A and B experienced radiation levels above their ALARM setpoint? (circle one)

Continue to Run



Isolate

Training Id: **2013 NRC RO Admin EP**

Revision: **0.0**

Title: **Fire Fighting Response for a Fire in the Protected Area**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 <u>David Huff</u>	<u>12/18/2013</u>
Validated By	<u>Doug Mizener</u>	<u>12/13/2013</u>
Facility Reviewer	 <u>Aaron Armstrong</u>	<u>1/3/2014</u>
Approximate Duration: <u>15 minutes</u>		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: _____	Stop Time: _____	Completion Time: _____
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Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. EPIP-EPP-28, Firefighting
2. EPIP-EPP-05A, Local Area/Building Evacuation



## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operators ability to perform the RO actions for a fire in the protected area.

#### 2. Task Information:

- a. N2-285001-01001, Utilize Interplant Communications Subsystems.
- b. 2.4.39 (3.9) Knowledge of RO responsibilities in emergency plan implementation

#### 3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Simulator
Time Critical Task	No
Alternate Path	No
LOD >1.0	Yes

#### 4. Recommended Start Location

- a. Unit 2 Simulator

#### 5. JPM Setup (if required)

- a. Ensure book carts are available for the operators to use and that there is an up to date copy of EPIP-EPP-28. Print out enough copies of Attachment 1 so that each operator gets a copy.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>You are the on-shift Control Room Operator (CRO).</li> <li>The SM has been notified of a confirmed fire in the Unit 2 Turbine Building, 250' Elevation Truck Aisle.</li> <li>This area is not a CO2 or Halon Protected Area.</li> <li>The OSC has not been activated.</li> <li>This is a drill</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<b>(Operators Name)</b> , Perform the CRO actions for the fire per EPIP-EPP-28, Attachment 1
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<b>START TIME</b>	
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	<b>PERFORMANCE</b>	<b>ACT. CODE</b> P / S / NA	<b>EVALUATOR</b>
1.	Provide repeat back of initiating cue <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of the reference material and review / utilize the correct section of the procedure.	P	SAT / UNSAT  <b>STD:</b> Obtains a copy of EPIP-EPP-28 and reviews Attachment 1.
3.	Upon notification of a fire, or upon receipt of an alarm AND actuation of an automatic Fire Suppression System:  a. Place the GAItronics system in the Merge Mode	P	<b>*PASS / FAIL</b>  <b>STD:</b> On the GAITRONICS, places the MERGE switch in MERGE. Observes the RED MERGE light is lit.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
4.	b. If the event is a drill, make the following announcement preceding the fire alarm: "This is a drill, this is a drill."	P	SAT / UNSAT  <i>STD: Announces into the HANDSET "This is a drill, This is a drill" while holding down the talk pushbutton or INST Switch.</i>
5.	c. Sound the Fire Alarm for 10 seconds.	P	<b>*PASS / FAIL</b>  <i>STD: On the GAITRONICS, places the FIRE ALARM switch to sound the alarm for approximately 10 seconds.</i>
6.	Make the following announcement:  <b>"Attention, Attention, this is (an actual event) (a drill). A fire has been detected at Unit(1/2) in the (state building location, elevation, if known). The Nine Mile Point Fire Brigade shall report to the Unit (1/2) assembly area or (other location as directed by the Fire Brigade Leader). All other personnel are to remain clear of the (state building location, elevation)."</b>  <b>Cue: If asked, the FBL does not want a different assembly area.</b>	P	<b>*PASS / FAIL</b>  <i>STD: Makes the following announcement on into the Handset (or similar) while holding down the talk pushbutton or INST Switch:  Attention, Attention, this is a drill. A fire has been detected at Unit 2 in the Unit 2 Turbine Building 250' Truck Aisle.  The NMP Fire Brigade shall report to the Unit 2 assembly area.  All other personnel are to remain clear of the Unit 2 Turbine Building 250' Truck Aisle.</i>
7.	Repeats the alarm and announcement.  <b>Cue: The alarm and announcement have been repeated.</b>	P	SAT / UNSAT  <i>STD: Repeats steps 4 through 6</i>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
8.	<p>d. IF the location of the alarm is a CO2 protected fire zone, state this announcement following the message above:</p> <p><b>"This is a CO2 protected area. All personnel shall immediately evacuate the (state building, location, and elevation) and all areas adjacent to and below this location."</b></p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Per the turnover determines the area is not CO2 protected and determines this step is not applicable.</p>
9.	<p>e. Take the GAItronics system out of the Merge Mode, unless OSC has been activated</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Per the turnover determines the OSC is not activated. On the GAITRONICS, pushes UP on the MERGE switch. Observes the RED MERGE light is not lit. Pushes DOWN on the OUTDOOR SPEAKERS and ADM ISOLATE switches to reactivate those speakers.</p>
10.	<p>f. If the Fire Brigade Leader does NOT respond within 60 seconds, repeat Steps 1a - 1c</p> <p><b>Cue:</b> Inform the operator the Fire Brigade Leader has responded.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Determines the FBL responded and this step is not applicable.</p>
11.	<p>g. Notify the SM if the fire is confirmed</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Determines the SM has already been notified per the turnover.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
12.	Turn up volume on station radio base console, including Oswego County fire frequency	P	SAT / UNSAT  <b>STD:</b> On the station radio base console, Turns up the volume including the one labeled "Oswego County Fire Control"
13.	If this is a confirmed fire and it is outside the protected area, then request off-site fire assistance. Call Oswego County 911Center (343-1313) and request off-site fire assistance	P	SAT / UNSAT  <b>STD:</b> Per the turnover, the fire is not outside the protected area and determines this step is NA
14.	If requested by Fire Brigade Leader, then call Oswego County 911 Center (343-1313) and request off-site fire assistance  <b>Cue:</b> As the FBL, inform the operator that off-site fire assistance is not required.	P	SAT / UNSAT  <b>STD:</b> Per the cue, determines this step is NA
15.	If off-site assistance is requested, then inform the Security Central Alarm Station (X2872) that off-site fire assistance has been requested	P	SAT / UNSAT  <b>STD:</b> Determines off-site assistance was not required and determines this step is NA
16.	If required, initiate any Special Operating Procedures OR Emergency Operating Procedures  <b>Cue:</b> As the SM/CRS, inform the operator that all applicable SOPs/EOPs have been entered and actions are being carried out	P	SAT / UNSAT  <b>STD:</b> Per the cue determines all applicable SOPs/EOPs have already been entered.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
17.	If a discharge of Halon or CO2 occurs, reference EPIP-EPP-11, Hazardous Material Incident Response, N1-OP-21C, Fire Protection System - LP/HPCO2, N1-OP-21D, Fire Protection System - Halon 1301, N2-OP-45, Fire Protection Carbon Dioxide, and N2-OP-46, Fire Protection - Halon	P	SAT / UNSAT  <b>STD:</b> Per the turnover, determines this area is not protected by Halon or CO2
18.	Check Process Radiation Monitors to determine if there is any rise in effluent activity  <b>Cue:</b> The radiation monitors do not show any rise in effluent activity	P	SAT / UNSAT  <b>STD:</b> At the DRMS computer screen, observes radiation levels on the STACK. Determines per the cue that radiation monitors do not show any rise.
19.	If SM implements a local area/building evacuation, then perform duties in EPIP-EPP-05A  <b>Cue:</b> As the SM, inform candidate the Turbine Building is to be evacuated and provide candidate with a prepared (last page of JPM) EPIP-EPP-5A, Attachment 1 Evacuation Form  Place the GAItronics system in the Merge Mode	P	<b>*PASS / FAIL</b>  <b>STD:</b> On the GAITRONICS, places the MERGE switch in MERGE. Observes the RED MERGE light is lit.
20.	Sound the Evacuation Alarm for 10 seconds.	P	<b>*PASS / FAIL</b>  <b>STD:</b> On the GAITRONICS, places the EVACUATION ALARM switch to sound the alarm for approximately 10 seconds.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
21.	<p>Makes the evacuation announcement per the provided Evacuation Attachment.</p> <p><b>Cue:</b> As the Unit 1 SM, inform the operator to leave GAITRONICS in MERGE.</p> <p><b>Cue:</b> When necessary, inform the operator the alarm and announcement have been repeated.</p>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Makes the following announcement into the Handset (or similar) while holding down the talk pushbutton or INST Switch:</p> <p>Attention, Attention, this is a drill. NMP Unit 2 is ordering an evacuation of the Unit 2 Turbine Building due to a FIRE.</p> <p>All personnel are to leave the Unit 2 Turbine Building using the closes possible exist and report to RP ACCESS.</p> <p>Accountability is being performed, all personnel shall report to an assembly area, cared in and remain in the area until further notice.</p> <p>Personnel in protective clothing should leave the area immediately and obtain RP assistance at the control point.</p> <p>I repeat this is a drill.</p> <p>Repeats the alarm and announcement.</p> <p>Leaves the GAITRONICS in MERGE.</p>
22.	<p>If fire is confirmed, then ensure the unaffected Unit SM is notified</p> <p><b>Cue:</b> As the Unit 1 SM, inform the operator you have been informed.</p>		<p>SAT / UNSAT</p> <p><b>STD:</b> Contacts the Unit 1 SM and informs him of the Fire.</p>



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
23.	When notification is received that the fire is out and the event may be terminated, then perform the following  <b>Cue:</b> <i>As the FBL, inform the operator that the fire is out and the drill may be terminated.</i>	P	SAT / UNSAT  <b>STD:</b> <i>Acknowledges report from the FBL that the fire is out and the drill may be terminated</i>
24.	a. Place GAItronics system in the Merge Mode	P	SAT / UNSAT  <b>STD:</b> <i>Determines GAITRONICS is already in MERGE by observing the RED MERGE light lit.</i>
25.	b. If the event is a drill, make the following announcement preceding the fire alarm:  "This is a drill, this is a drill."  c. Sound the Station Alarm for 10 seconds, and make the following announcement:  <b>"Attention, Attention, this is (an actual event) (a drill). The fire event is terminated."</b>  Repeat alarm and announcement  <b>Cue:</b> <i>The alarm and announcement have been repeated.</i>	P	SAT / UNSAT  <b>STD:</b> <i>Makes the following announcement into the Handset (or similar) while holding down the talk pushbutton or INST Switch:</i>  <i>This is a drill, this is a drill</i>  <i>Sounds the station alarm for approximately 10 seconds.</i>  <i>Attention, Attention, this is a drill. The fire event is terminated.</i>  <i>Repeats announcement</i>

<b>TERMINATING CUE</b>	<i>Both the CRO Firefighting checklist and Turbine Building evacuation have been performed.</i>
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<b>STOP TIME</b>	
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**Attachment 1, EMERGENCY ANNOUNCEMENT****LOCAL AREA/BUILDING EVACUATION**  
(No emergency classification has been declared)**Instructions:** (check boxes to select appropriate announcement)

1. Place GALtronics in Merge,
2. Sound the EVACUATION alarm for 10 seconds
3. Announce (if checked, include in announcement),
  - X a. *Attention, Attention all personnel,*  
*This is* ☒ *a drill*  
☐ *is an actual emergency*
  - X b. *Nine Mile Point (Unit 1 or 2) is ordering an evacuation of the (Unit 1 or 2):* (Provide specific location or building to be evacuated)  
 \_\_\_\_\_ **TURBINE BUILDING** \_\_\_\_\_
  - X c. *Due to:* (provide conditions necessitating the evacuation) \_\_\_\_\_ **A FIRE** \_\_\_\_\_
  - X d. All personnel are to leave the (Unit 1 or 2) \_\_\_\_\_ **TURBINE BUILDING** (area/building).
    - ☐ 1. *Staying clear of* \_\_\_\_\_ (area/elevation) *and report to* \_\_\_\_\_.
    - OR
    - X 2. *Using the closest possible exit, and report to* RP ACCESS
  - X e. *Accountability is being performed; all personnel shall report to an assembly area, card in and remain in the area until further notice.*
  - X f. *Personnel in protective clothing should (select appropriate):*
    - ☐ 1. *Leave the area removing PC=s as indicated at the step off pad.*
    - OR
    - X 2. *Leave the area immediately and obtain Radiation Protection assistance at the control point.*
  - X g. *I repeat,*  
*This is* ☒ *a drill*  
☐ *is an actual emergency*
4. Repeat the alarm and announcement.
5. Consult with opposite Unit's SM and determine if GALtronics should be left in Merge (required for declared emergencies) for the duration of the event.

## JPM Handout

### INITIAL CONDITIONS

Given:

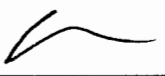
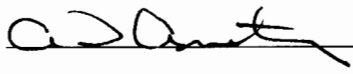
- You are the on-shift Control Room Operator (CRO).
- The SM has been notified of a confirmed fire in the Unit 2 Turbine Building, 250' Elevation Truck Aisle.
- This area is not a CO2 or Halon Protected Area.
- The OSC has not been activated.
- This is a drill

**Evaluator:** *Ask trainee if he/she has any questions after presenting initial conditions*

### INITIATING CUE

**(Operators Name),** Perform the CRO actions for the fire per EPIP-EPP-28, Attachment 1

Training Id: **2013 NRC SRO Admin CO-1**Revision: **0.0**Title: **Determine the Severity of a Reactivity Event and Actions Required****Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Carl Crawford	12/11/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 20 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. N2-OP-96, Reactor Manual Control and Rod Position Indication System
2. CNG-OP-3.01-1000, Reactivity Management

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operators ability to determine the actions necessary for a mispositioned control rod and provide a recommendation for the Reactivity Management Issue Severity Level.

#### 2. Task Information:

- a. CNG-OPS301-00006, Report Reactivity Management Incidents
- b. K/A 2.1.37 (4.6) Knowledge of procedures, guidelines, or limitations associated with reactivity management.

#### 3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Classroom
Time Critical Task	No
Alternate Path	No
LOD >1.0	Yes

#### 4. Recommended Start Location

- a. Training Classroom

#### 5. JPM Setup (if required)

- a. Ensure book carts are available for the operators to use and that there is an up to date copy of N2-OP-96 and CNG-OP-3.01-1000

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

**INITIAL  
CONDITIONS**

Given:

- The plant completed a rod pattern exchange at 72% power at 03:00 this morning.
- At 03:15, reactor power was raised to 80%.
- At 7:00, the crew determines control rod 02-43 was supposed to be withdrawn to position 42 per the RMI but was inadvertently withdrawn to position 44.
- Rod 02-43 has been mispositioned for 2 hours and 45 minutes.
- No predictor case has been run with the Control Rod mispositioned.
- You are the Control Room Supervisor (CRS)

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

**INITIATING  
CUE**

**(Operators Name),** Determine ALL required actions for this rod mispositioning. Additionally, provide the recommended Reactivity Management Issue Severity Level for this event per CNG-OP-3.01-1000. Document your results on the provided worksheet.

**START TIME**

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of the reference material and review / utilize the correct section of the procedure.	P	SAT / UNSAT  <b>STD:</b> Obtains any of the following as necessary to determine the plant impact: <ul style="list-style-type: none"> <li>• N2-OP-96</li> <li>• CNG-OP-3.01-1000</li> </ul>
<b>Evaluators Note:</b>	The following steps may be performed in any order.		



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>Evaluators Note:</b>	The Answer Key attached to this JPM may be used to assist in grading of the below steps.		
<b>Evaluators Note:</b>	When grading the below steps, the operator may choose to use different wording on the worksheet then what is on the answer key to represent the actions taken. This is acceptable, provided the intent and answer is obvious to the Evaluator. If the Evaluator has a question as to what is documented on the worksheet, then the Evaluator may verbally question the operator to determine the intent. If the Evaluator verbally questions the operator as to what is documented, the answers the operator provides may be used to assist with the grading of the below steps.		
<b>Evaluators Note:</b>	The operator may include additional actions not listed below on the provided worksheet. This is acceptable but only the information in Steps 4 through 8 needs to be on the worksheet.		
3.	Per N2-OP-96, performs the following actions: <ul style="list-style-type: none"> <li>Notify the SM</li> </ul> <b>Cue:</b> <i>If contacted as the SM, acknowledge the notification.</i>	S	SAT / UNSAT  <b>STD:</b> <i>Determines per N2-OP-96 that the SM needs to be notified. Documents the SM notification on the provided worksheet.</i>
4.	<ul style="list-style-type: none"> <li>IF a Control Rod was found mispositioned when Control Rod movements were NOT being performed AND a periodic OR predictor case has NOT been run with the Control Rod(s) mispositioned AND Reactor power is above 50%, reduce Reactor power by 40 MWe.</li> </ul>	S	<b>*PASS / FAIL</b>  <b>STD:</b> <i>Determines per N2-OP-96 and the turnover that rod movements are not being performed at this time and a predictor case has not been run and power is above 50%. Determines power needs to be lowered by 40MWe. Documents the power reduction on the provided worksheet.</i>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
5.	<ul style="list-style-type: none"> <li>Contact the following for instructions:               <ul style="list-style-type: none"> <li>On-Call Reactor Engineer</li> <li>General Supervisor Operations - Unit 2</li> </ul> </li> </ul> <p><b>Cue:</b> <i>If contacted as the RE or GSO, acknowledge the notification and inform the operator you have no further direction at this time.</i></p>	S	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> <i>Determines per N2-OP-96 that the RE and GSO need to be contacted. Documents the need to notify the RE and GSO on the provided worksheet.</i></p>
6.	<ul style="list-style-type: none"> <li>Provide the Reactor Engineer with the following information about mispositioned Control Rod(s):               <ul style="list-style-type: none"> <li>Location</li> <li>Position</li> <li>Duration</li> </ul> </li> </ul>	S	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> <i>Determines per N2-OP-96 that the RE needs to be told the following:</i></p> <ul style="list-style-type: none"> <li>Rod Location (02-43)</li> <li>Rod Position (44)</li> <li>Duration (2-45)</li> </ul> <p><i>Documents the information on the provided worksheet.</i></p>
7.	<ul style="list-style-type: none"> <li>Initiate a CR in accordance with CNG-CA-1.01-1000 to document the mispositioned Control Rod event regardless of the apparent cause.</li> </ul>	S	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> <i>Determines per N2-OP-96 that a CR needs to be initiated. Documents the need for a CR on the provided worksheet.</i></p>
8.	Per CNG-OP-3.01-1000, Determines a recommended Reactivity Management Issue Severity Level	S	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> <i>Determines per CNG-OP-3.01-1000, Attachment 1 that the recommended Reactivity management Issue Severity Level is LEVEL 2. Documents the SV on the provided worksheet.</i></p>

**TERMINATING  
CUE**

*The Operator has completed the JPM hand out and returned it to the Evaluator.*

**STOP TIME**

## Evaluator's Answer Key

Do Not Provide to Candidate

1.	<b>Required Actions for Mispositioned Control Rod (list ALL required actions):</b>
	<ul style="list-style-type: none"><li>• Notify the Shift Manager</li><li>• Reduce Power by 40 MWe</li><li>• Contact Reactor Engineer (RE) and General Supervisor Operations</li><li>• Provide the RE with the mispositioned rod Location, Position, and Duration (Rod 02-43, At position 44, Been mispositioned for 2 hours and 45 minutes).</li><li>• Initiate a Condition Report (CR)</li></ul>
2.	<b>The Recommended Reactivity Management Issue Severity Level for this event per CNG-OP-3.01-1000:</b>
	Severity Level 2

## JPM Handout

### INITIAL CONDITIONS

Given:

- The plant completed a rod pattern exchange at 72% power at 03:00 this morning.
- At 03:15, reactor power was raised to 80%.
- At 7:00, the crew determines control rod 02-43 was supposed to be withdrawn to position 42 per the RMI but was inadvertently withdrawn to position 44.
- Rod 02-43 has been mispositioned for 2 hours and 45 minutes.
- No predictor case has been run with the Control Rod mispositioned.
- You are the Control Room Supervisor (CRS)

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions


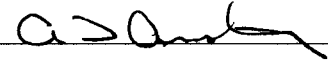
### INITIATING CUE

**(Operators Name)**, Determine ALL required actions for this rod mispositioning. Additionally, provide the recommended Reactivity Management Issue Severity Level for this event per CNG-OP-3.01-1000. Document your results on the provided worksheet.

## JPM Worksheet

<b>1.</b>	<b>Required Actions for Mispositioned Control Rod (list ALL required actions):</b>
<b>2.</b>	<b>The Recommended Reactivity Management Issue Severity Level for this event per CNG-OP-3.01-1000:</b>

Training Id: **2013 NRC SRO Admin CO-2**Revision: **0.0**Title: **Determine Plant Impact for Inoperable Unit Cooler****Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Carl Crawford	12/11/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 30 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## References

1. N2-OP-53E, Standby Switchgear/Battery Room Ventilation System
2. NMP Unit 2 Technical Specifications



## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operators ability to determine the plant impact of an inoperable unit cooler.

#### 2. Task Information:

- a. NS-PS115-02003, Initiate Action to Comply With Technical Specifications
- b. K/A 2.1.32 (4.0) Ability to explain and apply system limits and precautions.

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Perform
<b>Evaluation Location</b>	Classroom
<b>Time Critical Task</b>	No
<b>Alternate Path</b>	No
<b>LOD &gt;1.0</b>	Yes

#### 4. Recommended Start Location

- a. Training Classroom

#### 5. JPM Setup (if required)

- a. Ensure book carts are available for the operators to use and that there is an up to date copy of N2-OP-53E and Unit 2 Technical Specifications.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>• The plant is operating at 100% power.</li> <li>• While taking building rounds, an operator notices the Division 1 Chiller Equipment Room is warmer than normal.</li> <li>• Upon investigation, operators found 2SWP*V221A, HVC*UC103A INLET ISOL valve shut.</li> <li>• All attempts to re-open 2SWP*V221A have failed.</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	(Operators Name), Determine the impact of this valve failure on plant operations. Document your results on the provided worksheet.
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<b>START TIME</b>	
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	<b>PERFORMANCE</b>	<b>ACT. CODE</b> P / S / NA	<b>EVALUATOR</b>
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of the reference material and review / utilize the correct section of the procedure.	P	SAT / UNSAT  <b>STD:</b> Obtains any of the following as necessary to determine the plant impact: <ul style="list-style-type: none"> <li>• N2-OP-53E</li> <li>• PID 53E</li> <li>• PID 11J</li> <li>• Unit 2 Technical Specifications</li> </ul>
<b>Evaluators Note:</b>	The following steps may be performed in any order.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>Evaluators Note:</b>	The operator may choose to use different nomenclature to represent the affected component. This is acceptable provided it is obvious to the evaluator which component is affected. The Evaluators Aid at the end of this JPM may be used to assist in the grading of the below steps. The listing of the references on the Evaluators Aid is for ease of grading and review by the Evaluator, however it is not required for successful completion of the JPM.		
3.	Determines the following: <ul style="list-style-type: none"> <li>The closure of 2SWP*V221A makes 2HVC*UC103A inoperable</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> On the provided worksheet, documents that 2HVC*UC103A, DIVISION 1 CHILLER ROOM UNIT SPACE COOLER is INOPERABLE
4.	<ul style="list-style-type: none"> <li>With 2HVC*UC103A inoperable, 2HVK*CHL1A is inoperable</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> On the provided worksheet, documents that 2HVK*CHL1A, DIVISION 1 CONTROL AND RELAY ROOM CHILLER is INOPERABLE
5.	<ul style="list-style-type: none"> <li>Determines TS 3.7.3 Conditions A and B are applicable.</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> References TS 3.7.3, Conditions A and B and documents the following as a minimum on the provided worksheet: <ul style="list-style-type: none"> <li>Restore the Division 1 Control Room Envelope AC Subsystem for the Main Control Room to OPERABLE status within 30 days</li> <li>Restore the Division 1 Control Room Envelope AC Subsystem for the Relay Room to OPERABLE status within 30 days</li> </ul>

<b>TERMINATING CUE</b>	<i>The Operator has completed the JPM hand out and returned it to the Evaluator.</i>
<b>STOP TIME</b>	

## Evaluator's Answer Key

Do Not Provide to Candidate

<b>1.</b>	<b>Status of 2HVC*UC103A:</b>
	INOPERABLE
<b>2.</b>	<b>List any other impacted equipment and its status:</b>
	2HVK*CHL1A, DIVISION 1 CONTROL AND RELAY ROOM CHILLER is INOPERABLE
<b>3.</b>	<b>List actions required to be performed (include reference document and section).</b>
	<p>Enter TS 3.7.3, Conditions A and B. (N2-OP-53E, Attachment 1, Action 4)</p> <p>Condition A: Restore Division 1 control room envelope AC subsystem for the Main Control Room area to OPERABLE status within 30 days.</p> <p>Condition B: Restore Division 1 control room envelope AC subsystem for the Relay Room area to OPERABLE status within 30 days.</p>

## JPM Handout

### INITIAL CONDITIONS

Given:

- The plant is operating at 100% power.
- While taking building rounds, an operator notices the Division 1 Chiller Equipment Room is warmer than normal.
- Upon investigation, operators found 2SWP\*V221A, HVC\*UC103A INLET ISOL valve shut.
- All attempts to re-open 2SWP\*V221A have failed.

**Evaluator:** *Ask trainee if he/she has any questions after presenting initial conditions*

### INITIATING CUE


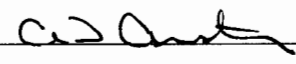
**(Operators Name),** *Determine the impact of this valve failure on plant operations. Document your results on the provided worksheet.*

## JPM Worksheet

<b>1.</b>	<b>Status of 2HVC*UC103A:</b>
<b>2.</b>	<b>List any other impacted equipment and its status:</b>
<b>3.</b>	<b>List actions required to be performed (include reference document and section).</b>



Training Id: **2013 NRC SRO Admin EC**Revision: **0.0**Title: **Determine Components Which Need Protection****Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Tom Tanguay	12/18/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 30 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. S-ODP-OPS-0122, NMP Site Specific Equipment Protection Matrices
2. CNG-OP-GL012, Equipment Protection Guideline

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operators ability to evaluate plant conditions and determine which components need to be protected.

#### 2. Task Information:

- a. NS-FLDSUP-013, Protect Plant Equipment.
- b. K/A 2.2.14 (4.3) Knowledge of the process for controlling equipment configuration or status.

#### 3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Classroom
Time Critical Task	No
Alternate Path	No
LOD >1.0	Yes

#### 4. Recommended Start Location

- a. Training Classroom

#### 5. JPM Setup (if required)

- a. Ensure book carts are available for the operators to use and that there is an up to date copy of S-ODP-OPS-0122 and CNG-OP-1.01-GL012.
- b. Ensure a copy of the electrical print stick EE-001 series is available for the operators to review.

- c. If multiple operators are going to perform the JPM at the same time, ensure each operator has a copy of S-ODP-OPS-0122 and CNG-OP-1.01-GL012.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

**INITIAL  
CONDITIONS**

Given:

- The plant is at 100% power and has just experienced a loss of 2NNS-SWG015
- Prior to the loss of AC power, no equipment was out of service.
- The crew has stabilized the plant and is in the process of determining the cause of the loss of power.
- The Shift Manager has assigned you the task of determining which plant components will need to be protected based on this event.

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

**INITIATING  
CUE**

**(Operators Name)**, Determine which plant components need to be protected per CNG-OP-1.01-GL012 and S-ODP-OPS-0122. Document your results on the provided hand out.

*Note: Ignore any equipment not specifically covered by S-ODP-OPS-0122.*

**START TIME**

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of CNG-OP-1.01-GL012 and S-ODP-OPS-0122 and review / utilize the correct section of the procedure	P	SAT / UNSAT  <b>STD:</b> Current version of CNG-OP-1.01-GL012 and S-ODP-OPS-0122 obtained and reviewed IAW CNG-PR-2.01-1000, Document Control.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
3.	Reviews any or all of the following documents to determine which plant components have been lost: <ul style="list-style-type: none"> <li>N2-SOP-03, Loss of AC Power</li> <li>EE-001N, 4160V One Line Diagram, Normal Bus 2NNS-SWG015</li> <li>N2-OP's, Operating Procedure Lineups</li> <li>Additional EE-001's as applicable</li> </ul>		SAT / UNSAT  <b>STD:</b> Obtains one or more of the listed documents and determines which components are impacted by the loss of 2NNS-SWG015.
<b>Evaluators Note:</b>	The following steps may be performed in any order.		
<b>Evaluators Note:</b>	The operator may choose to use different nomenclature to represent the affected components and equipment which will need to be protected. This is acceptable provided it is obvious to the evaluator which components are affected and which components the operator is choosing to protect. The Evaluators Aid at the end of this JPM may be used to assist in the grading of the below steps.		
4.	Determines the following components are affected by the loss of 2NNS-SWG015: <ul style="list-style-type: none"> <li>2RDS-P1B, CONTROL ROD DRIVE PUMP B</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> On the provided Handout in the column labeled "Affected Component or System", documents 2RDS-P1B and/or CONTROL ROD DRIVE PUMP B
5.	<ul style="list-style-type: none"> <li>2CCP-P1B, REAC BLDG CLOSED LOOP COOLING WTR PUMP 1B</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> On the provided Handout in the column labeled "Affected Component or System", documents 2CCP-P1B and/or Reactor Bldg Closed Loop Cooling Water Pump 1B

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
6.	<ul style="list-style-type: none"> <li>2CCP-P3B, REAC BLDG CLOSED LOOP COOLING WTR BOOSTER PUMP 3B</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "Affected Component or System", documents 2CCP-P3B and/or Reactor Bldg Closed Loop Cooling Water Booster Pump 3B</p>
7.	<ul style="list-style-type: none"> <li>RPM MG Set B</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "Affected Component or System", documents RPM MG Set B</p>
8.	<ul style="list-style-type: none"> <li>2WCS-P1B, CLEANUP RECIRC PMP</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "Affected Component or System", documents 2WCS-P1B and/or CLEANUP RECIRC PMP B.</p>
9.	<ul style="list-style-type: none"> <li>2IAS-DRY3B, IAS DRYER B</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "Affected Component or System", documents 2IAS-DRY3B, and/or IAS DRYER B.</p>
10.	<p>Reviews S-ODP-OPS-0122, Attachment 2 and determines which components need to be protected based on the following components being unavailable:</p> <ul style="list-style-type: none"> <li>2RDS-P1B, CONTROL ROD DRIVE PUMP B</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "What Equipment to Protect", documents the following:</p> <ul style="list-style-type: none"> <li>CRD Pump A Control Room Pump Control Switch</li> <li>CRD Pump A Pump and Motor</li> <li>Breaker 2NNS-SWG014-7</li> </ul>



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
11.	<ul style="list-style-type: none"> <li>2CCP-P1B, REAC BLDG CLOSED LOOP COOLING WTR PUMP 1B</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "What Equipment to Protect", documents the following:</p> <ul style="list-style-type: none"> <li>CCP Pump A Control Room Control Switch</li> <li>CCP Pump A Pump and Motor</li> <li>Breaker 2NNS-SWG012-5</li> <li>CCP Pump C Control Room Control Switch</li> <li>CCP Pump C Pump and Motor</li> <li>Breaker 2NNS-SWG14-9</li> </ul>
12.	<ul style="list-style-type: none"> <li>2CCP-P3B, REAC BLDG CLOSED LOOP COOLING WTR BOOSTER PUMP 3B</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "What Equipment to Protect", documents the following:</p> <ul style="list-style-type: none"> <li>CCP Booster Pump A Control Room Control Switch</li> <li>CCP Booster Pump A Pump and Motor</li> <li>Breaker 2NNS-SWG013-9</li> <li>CCP Booster Pump C Control Room Control Switch</li> <li>CCP Booster Pump C Pump and Motor</li> <li>Breaker 2NNS-SWG14-6</li> </ul>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
13.	<ul style="list-style-type: none"> <li>RPM MG Set B</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "What Equipment to Protect", documents the following:</p> <ul style="list-style-type: none"> <li>Control Room Power Source Selector Switch</li> <li>MG Set A</li> <li>Breaker 2NHS-MCC008-7EL</li> </ul>
14.	<ul style="list-style-type: none"> <li>2WCS-P1B, CLEANUP RECIRC PMP</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "What Equipment to Protect", documents the following:</p> <ul style="list-style-type: none"> <li>WCS Pump A Control Room Control Switch</li> <li>Breaker 2NJS-US4D</li> </ul>
15.	<ul style="list-style-type: none"> <li>2IAS-DRY3B, IAS DRYER B</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> On the provided Handout in the column labeled "What Equipment to Protect", documents the following:</p> <ul style="list-style-type: none"> <li>'A' IAS Dryer</li> <li>2NJS-PNL500</li> </ul>

<b>TERMINATING CUE</b>	The Operator has completed the JPM hand out and returned it to the Evaluator.
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<b>STOP TIME</b>	
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## Evaluator's Answer Key

### Do Not Provide to Candidate

1. 2RDS-P1B, CONTROL ROD DRIVE PUMP B	1. CRD Pump A Control Room Pump Control Switch
	2. CRD Pump A Pump and Motor
	3. Breaker 2NNS-SWG014-7
	4.
	5.
	6.
	7.
	8.
2. 2CCP-P1B, REAC BLDG CLOSED LOOP COOLING WTR PUMP 1B	1. CCP Pump A Control Room Control Switch
	2. CCP Pump A Pump and Motor
	3. Breaker 2NNS-SWG012-5
	4. CCP Pump C Control Room Control Switch
	5. CCP Pump C Pump and Motor
	6. Breaker 2NNS-SWG14-9
	7.
	8.
3. 2CCP-P3B, REAC BLDG CLOSED LOOP COOLING WTR BOOSTER PUMP 3B	1. <i>CCP Booster Pump A Control Room Control Switch</i>
	2. <i>CCP Booster Pump A Pump and Motor</i>
	3. <i>Breaker 2NNS-SWG013-9</i>
	4. <i>CCP Booster Pump C Control Room Control Switch</i>
	5. <i>CCP Booster Pump C Pump and Motor</i>
	6. <i>Breaker 2NNS-SWG14-6</i>
	7.
	8.

**Evaluator's Answer Key****Do Not Provide to Candidate****4. RPM MG Set B**

1. Control Room Power Source Selector Switch

2. MG Set A

3. Breaker 2NHS-MCC008-7EL

4.

5.

6.

7.

8.

**5. 2WCS-P1B, CLEANUP RECIRC PMP**

1. WCS Pump A Control Room Control Switch

2. Breaker 2NJS-US4D

3.

4.

5.

6.

7.

8.

**6. 2IAS-DRY3B, IAS DRYER B**

1. 'A' IAS Dryer

2. 2NJS-PNL500

3.

4.

5.

6.

7.

8.

## JPM Handout

### INITIAL CONDITIONS

Given:

- The plant is at 100% power and has just experienced a loss of 2NNS-SWG015
- Prior to the loss of AC power, no equipment was out of service.
- The crew has stabilized the plant and is in the process of determining the cause of the loss of power.
- The Shift Manager has assigned you the task of determining which plant components will need to be protected based on this event.

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

### INITIATING CUE

**(Operators Name)**, Determine which plant components need to be protected per CNG-OP-1.01-GL012 and S-ODP-OPS-0122. Document your results on the provided hand out.

*Note: Ignore any equipment not specifically covered by S-ODP-OPS-0122.*

## JPM Worksheet

1.		1.
		2.
		3.
		4.
		5.
		6.
		7.
		8.
2.		1.
		2.
		3.
		4.
		5.
		6.
		7.
		8.
3.		1.
		2.
		3.
		4.
		5.
		6.
		7.
		8.


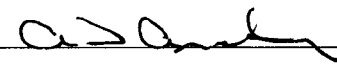
4.	1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.
5.	1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.
6.	1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.

Training Id: **2013 NRC SRO Admin RC**

Revision: **0.0**

Title: **Inspection of High Radiation Areas**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Carl Crawford	12/11/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 30 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_

Date: \_\_\_\_\_



## References

1. GAP-RPP-01, Radiation Protection Program
2. GAP-RPP-02, Radiation Work Permit
3. GAP-RPP-07, Internal and External Dosimetry Program
4. GAP-RPP-08, Control of High, Locked High, and Very High Radiation Areas
5. S-RAP-RPP-0703, Authorization to Exceed Administrative Dose Limits

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operators ability to evaluate radiological conditions and determine the appropriate work controls.

#### 2. Task Information:

- a. S-RAP-RPP-08001, Control Access to Radiation Areas
- b. K/A .3.12 (3.7) Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc

#### 3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Classroom
Time Critical Task	No
Alternate Path	No
LOD >1.0	Yes

#### 4. Recommended Start Location

- a. Training Classroom

## 5. JPM Setup (if required)

- a. Make enough copies of the RWP and Survey Map for each operator to have one.
- b. Ensure book carts are available for the operators to use and that there is an up to date copies of the following:
  - 1) GAP-RPP-01, Radiation Protection Program
  - 2) GAP-RPP-02, Radiation Work Permit
  - 3) GAP-RPP-07, Internal and External Dosimetry Program
  - 4) GAP-RPP-08, Control of High, Locked High, and Very High Radiation Areas
  - 5) S-RAP-RPP-0703, Authorization to Exceed Administrative Dose Limits

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>• The plant is operating at 100% power.</li> <li>• An operator must perform a valve lineup in the RWCU Pump P1A Room.</li> <li>• An RWP and survey map are provided.</li> <li>• There are no steam leaks in the room.</li> <li>• The operator's current year-to-date exposure is 1800 mrem TEDE.</li> <li>• The operator will be performing work for 2 hours in an average radiation field of 150 mrem/hr.</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<b>(Operators Name)</b> , Address the radiological aspects of performing this lineup and record your findings on the provided worksheet
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<b>START TIME</b>	
-------------------	--

	<b>PERFORMANCE</b>	<b>ACT. CODE</b> P / S / NA	<b>EVALUATOR</b>
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain one or more of the following procedures and review / utilize the correct section of the procedure: <ul style="list-style-type: none"> <li>• GAP-RPP-01</li> <li>• GAP-RPP-02</li> <li>• GAP-RPP-07</li> <li>• GAP-RPP-08</li> </ul>	P	SAT / UNSAT  <b>STD:</b> Current version of listed procedures obtained and reviewed IAW CNG-PR-2.01-1000, Document Control.
<b>Evaluators Note:</b>	The attached Evaluator Grading Sheets may be used to assist with the grading of the below steps. Steps 3 through 8 may be performed in any order.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
3.	Addresses radiological aspects of entering RWCU Pump P1A Room for inspection as follows: <ul style="list-style-type: none"> <li>Determines the radiological classification of the area</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> Per GAP-RPP-08, and the provided survey map, determines the radiological classification is a HIGH RADIATION AREA. Documents the classification on the provided worksheet.
4.	<ul style="list-style-type: none"> <li>Determines which Key is needed to access the area.</li> </ul>	P	SAT / UNSAT  <b>STD:</b> Determines per the provided survey map that KEY H-20-2 is needed to access the area. Documents the key required on the provided worksheet.
<b>Evaluators Note:</b>	When grading Steps 5 and 6, the operator may choose to use different nomenclature to represent the locations where the highest contact dose rate and highest dose rate at 30 cm is. This is acceptable, provided the location description provided by the operator is obvious to the Evaluator. If the Evaluator has a question as to what location the operator is trying to describe on the worksheet, then the Evaluator may verbally question the operator to determine the location (i.e. the operator points to the location on the survey map). If the Evaluator verbally questions the operator as to the described locations, the answers the operator provides may be used to assist with the grading of Steps 5 and 6.		
5.	<ul style="list-style-type: none"> <li>Determines the highest contact dose rate and location.</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> Determines per the provided survey map that the highest CONTACT DOSE RATE is 230 MREM/HOUR ON THE PUMP. Documents the dose rate and location on the provided worksheet.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
6.	<ul style="list-style-type: none"> <li>Determines the highest dose rate at 30 cm and location.</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Determines per the provided survey map that the highest DOSE RATE AT 30 CM is 210 MREM/HOUR IN THE NORTHEAST CORNER PIPING. Documents the dose rate and location on the provided worksheet.</p>
7.	<ul style="list-style-type: none"> <li>Determines the RWP required to be used.</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Determines per GAP-RPP-02, a SPECIFIC RWP SHOULD BE REQUESTED. Documents the specific RWP on the provided worksheet.</p>
<b>Evaluators Note:</b>	<p>The Step 8 calculation is as follows:</p> <ul style="list-style-type: none"> <li>1800 mrem – Current Operator Exposure</li> <li>The operator will work for 2 hours in a 150 mrem/hr radiation field.</li> <li>Total radiation to be received is <math>2 \times 150 = 300</math> mrem</li> <li>Total dose the operator will have at completion of the job is <math>300 + 1800 = 2100</math> mrem.</li> </ul>		
8.	<ul style="list-style-type: none"> <li>Determines if additional approvals are required for the operator.</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Calculates the expected exposure and determines that ADDITIONAL APPROVALS WILL BE REQUIRED. Documents the need for additional approvals on the provided worksheet.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>Evaluators Note:</b>	<p>Once the operator turns in the completed worksheet, determine if Step 8 above was completed successfully as indicated by the operator identifying that additional approvals are required for the operator to perform the work. If the operator did not correctly identify the need for approvals, then the JPM is complete and there is no need to perform the following additional steps. If the steps are not performed then they may be marked as NA. If the operator correctly identified the need for additional approvals, provide the following cue and second JPM worksheet</p> <p><b>Cue: (Operators Name),</b> <i>Identify the procedure and form required to be completed for the dose extension and the levels of approval needed for the dose extension. Record your findings on the worksheet below.</i></p>		
9.	Provide repeat back of second initiating cue  <b>Cue:</b> <i>Acknowledge repeat back providing correction if necessary.</i>	P	SAT / UNSAT / NA  <b>STD:</b> <i>Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.</i>
10.	Obtains S-RAP-RPP-0703 and review / utilize the correct section of the procedure.	P	SAT / UNSAT / NA  <b>STD:</b> <i>Current version of listed procedure obtained and reviewed IAW CNG-PR-2.01-1000, Document Control.</i>
<b>Evaluators Note:</b>	Steps 11 and 12 may be performed in any order.		
11.	Determines the additional radiological information as follows: <ul style="list-style-type: none"> <li>Determines the procedure and form required to be completed for the dose extension.</li> </ul>	P	<b>*PASS / FAIL / NA</b>  <b>STD:</b> <i>Determines per S-RAP-RPP-0703 that ATTACHMENT 1 is required to be completed for the dose extension. Documents the procedure and form on the worksheet provided.</i>



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
12.	<ul style="list-style-type: none"> <li>Determines the approvals required for the dose extension.</li> </ul>	P	<p><b>*PASS / FAIL / NA</b></p> <p><b>STD:</b> Determines per S-RAP-RPP-0703, that the following approvals are required:</p> <ul style="list-style-type: none"> <li>Department Manger</li> <li>General Supervisor of Radiation Protection</li> </ul> <p>Documents the approvals on the worksheet provided.</p>

<b>TERMINATING CUE</b>	<i>The Operator has completed the JPM worksheets and returned it to the Evaluator. The Evaluator has reviewed the worksheet to determine if any clarification is needed by the operator.</i>
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<b>STOP TIME</b>	
------------------	--

## Evaluator's Answer Key

Do Not Provide to Candidate

1. Classify the Area (check one):

- ☐ Radiation Area
- ☒ High Radiation Area
- ☐ Locked High Radiation Area
- ☐ Very High Radiation Area

2. Designate the key to be obtained:

H-20-2

3. Designate the highest **contact** dose rate and the location:

230 mrem/hour, On the Pump

4. Designate the highest dose rate **at 30 cm** and the location:

210 mrem/hour, Northeast Corner Piping

5. Designate the RWP required to be used (check one):

- ☐ The provided RWP is acceptable
- ☒ A Specific RWP should be requested

6. Evaluate the exposure for the operator:

- ☐ The expected exposure is acceptable without additional approvals
- ☒ Additional approval(s) (is)are required to receive the expected exposure

## Evaluator's Answer Key

Do Not Provide to Candidate

1. Identify the procedure and form required to be completed for the dose extension:

**S-RAP-RPP-0703, Attachment 1**

2. Check all appropriate boxes below for the approvals required for this dose extension:

- ☒ Department Manager
- ☒ General Supervisor of Radiation Protection
- ☐ Plant General Manager
- ☐ Site Vice President

## 2<sup>nd</sup> JPM Handout and Worksheet

**2<sup>nd</sup> INITIATING  
CUE**

**(Operators Name)**, Identify the procedure and form required to be completed for the dose extension and the levels of approval needed for the dose extension. Record your findings on the worksheet below.

1. Identify the procedure and form required to be completed for the dose extension:

2. Check all appropriate boxes below for the approvals required for this dose extension:

- ☐ Department Manager
- ☐ General Supervisor of Radiation Protection
- ☐ Plant General Manager
- ☐ Site Vice President

## JPM Handout

### INITIAL CONDITIONS

Given:

- The plant is operating at 100% power.
- An operator must perform a valve lineup in the RWCU Pump P1A Room.
- An RWP and survey map are provided.
- There are no steam leaks in the room.
- The operator's current year-to-date exposure is 1800 mrem TEDE.
- The operator will be performing work for 2 hours in an average radiation field of 150 mrem/hr.

**Evaluator:** *Ask trainee if he/she has any questions after presenting initial conditions*

### INITIATING CUE

**(Operators Name),** *Address the radiological aspects of performing this lineup and record your findings on the provided worksheet*

## JPM Worksheet

1. Classify the Area (check one):
<input type="checkbox"/> Radiation Area
<input type="checkbox"/> High Radiation Area
<input type="checkbox"/> Locked High Radiation Area
<input type="checkbox"/> Very High Radiation Area
2. Designate the key to be obtained:
3. Designate the highest <b>contact</b> dose rate and the location:
4. Designate the highest dose rate <b>at 30 cm</b> and the location:
5. Designate the RWP required to be used (check one):
<input type="checkbox"/> The provided RWP is acceptable
<input type="checkbox"/> A Specific RWP should be requested
6. Evaluate the exposure for the operator:
<input type="checkbox"/> The expected exposure is acceptable without additional approvals
<input type="checkbox"/> Additional approval(s) (is)are required to receive the expected exposure

# Radiation Work Permit



**Constellation Energy**

Nine Mile Point Nuclear Station  
Save Dose - Self Check - Always Work Safely

<b>RWP Title:</b> Inspections, Tours, Rounds, Maintenance and Surveillances in the RCA (NOT for High Radiation or Locked High Radiation Areas)		<b>RWP Number:</b> 210000 Rev. 00 	
<b>RWP Type:</b> <b>LOW RISK RWP</b>	<b>ALARA Review Number:</b> 210000	<b>Comments:</b> Unit 2 Standing RWP.	
<b>High Radiation Area:</b> No	<b>Locked High Radiation Area:</b> No	<b>High Contamination Area:</b> No	
<b>Alarm Settings</b>			
<b>Dose (mrem)</b>  20	<b>Back-Off Dose (mrem)</b>  16	<b>Dose Rate (mrem/hr)</b>  80	
<b>Locations</b>			
<b>Buildings</b> Protected Area	<b>Elevations</b> All elevations	<b>Rooms</b> All ROOMS OR AREAS	
<b>Radiological Conditions - Initial Survey Data - See RP for Current Conditions</b>			
<b>Description</b>	<b>Value</b>	<b>Unit of Measure</b>	
General Area	0.2 to 60	mRem/hr	
Loose Contamination on floor	<400	dpm/100cm2	
General Area airborne radioactivity level	<0.3	DAC	
<b>RWP Requirements</b>			
<b>Requirement Groups</b>	<b>Descriptions</b>		
CONTAMINATION CONTROL	Keep RP informed of work methods and notify RP prior to venting/drainage evolutions or other system breach		
	No entries above arms reach unless specifically approved by RP		
	RP to survey all tools and equipment prior to removal from Contaminated area.		
DOSIMETRY	Electronic dosimeter (ED) and DLR		
EXPOSURE CONTROL	Keep Radiation Protection informed of work methods and job location changes.		
	In High Noise areas, check Electronic Dosimeter frequently.		
PROTECTIVE CLOTHING	RP may change protective clothing, respirator, or other requirements as work scope, location, and conditions change.		
	Protective clothing required in contaminated areas only.		
	One Full Set: Hood, cotton liners, rubber (or leather) gloves, cotton booties, rubber shoe covers, coveralls. Cassi/Gortex or equivalent may be used in lieu of coveralls.		
<b>Additional Instructions</b>			
<b>Instructions:</b>			
<b>Approvals</b>			
<b>Approver Title</b> RAD PROTECTION SUPERVISOR	<b>Name</b> COLE, JOHN R	<b>Date</b> 12/29/2009	
<b>Attachments</b>			
N/A			

13A

# Reactor Building 215' WCS \* P1A Room

Survey #: 2RB-25378  
Date : 04/03/04@2300  
Page : of

# - mRem/hr general area  
# - mRad/hr general area

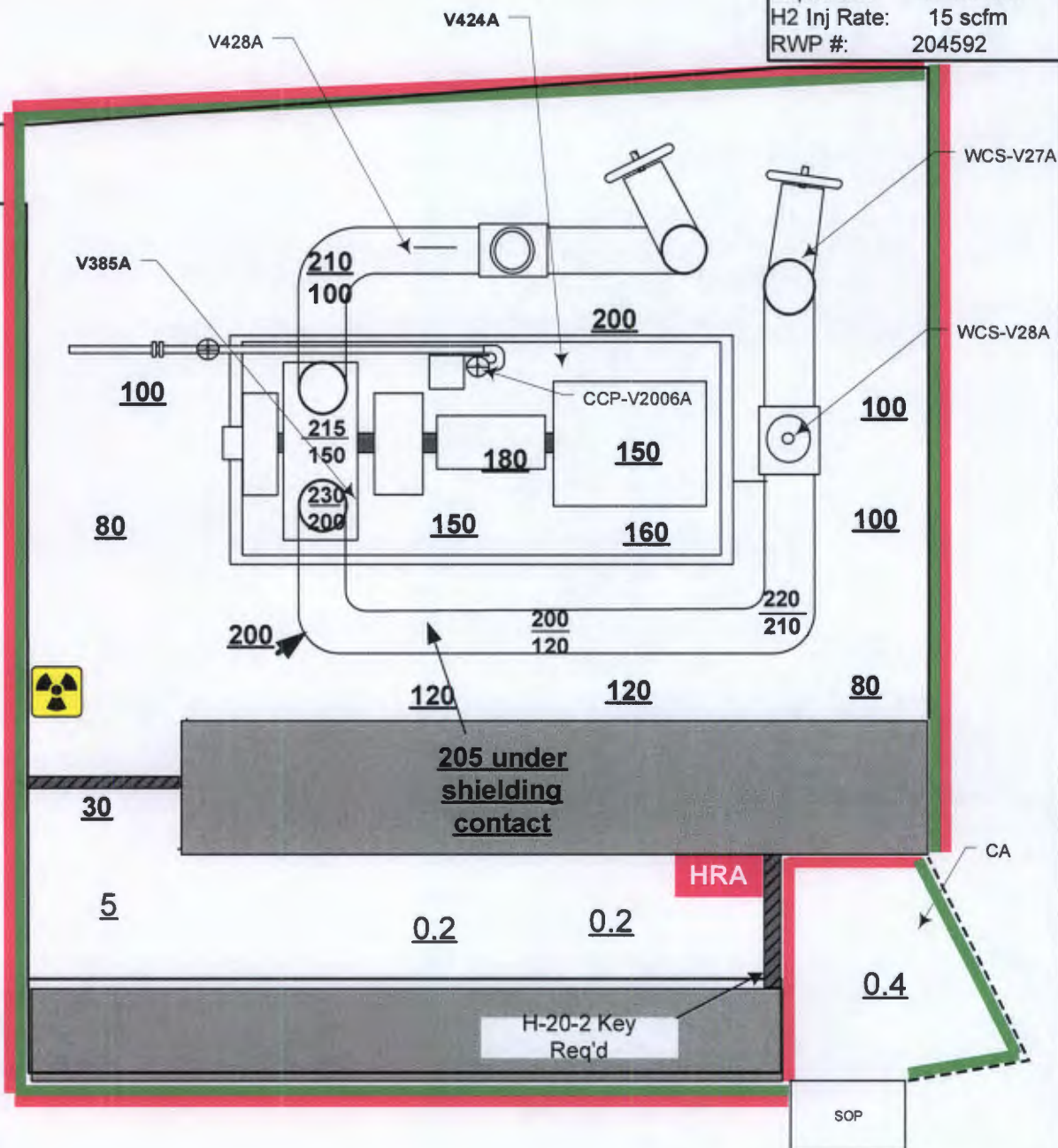
# @ cont - dose rate @ contact with component  
# @ 30cm - dose rate @ 30cm from component

# - contamination in dpm/100cm<sup>2</sup>  
# - contamination on component in dpm/100cm<sup>2</sup>  
# - location of LAW  
- - - boundary

No  $\beta$ - detected unless otherwise noted.




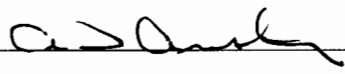
Rx power level: 100%  
Surveyed by: DR.Black  
Exposure: 108 mRem  
H2 Inj Rate: 15 scfm  
RWP #: 204592



Instrument	Inst. #	Cal Due date
RO-2	5780	01/29/05



Training Id: **2013 NRC SRO Admin EP**Revision: **0.0**Title: **Emergency Classification (RPV Water Level, Unusual Event CU3.2)****Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Carl Crawford	12/11/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration:		30 minutes

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. EPIP-EPP-02, Classification of Emergency Conditions At Unit 2
2. Unit 2 EAL Chart

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operators ability to classify and declare an emergency event within 15 minutes. THE operator shall also provide verbal and written notifications within 15 minutes of declaration.

#### 2. Task Information:

- a. NS-FLDSUP-013, Protect Plant Equipment.
- b. K/A 2.2.14 (4.3) Knowledge of the process for controlling equipment configuration or status.

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Perform
<b>Evaluation Location</b>	Classroom
<b>Time Critical Task</b>	Yes
<b>Alternate Path</b>	No
<b>LOD &gt;1.0</b>	Yes

#### 4. Recommended Start Location

- a. Training Classroom

#### 5. JPM Setup (if required)

- a. EP Packet containing the following forms in the order listed below (assembled per NAI-EPP-02):
  - 1) EPIP-EPP-18, Attachment 1 (3 pages)

- 2) EPIP-EPP-18, Attachment 1 Figure 1 & 2 (2 pages)
  - 3) EPIP-EPP-18, Attachment 2 (2 pages)
  - 4) EPIP-EPP-20, Attachment 1A (2 pages)
  - 5) EPIP-EPP-20, Attachment 4 section E (1 page)
  - 6) EPIP-EPP-20, Attachment 6A (2 pages)
  - 7) EPIP-EPP-20, Attachment 6B (3 pages)
  - 8) EPIP-EPP-08, Attachment 1 (4 pages)
  - 9) EPIP-EPP-18, Attachment 8 (1 page)
  - 10) EPIP-EPP-18, Attachment 3, 4, 5, 6, 7 (1 page each)
- b. Copy of the current version of EPIP-EPP-02 Attachment 1, Unit 2 EAL Flowchart
  - c. Copy of the current version of EPIP-EPP-02-EAL, Emergency Action Level Matrix Unit 2
  - d. Copy of the current version of EPMP-EPP-0102, Unit 2 Emergency Classification Technical Bases
  - e. If laminated copies used,
    - 1) Vis-à-Vis® wet erase marker(s) or equivalent
    - 2) Wet and dry paper towel(s) or equivalent
  - f. Clock or timer capable of displaying minutes and seconds

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

**INITIAL  
CONDITIONS**

Given:

- The Plant is in mode 5.
- The Reactor was shut down 5 days ago at 0100.
- The Spent Fuel Pool gates are still installed
- RPV water level is being raised in preparation to remove to Spent Fuel Pool gates and is currently 6 inches above the RPV flange.

Then:

- A recirc. loop piping leak develops on the 'A' recirc. loop that cannot be immediately isolated.
- Cavity level slowly drops below the RPV flange and has been below the flange for 15 minutes.
- Current level is 350 inches on shutdown range and is slowly lowering.
- Radiation levels remain unchanged.

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

**INITIATING  
CUE**

**(Operators Name)**, Evaluate the need to classify conditions provided per EPIP-EPP-02. If emergency condition exists, complete the SM/ED checklist through Step 9 (Part 1 Notification Fact Sheet only)

**START TIME**

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary	P	SAT / UNSAT  <b>STD:</b> Proper communications used per CNG-OP-1.01-2001, Communications and Briefings
2.	Obtain a copy of the SM/ED Checklist (EPIP-EPP-18 Attachment 1) and review / utilize the correct section of the procedure	P	SAT / UNSAT  <b>STD:</b> Preassembled SM/ED package is obtained (first five pages are EPIP-EPP-18, Att. 1)

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
3.	Using the given initial conditions, the SM/ED will classify the emergency per EPIP-EPP-02 (within 15 minutes of indications available in Control Room) as a UNUSUAL EVENT per CU3.2	P	SAT / UNSAT  <b>STD:</b> Determines EAL CU3.2, UNUSUAL EVENT is the highest classification.
<b>Evaluator Note:</b>	The operator performing the JPM will take the ED responsibility.		
4.	For Site events, contact the opposite unit SM and determine which SM will take the ED responsibility  <b>Cue:</b> If Unit 1 SM contacted, report that Unit 1 is not in any EALs.	S	SAT / UNSAT  <b>STD:</b> Per EPIP-EPP-02, determines the operator will assume the role of the Emergency Director.
<b>Evaluator Note:</b>	The declaration and the time are the pass/fail criteria, NOT the reason given or the assumption of the SM/ED position.		
5.	Announce to Control Room staff you are now assuming SM/ED position and duties, and you are now declaring (state emergency classification level), and provide reason for classification/declaration/upgrade within 15 minutes of the conditions being available in the Control Room that an EAL has been met or exceeded.  <b>Time Declared</b> _____	P	<b>*PASS / FAIL</b>  <b>STD:</b> Per EPIP-EPP-18 Att. 1, Step 4, within 15 minutes of beginning the JPM, the operator announces that an UNUSUAL EVENT has been declared per CU3.2
<b>Procedure Note:</b>	IF the announcement for a ground attack has been made as required by EPIP-EPP-10, THEN make no further announcements until safety is assured through coordination with security.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
6.	<p>The SM/ED shall direct Communications Aide, Chemistry Tech and R.P. Tech to report to the Control Rooms.</p> <p><b>Cue:</b> <i>After approximately one minute, identify that you are reporting as the Communications Aide (Chemistry Tech and R.P. Tech if directed to report).</i></p>	S	<p>SAT / UNSAT</p> <p><b>STD:</b> <i>Contacts the Chemistry and RP Techs and Communications Aide and directs them to report to the control room.</i></p>
7.	<p>Contact the opposite Unit control room and:</p> <ul style="list-style-type: none"> <li>• Inform SM of Drill / Actual Emergency and classification</li> <li>• Obtain opposite unit status</li> <li>• Direct SM to notify the ERO (ERONS) per EPIP-EPP-20 Attachment 4</li> </ul> <p><b>Cue:</b> <i>As the Unit 1 SM, acknowledge all provided information. Inform the operator that Unit 1 is operating at rated power.</i></p>	S	<p>SAT / UNSAT</p> <p><b>STD:</b> <i>Contacts the Unit 1 SM and informs them that this is a Drill / Actual Emergency and provides the classification. Additionally, directs the Unit 1 SM to notify the ERO. The operator may direct the Unit 1 SM to either ACTIVATE or NOT ACTIVATE the emergency facilities. Either action is acceptable. Obtains the operating status of Unit 1</i></p>
<b>Evaluator Note:</b>	<p>Because the classification is an Unusual Event, no evacuation is required. However the operator has the discretion to direct an evacuation of either the protected area and/or a local area. This is an acceptable action, but not required.</p>		
8.	<p>Using EPIP-EPP-18, Attachment 1, Figure 1 flowchart determine the appropriate evacuation and accountability.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> <i>Determines no evacuation is required.</i></p>
<b>Evaluator Note:</b>	<p>Because the classification is an Unusual Event, there are very few required blocks to be filled out by the ED on EPIP-EPP-18, Attachment 2 Emergency Announcement. The PASS/FAIL criteria is based on providing direction to perform the announcement and not in the filling out the attachment.</p>		



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
9.	<p>Complete EPIP-EPP-18 Attachment 2, Emergency Announcement and direct the appropriate announcement to be made to the site.</p> <p><b>Cue:</b> <i>As necessary, acknowledge the direction to make the emergency announcement. Inform the operator the emergency announcement is complete.</i></p>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> <i>Directs an operator to perform the emergency announcement.</i></p>
<b>Evaluator Note:</b>	The attached Evaluators Aid has an answer key for correctly filling out EPIP-EPP-20, Attachment 1A. Only those steps marked with a " * " and red "box" need to be filled out correctly to receive a PASS on the next step.		
10.	<p>Complete EPIP-EPP-20 Attachment 1A, Part 1 Notification Fact Sheet. Include information from Unit 1 as applicable.</p>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> <i>Fills out EPIP-EPP-20 Attachment 1A per the attached answer key.</i></p>
<b>Evaluator Note:</b>	The Comm. Aid must have time to begin roll call and check blocks for State Emergency Communications Center (SECC) and Oswego County Warning Point within 15 minutes of the declaration. Handing the completed NFS Part 1 to the Comm. Aide at the 15 minute point does not meet the time requirement.		
11.	<p>Provide completed Part 1A Notification Fact sheet to the Communications Aid so that off site notifications are initiated within 15 minutes of the EAL declaration</p> <p><b>Cue:</b> <i>As Communications Aid, accept the Part 1 Notification Fact sheet and state that you will proceed with the notifications</i></p>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> <i>Provides completed Part 1 Notification Fact sheet to the Communications Aid within 14 minutes of event declaration</i></p>
<b>TERMINATING CUE</b>	SM/ED checklist completed through Step 9 (Part 1 Notification Fact Sheet only)		

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NINE MILE POINT  
NUCLEAR STATION

**STOP TIME**

## Evaluator's Answer Key

Do Not Provide to Candidate

## EMERGENCY NOTIFICATIONS

**EPIP-EPP-20**  
**Revision 02900**  
**Page 15 of 38**

**Attachment 1A: Nine Mile Point Nuclear Station Notification Fact Sheet - Part 1**

INITIAL ROLL CALL MUST BE COMPLETED BY: (TIME)

Sheet 1 of 5

(Do not say items in italics)

Pick up the phone, press A *, wait about 10 seconds, then say: "This is to report an incident at Nine Mile Point, standby for roll call."																
<input type="checkbox"/> State Emergency Communications Center (SECC)			<input type="checkbox"/> Oswego County Warning Point			<input type="checkbox"/> JA Fitzpatrick Power Plant (not req'd in 15 min)		<input type="checkbox"/> Unaffected NMP Unit (not req'd in 15 min)		Notification #						
Step Changed	Step Read	Step														
		1.	This message is being transmitted on:(date) _____ at (time -24 hr) _____ via: A. RECS B. Other													
		2.	This is: (A.) An actual emergency -OR- (B.) An Exercise													
		3.	The Emergency Classification is: (A.) Unusual Event                      C. Site Area Emergency                      E. Emergency Terminated B. Alert                                      D. General Emergency                      F. Other: _____													
		4.	This Emergency Classification was declared on:(date) Today _____ at (time -24 hr) Time of Dec. _____													
		5.	Release of radioactive Materials due to the classified event: (A.) No release B. Release below federal limits (ODCM), <input type="checkbox"/> To atmosphere <input type="checkbox"/> To Water C. Release above federal limits (ODCM), <input type="checkbox"/> To atmosphere <input type="checkbox"/> To Water D. Unmonitored release requiring evaluation.													
		6.	The following Protective Actions are recommended to be implemented as soon as practical: (A.) No need for protective actions outside the site boundary B. Evacuate and implement the KI Plan for the following ERPAs and all remaining ERPAs monitor the Emergency Alert System. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 C. Shelter-in-place and implement the KI Plan for the following ERPAs AND all remaining ERPAs monitor the Emergency Alert System 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29													
		7.	<table border="1"> <tr> <td></td> <td>U1</td> <td rowspan="3">EAL #</td> <td rowspan="3">Brief event description and other significant information: (if necessary. Do not repeat EAL description)</td> </tr> <tr> <td>X</td> <td>U2</td> </tr> <tr> <td>Site</td> <td>CU</td> </tr> </table>		U1	EAL #	Brief event description and other significant information: (if necessary. Do not repeat EAL description)	X	U2	Site	CU					
	U1	EAL #	Brief event description and other significant information: (if necessary. Do not repeat EAL description)													
X	U2															
Site	CU															
		8.	Reactor Status: Unit 1: (A.) Operating                      B. Shutdown (date) _____ at (time -24 hr clock) _____ Unit 2: A. Operating                      (B.) Shutdown (date) -5 days _____ at (time -24 hr clock) 01:00													
		9.	A. Elevated wind speed <u>13</u> miles/hr at 200 ft				B. Ground wind speed <u>9</u> miles/hr at 30 ft.									
		10.	A. Elevated wind direction (from) <u>110</u> degrees at 200 ft.				B. Ground wind direction (from) <u>112</u> degrees at 30 ft.									
		11.	Stability Class: A      B      C      D      (E)      F      G													
		12.	Reported by: (Communicator name) _____ at Tel. No. (315) _____													
ASK "Does Oswego County or New York State need further clarification on any information? (provide as appropriate) THEN "This is the end of the message, standby for verification roll call".																
Check those involved in verification roll call			<input type="checkbox"/> State Emergency Communications Center (SECC)			<input type="checkbox"/> Oswego County Warning Point		<input type="checkbox"/> JA Fitzpatrick Power Plant		<input type="checkbox"/> Unaffected NMP Unit						
THEN STATE: "Nine Mile Point out at time: _____" (time -24 hr clock)																
Approved by: (SM/ED or ED/RM): Print name: _____ Print Name _____ Signature: _____ Signature _____																

## JPM Handout

<p><b>INITIAL CONDITIONS</b></p>	<p>Given:</p> <ul style="list-style-type: none"> <li>• The Plant is in mode 5.</li> <li>• The Reactor was shut down 5 days ago at 0100.</li> <li>• The Spent Fuel Pool gates are still installed</li> <li>• RPV water level is being raised in preparation to remove to Spent Fuel Pool gates and is currently 6 inches above the RPV flange.</li> </ul> <p>Then:</p> <ul style="list-style-type: none"> <li>• A recirc. loop piping leak develops on the 'A' recirc. loop that cannot be immediately isolated.</li> <li>• Cavity level slowly drops below the RPV flange and has been below the flange for 15 minutes.</li> <li>• Current level is 350 inches on shutdown range and is slowly lowering.</li> <li>• Radiation levels remain unchanged.</li> </ul> <p><b>Evaluator:</b> <i>Ask trainee if he/she has any questions after presenting initial conditions</i></p>
<p><b>INITIATING CUE</b></p>	<p><b>(Operators Name),</b> <i>Evaluate the need to classify conditions provided per EPIP-EPP-02. If emergency condition exists, complete the SM/ED checklist through Step 9 (Part 1 Notification Fact Sheet only)</i></p>

## Emergency Meteorology Report

### Last 15 Minute Emergency Meteorology Report Data


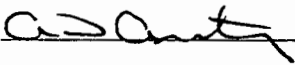
#### Data from Nine Mile Point Met System

Date: Today

Time (Local): Now

Elevated				Ground			
200'	Wind Speed (Main)	13	(mph)	30'	Wind Speed (Main)	9	(mph)
200'	Wind Dir From (Main)	110	(deg)	30'	Wind Dir From (Main)	112	(deg)
200'	Delta Temperature	0.05	(deg F)	100'	Delta Temperature	0.7	(deg F)
	Stability Class	E			Stability Class	C	
30'	Air Temperature	50	(deg F)		Precipitation (15 min)	1.02	(in)

Training Id: **2013 NRC Simulator S-1**Revision: **0.0**Title: **Rotate Drywell Unit Coolers (Alternate Path)****Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Jason Sawyer	12/03/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 15 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. N2-OP-60, Drywell Cooling
2. N2-ARP-873200

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operator's ability to rotate the Drywell Unit Coolers 3A and B and respond to a degraded condition on Unit Cooler 3B
- b. This JPM is considered alternate path because once the unit coolers have been rotated, the operator will receive indication that the unit cooler placed in service has degraded. The operator will be required to respond per the applicable ARP and place the previously running unit cooler back in service and place in pull to lock the degraded unit cooler.

#### 2. Task Information:

- a. N2-223004-01002, Rotate Drywell Unit Coolers 3A and 3B
- b. K/A 223001, A4.12 (3.5/3.6)

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Perform
<b>Evaluation Location</b>	Simulator
<b>Time Critical Task</b>	No
<b>Alternate Path</b>	Yes
<b>LOD &gt; 1.0</b>	Yes

#### 4. Recommended Start Location

- a. Unit 2 Simulator



5. Simulator Setup (if required)

- a. This JPM can be performed in Mode 1, 2, or 3 as long as power is available to both Unit Coolers 3A and B
- b. Ensure Drywell Unit Cooler 3A is running and 3B is secured
- c. Set **Malfunction PC36B**, DW Unit Cooler 3B Vibration High on **Trigger 1** with a **3 second delay**.
- d. Set the following **Event Trigger** on **Event 1**:

Event Action: **HZLCW2CCPMOV3A(1)==1 .AND. HZLPC1DRSB03(2)==1**

Command: **Blank**

Description: 2CCP-MOV3A Green Light On and UC3B Red Light On

6. JPM Setup (if required)

- a. Prepare a copy of N2-OP-60, Section 2.0. Include a copy of the Precautions and Limitations. No steps need to be marked up.
- b. If this JPM is run multiple times, ensure ARP 873214 is erased after each JPM.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>The plant is in Mode 1</li> <li>2DRS-UC3A is running and 2DRS-UC3B is in standby</li> <li>Unit Coolers 3A and 3B need to be rotated to equalize runtime</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<p><b>(Operators Name)</b>, Rotate Drywell Unit Coolers by starting 2DRS-UC3B and stopping 2DRS-UC3A in accordance with N2-OP-60, Section F.2.0</p>
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<b>START TIME</b>	
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	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	<p>Provide repeat back of initiating cue</p> <p><b>Cue:</b> Acknowledge repeat back providing correction if necessary.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.</p>
2.	<p>Obtain a copy of N2-OP-60 and review / utilize the correct section of the procedure</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Current version of N2-OP-60 obtained and section F.2.0 reviewed IAW CNG-PR-2.01-1000, Document Control.</p>
<b>Presenting Note:</b>	<ul style="list-style-type: none"> <li>2DRS-UC3A and UC3B should be rotated occasionally to equalize operating time and equipment wear.</li> <li>All control switches and indicating lights are located on 2CEC*PNL873, unless otherwise noted.</li> </ul>		
3.	<p>Open CCP-MOV3B (3A), UNIT COOLER 3B (3A) RBCLC INLET to the standby unit cooler.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Place CCP-MOV3B switch to OPEN at 2CEC*PNL873.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
4.	Start standby unit cooler DRS-UC3B (UC3A)	P	<b>*PASS / FAIL</b>  <b>STD:</b> Places DRS-UC3B switch to START at 2CEC PNL873 and observes the RED warning light is lit and the GREEN OK light is not lit.
5.	Stop DRS-UC3A (UC3B) by placing control switch to STOP	P	<b>*PASS / FAIL</b>  <b>STD:</b> Places DRS-UC3B switch to STOP at 2CEC PNL873 and observes the RED warning light is not lit and the GREEN OK light is lit.
<b>Attention:</b>		Two seconds after completion of the following step, a high vibration condition will occur on 2DRS-UC3B. The operator will reference ARP 873214 which will direct restarting UC3A and placing in Pull To Lock UC3B	
6.	Close CCP-MOV3A (3B), UNIT COOLER 3A (3B) RBCLC INLET to the standby unit cooler.	P	<b>*PASS / FAIL</b>  <b>STD:</b> Places CCP-MOV3A switch to CLOSE at 2CEC PNL873.
7.	Recognizes and reports Annunciator 873214 in alarm  References ARP for 873214	P	SAT / UNSAT  <b>STD:</b> Proper alarm response used IAW CNG-OP-1.01-2003, Alarm Response and Control.
8.	IF 2DRS-UC3A, UNIT COOLER is available, PERFORM the following:	P	SAT / UNSAT  <b>STD:</b> Determines 2DRS-UC3A is available.
9.	<ul style="list-style-type: none"> <li>Open CCP-MOV3A, UNIT COOLER 3A RBCLC INLET.</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> Places CCP-MOV3A switch to OPEN at 2CEC PNL873.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
10.	<ul style="list-style-type: none"> <li>Start 2DRS-UC3A</li> </ul>	P	<b>PASS / FAIL</b>  STD Places DRS-UC3A switch to START at ZGEC PM0573 and observes the RED warning light ISN and the GREEN of light is not lit.
11.	<ul style="list-style-type: none"> <li>STOP 2DRS-UC3B by placing control switch in PULL TO LOCK</li> </ul>	P	<b>PASS / FAIL</b>  STD Places DRS-UC3B switch to PULL TO LOCK at ZGEC PM0573 and observes the RED warning light is not lit and the GREEN of light is lit.
12.	<ul style="list-style-type: none"> <li>CLOSE CCP-MOV3B, UNIT COOLER 3B RBCLC INLET</li> </ul>	P	<b>PASS / FAIL</b>  STD Places CCP-MOV3B switch to CLOSE at ZGEC PM0573.
<b>EVALUATOR NOTES</b>		Once CCP-MOV3B is closed, provide the following Cue:  <b>Cue:</b> <i>Your task is complete, another operator will complete the remainder of the ARP actions.</i>	
<b>TERMINATING CUE</b>		CCP-MOV3B is closed.	
<b>STOP TIME</b>			

## JPM Handout

### INITIAL CONDITIONS

Given:

- The plant is in Mode 1
- 2DRS-UC3A is running and 2DRS-UC3B is in standby
- Unit Coolers 3A and 3B need to be rotated to equalize runtime

**Evaluator:** *Ask trainee if he/she has any questions after presenting initial conditions*

### INITIATING CUE



**(Operators Name),** *Rotate Drywell Unit Coolers by starting 2DRS-UC3B and stopping 2DRS-UC3A in accordance with N2-OP-60, Section F.2.0*

Training Id: **2013 NRC Simulator S-2**

Revision: **0.0**

Title: **Perform RPS Weekly Surveillance**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Jason Sawyer	12/03/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014

Approximate Duration: 20 minutes

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. N2-OSP-RPS-W002



## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operator's ability to perform the RPS Weekly Surveillance.

#### 2. Task Information:

- a. N2-212000-01029, Perform N2-OSP-RPS-W002, Manual Scram Channel Functional Test
- b. K/A 212000, A2.03 (3.3/3.5)

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Perform
<b>Evaluation Location</b>	Simulator
<b>Time Critical Task</b>	No
<b>Alternate Path</b>	No
<b>LOD &gt;1.0</b>	Yes

#### 4. Recommended Start Location

- a. Unit 2 Simulator

#### 5. Simulator Setup (if required)

- a. This JPM can be performed in Mode 1, 2, or 3
- b. Ensure that both RPS A and B are reset
- c. There are no malfunctions or event triggers associated with this JPM.

6. JPM Setup (if required)

- a. Prepare a copy of N2-OSP-RPS-W002. Mark up Section 7.0. The operator will only be performing testing on RPS A channel, so N/A the remaining sections of C, B and D.
- b. If the JPM is to be run multiple times, make sufficient copies of the marked up procedure to run them.

**B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

**C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>The plant is in Mode 1</li> <li>Maintenance has just been completed on RPS A1</li> <li>Post Maintenance testing is required for RPS Channels A1</li> <li>Communications have been established between 2CEC*PNL603 and 2CEC*PNL609</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<p><b>(Operators Name),</b> Perform a Manual Scram Channel Functional Test on RPS Channel A in accordance with N2-OSP-RPS-W002, Section 8.2</p> <p><b>Cue:</b> Provide the marked up copy of N2-OSP-RPS-W002 to the operator.</p>
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<b>START TIME</b>	
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	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Reviews marked up copy of N2-OSP-RPS-W002 and utilizes the correct section of the procedure	P	SAT / UNSAT  <b>STD:</b> N2-OSP-RPS-W002 is reviewed IAW CNG-PR-2.01-1000, Document Control.
<b>Procedure Note</b>	<ul style="list-style-type: none"> <li>All indicators and controls for this test are located on panel 2CEC*PNL603 unless otherwise specified.</li> </ul>		
3.	Verify that there is NO half scram on the "B" side.	P	SAT / UNSAT  <b>STD:</b> Observes the four white RPS B power lights are lit on 2CEC*PNL603.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
4.	<p>Notify CRO that a half scram on "A" side will be generated.</p> <p><b>Cue:</b> As the CRO, acknowledge the report of a half scram on the A side.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.</p>
<b>Evaluator Notes</b>	<p>The operator may choose to perform the actions for an Expected Annunciator which involves informing the CRS and reviewing the associated ARP. As the Evaluator, and as necessary, during the course of this JPM, acknowledge the Expected or Actual Annunciators as the CRS. Additionally at your discretion you may choose to inform the operator that all further notifications for Expected Annunciators are not required.</p>		
5.	Arm the REACTOR SCRAM A1 pushbutton	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Rotates the REACTOR SCRAM A1 COILAR to the ARMED position.</p>
6.	Verify annunciator 603113, RPS A MANUAL SCRAM SWITCH ARMED, has alarmed.	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes Annunciator 603113 illuminated. May depress the 2CEC*PNL603 annunciator SILENCE and ACKNOWLEDGE BUTTONS.</p>
7.	Depress AND hold for 2 to 3 seconds the REACTOR SCRAM A1 pushbutton.	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Depresses the REACTOR SCRAM A1 PUSHBUTTON for 2 to 3 seconds.</p>
8.	<p>Verify the following annunciators have alarmed:</p> <ul style="list-style-type: none"> <li>603110, RPS A AUTO TRIP</li> <li>603111, RPS A MANUAL TRIP</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes Annunciators 603110 and 603111 illuminated. Depresses the 2CEC*PNL603 annunciator SILENCE and ACKNOWLEDGE BUTTONS.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
9.	<p>Verify the status of the following indicating lights:</p> <ul style="list-style-type: none"> <li>REACTOR SCRAM TRIP LOGIC A1 on 2CEC*PNL609 is extinguished.</li> </ul> <p><b>Cue:</b> REACTOR SCRAM TRIP LOGIC A1 on 2CEC*PNL609 are extinguished.</p> <ul style="list-style-type: none"> <li>PILOT SCRAM VALVE SOLENOIDS A, C, E, AND G are extinguished.</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes the four white pilot lights on 2CEC*PNL603 for RPS A not lit.</p>
10.	Reset the REACTOR SCRAM RESET LOGIC A.	P	<p><b>PASS / FAIL</b></p> <p><b>STD:</b> Observes REACTOR SCRAM RESET LOGIC A control switch to the RESET position.</p>
<b>EVALUATOR NOTE</b>	<p>If the Plant Computer Printouts and/or Sequence of Events do not print out the right computer points, then provide a cue as necessary to indicate to the candidate that all required computer points are in.</p>		
11.	<p>Verify the following occurred for the tripped condition:</p> <ul style="list-style-type: none"> <li>Verify the following Plant Computer Printouts:                             <ul style="list-style-type: none"> <li>RPSUC01, RPS A MANUAL TRIP, TRIPPED</li> <li>RPSUC03, RPS A AUTO TRIP, TRIPPED</li> </ul> </li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes on the Plant Process Computer, Computer Points RPSUC01 and 03 are in the TRIPPED condition.</p>
12.	<ul style="list-style-type: none"> <li>Verify the following Sequence of Events Printouts:                             <ul style="list-style-type: none"> <li>RPSUC01, RPS A MANUAL TRIP, TRIPPED</li> <li>RPSUC03, RPS A AUTO TRIP, TRIPPED</li> </ul> </li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes on the Sequence of Events Printouts, Computer Points RPSUC01 and 03 are in the TRIPPED condition.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
13.	<p>Verify the following alarms AND indications for the reset condition:</p> <ul style="list-style-type: none"> <li>Verify the following alarms AND indications for the reset condition: <ul style="list-style-type: none"> <li>603110, RPS A AUTO TRIP</li> <li>603111, RPS A MANUAL TRIP</li> </ul> </li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes Annunciators 603110 and 603111 clear. Depresses the 2CEC*PNL603 annunciator SILENCE, ACKNOWLEDGE, and RESET BUTTONS.</p>
14.	<ul style="list-style-type: none"> <li>Verify the following Plant Computer Printouts: <ul style="list-style-type: none"> <li>RPSUC01, RPS A MANUAL TRIP, ALRMCLR</li> <li>RPSUC03, RPS A AUTO TRIP, ALRMCLR</li> </ul> </li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes the Plant Process Computer, Computer Points RPSUC01 and 03 are shown in the ALRMCLR condition.</p>
15.	<ul style="list-style-type: none"> <li>Verify the following Sequence of Events Printouts: <ul style="list-style-type: none"> <li>RPSUC01, RPS A MANUAL TRIP, ALRMCLR</li> <li>RPSUC03, RPS A AUTO TRIP, ALRMCLR</li> </ul> </li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes on the Sequence of Events Printouts, Computer Points RPSUC01 and 03 are in the ALRMCLR condition.</p>
16.	<p>Verify the status of the following indicating lights:</p> <ul style="list-style-type: none"> <li>REACTOR SCRAM TRIP LOGIC A1 on 2CEC*PNL609 is ILLUMINATED.</li> </ul> <p><b>Cue:</b> REACTOR SCRAM TRIP LOGIC A1 on 2CEC*PNL609 are ILLUMINATED.</p> <ul style="list-style-type: none"> <li>PILOT SCRAM VALVE SOLENOIDS A, C, E, AND G are extinguished.</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes the four white pilot lights on 2CEC*PNL603 for RPS A lit.</p>
17.	Disarm the REACTOR SCRAM A1 pushbutton	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Places the REACTOR SCRAM A1 control in the DISARMED position.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
18.	Verify annunciator 603113, RPS A MANUAL SCRAM SWITCH ARMED, is extinguished.	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes Annunciator 603113 not lit. Depresses the 2CEC*PNL603 annunciator SILENCE, ACKNOWLEDGE, and RESET BUTTONS.</p>
<b>Evaluator Notes:</b>	<p>Once the RPS A Manual Scram Switch is in the DISARM position, provide the following cue:</p> <p><b>Cue:</b> <i>Your task is complete, another operator will complete the remainder of the paperwork for the surveillance procedure.</i></p>		
<b>TERMINATING CUE</b>	RPS Manual Scram Switch is in the DISARM position		
<b>STOP TIME</b>			

## JPM Handout

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"><li>• The plant is in Mode 1</li><li>• Maintenance has just been completed on RPS A1</li><li>• Post Maintenance testing is required for RPS Channels A1</li><li>• Communications have been established between 2CEC*PNL603 and 2CEC*PNL609</li></ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
<b>INITIATING CUE</b>	<p><b>(Operators Name)</b>, Perform a Manual Scram Channel Functional Test on RPS Channel A in accordance with N2-OSP-RPS-W002, Section 8.2</p>

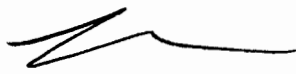
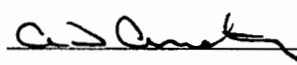


Training Id: **2013 NRC Simulator S-3**

Revision: **0.0**

Title: **Maximize Control Rod Drive Flow (Alternate Path)**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Jason Sawyer	12/03/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 10 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. N2-OP-30, Control Rod Drive
2. N2-EOP-RPV, RPV Control

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operator's ability to Maximize RDS Flow after a reactor scram as well as respond to a high suction strainer differential pressure.
- b. This JPM is considered alternate path because once RDS flow is maximized, a high suction strainer differential pressure alarm will occur. The operator will be required to recognize the degraded condition and take conditional steps to mitigate it in accordance with the operating procedure.

#### 2. Task Information:

- a. N2-201001-01012, Respond to Annunciator 603318, CRD PUMPS  
SUCTION FLTR DIFF PRESSURE HIGH
- b. K/A 201001, A2.06 (2.9/2.9)

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Perform
<b>Evaluation Location</b>	Simulator
<b>Time Critical Task</b>	No
<b>Alternate Path</b>	Yes
<b>LOD &gt;1.0</b>	Yes

#### 4. Recommended Start Location

- a. Unit 2 Simulator

## 5. Simulator Setup (if required)

### a. Prepare the simulator as follows:

- 1) Snap to any full power IC
- 2) Ensure RDS Pump 1A is running and Pump 1B is in standby.
- 3) Place HPCS in PTL
- 4) Trip the RCIC Turbine
- 5) **Insert malfunctions FW01A, B, and C** (Condensate Pump Trip) to remove the condensate pumps from service.
- 6) Allow the Feed Pumps to trip and level to lower to the scram setpoint.
- 7) Once the Reactor has scrammed, place the mode switch to shutdown.
- 8) Allow RPV level to stabilize out between 100 and 150 inches and house loads to transfer to Lines 5 and 6.

### b. Set **Malfunction AN603318**, CRD PUMPS SUCTION FLTR DIFF PRESSURE HIGH, **FV=CRY WOLF** on **Trigger 1** with a **2 second** time delay

### c. Set the following **Event Trigger** on **Event 1**:

Event Action: **HZLRDF003(2)==1 .AND. HZLRDF003(1)==0**

Command: **Blank**

Description: 2RDS-PV101 Red Light On and Green Light Off (PV101 is fully open).

6. JPM Setup (if required)

- a. Prepare a copy of N2-OP-30, Section 3.0. Include a copy of the Precautions and Limitations. No steps need to be marked up.
- b. Have a yellow sticky available with the following computer point written on it indicating it is in alarm: **RDSPC06, CRD PMPS SUCT FLT D/P.**

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>• The plant has scrammed due to a loss of all condensate pumps</li> <li>• The mode switch is in shutdown</li> <li>• HPCS and RCIC are unavailable.</li> <li>• The crew is executing N2-EOP-RPV, RPV Level Control</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<p><b>(Operators Name)</b>, Maximize RDS Flow per N2-OP-30, Control Rod Drive, Section H.3.0</p>
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<b>START TIME</b>	
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	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of N2-OP-30 and review / utilize the correct section of the procedure	P	SAT / UNSAT  <b>STD:</b> Current version of N2-OP-30 obtained and section H.3.0 reviewed IAW CNG-PR-2.01-1000, Document Control.

<b>Procedure Note</b>	<p>Performance may be required by the EOPs. Changes to this section of the procedure (including renumbering) are required to be reviewed by the EOP Coordinator.</p>
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	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
3.	<p>IF (at any time in this Subsection) annunciator 603318, CRD PUMPS SUCTION FLTR DIFF PRESSURE HIGH, is received; perform the following on RB 215' el.:</p> <ul style="list-style-type: none"> <li>• Open 2RDS-V2B(A), SUCTION FILTER-1B (A) INLET ISOL</li> <li>• 3.1.2 Open 2RDS-V3B(A), SUCTION FILTER-1B (A) OUTLET ISOL</li> <li>• 3.1.3 Open 2RDS-V8, FLT.-BYPASS-LINE SUCTION STRAINER ISOL</li> <li>• 3.1.4 Open 2RDS-V9, FLT.-BYPASS-LINE SUCTION STRAINER ISOL.</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes that Annunciator 603318 is not lit and determines that this step is not applicable at this time.</p>
4.	<p>IF (at any time in this Subsection) annunciator 603317, CRD DRV WTR/RCS PMP SEAL FILTR D/P HIGH, is received, perform the following on RB 261' el.:</p> <ul style="list-style-type: none"> <li>• Open 2RDS-V23B(A), DISCH. FLT 2B (A) INLET ISOL.</li> <li>• 3.2.2 Open 2RDS-V26B(A), DISCH. FLT. 2B (A) OUTLET ISOL.</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes that Annunciator 603317 is not lit and determines that this step is not applicable at this time.</p>
5.	<p>Verify RPS is tripped per N2-SOP-101C.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes the eight white scram solenoid power lights for RPS A and B are not lit on 2CEC*PNL603</p>
6.	<p>Verify the following pumps are running (2CEC*PNL603), IF available:</p> <ul style="list-style-type: none"> <li>• RDS-P1A, CRD PUMP 1A</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Determines RDS-P1A is already running by observing the control switch is in Normal After Start (red flagged) and amps are indicated on the amp meter on 2CEC*PNL603.</p>

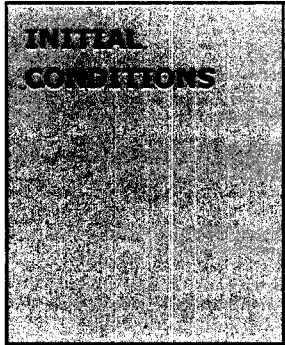



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
7.	<ul style="list-style-type: none"> <li>RDS-P1B, CRD PUMP 1B</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><i>STD: Place RDS-P1B control switch to START position. Depress the switch. Observe RDS-P1B started by increasing on the amp meter. (2CEC*PNL603)</i></p>
8.	Place 2RDS-FC107, CRD FLOW CONTROL, in MANUAL (2CEC*PNL603).	P	<p><b>*PASS / FAIL</b></p> <p><i>STD: On 2CEC*PNL603, for 2RDS-FC107, place the Manual/Auto switch to position "M".</i></p>
<b>Procedure Caution:</b>		To prevent pump motor damage or tripping the supply breaker, RDS pump motor current shall not exceed 40 amps.	
<b>Annunciator Note:</b>		RDS P1A and B amps should be ~23 amps. After performance of this step, amps should rise to ~27 amps.	
9.	Open 2RDS-FC107 UNTIL RDS pump motor current(s) approach 40 amps OR controller output meter is 100% (2CEC*PNL603).		<p><b>*PASS / FAIL</b></p> <p><i>STD: On 2CEC*PNL603, for 2RDS-FC107, depress the OPEN push button. Load FC107 indicates 100% open. Observes that amps for P1A and B do not rise above 40 amps.</i></p>
<b>Alternate Path:</b>		Two seconds after completion of the following step, Annunciator 603318 will alarm. The operator will reference Step H.3.1 to mitigate the event	
<b>Evaluators Note:</b>		At the completion of the below step, RDS-P1A and B amps should be ~28 amps.	

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
10.	IF NOT driving control rods, open 2RDS-PV101, DRIVE WTR PRESS CONTROL MOV, UNTIL RDS pump motor current(s) approach 40 amps OR fully open (2CEC*PNL603).		<b>*PASS / FAIL</b>  <b>STD:</b> Determines there are no rods being driven in. On 2CEC*PNL603, for 2RDS-PV101, places the control switch to OPEN and PV101 indicates full open.
11.	Recognize Annunciator 603318 is in alarm.  <b>Cue:</b> If the operator attempts to check which computer point is in alarm on the plant process computer, place the yellow sticky with the computer point number on the computer screen.  <b>Cue:</b> If required, as CRS acknowledge report of annunciator. Direct the operator to "Respond per the appropriate procedure".		<b>SAT / UNSAT</b>  <b>STD:</b> Observes 603318 annunciator tile is lit. May depress the silent and acknowledge pushbuttons. May report annunciator to CRS.
<b>Evaluator Note:</b>		The next critical step may be performed in multiple ways. The operator may choose to contact a PO and direct them to perform N2-OP-30, Step H.3.1 -or- the operator may choose to direct the PO to perform each step individually. Either method is acceptable. The critical aspect of the below step is that the operator recognize that step H.3.1 is now applicable and direct action in accordance with the step. It is inappropriate for the operator to enter N2-SOP-30 or the actions of the ARP. If the operator gives the PO direction to simply "Swap suction filters" then this step should be graded as "Fail"	
12.	References step H.3.1, contacts a Plant Operator, and direct them to perform N2-OP-30, Step H.3.1.  <b>Cue:</b> As PO, acknowledge direction to perform N2-OP-30, Step H.3.1. or acknowledge the individual step  <b>Cue:</b> If asked as the PO, inform the operator that Suction Filter A is in service.		<b>*PASS / FAIL</b>  <b>STD:</b> Contacts a PO and directs them to perform N2-OP-30, Step H.3.1 or directs the PO to perform each step individually.

PERFORMANCE		ACT. CODE P / S / NA	EVALUATOR
EVALUATOR'S NOTE:	<p>Once a PO is contacted and directed to perform N2-OP-30, Step H.3.1, give the following cue:</p> <p><b>Cue:</b> <i>Your task is complete, another operator will complete any remaining actions.</i></p>		
TERMINATING CUE	<p><i>A Plant Operator is contacted and directed to perform N2-OP-30, Step H.3.1.</i></p>		
STOP TIME			

## JPM Handout

 <p><b>INITIAL CONDITIONS</b></p>	<p>Given:</p> <ul style="list-style-type: none"><li>• The plant has scrammed due to a loss of all condensate pumps</li><li>• The mode switch is in shutdown</li><li>• HPCS and RCIC are unavailable.</li><li>• The crew is executing N2-EOP-RPV, RPV Level Control</li></ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
 <p><b>INITIATING CUE</b></p>	<p><b>(Operators Name),</b> Maximize RDS Flow per N2-OP-30, Control Rod Drive, Section H.3.0</p>

Training Id: **2013 NRC Simulator S-4**Revision: **0.0**Title: **Reset LV10B Lockout and Place FWLC in Automatic (Alternate Path)****Approvals:**Signature / Printed NameDate

Developed By



David Huff

12/18/2013

Validated By

Jason Sawyer

12/03/2013

Facility Reviewer



Aaron Armstrong

1/3/2014

Approximate Duration: 20 minutes

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## References

1. N2-SOP-06, Feedwater Failures

## Instructor Information

### A. JPM Information

1. Description:
  - a. This JPM tests the operator's ability to reset an LV10 lockout and place FWLC in full automatic control.
  - b. This JPM is considered alternate path because once the LV10 is reset and placed back in automatic, the master FWLC controller will fail requiring the operator to place FWLC in manual and restore level to the normal band.
2. Task Information:
  - a. N2-SOP-06-01001, Respond to SOP-06 Feedwater Failures
  - b. K/A 259001, A4.05 (4.0/3.9)
3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Simulator
Time Critical Task	No
Alternate Path	Yes
LOD > 1.0	Yes

4. Recommended Start Location
  - a. Unit 2 Simulator
5. Simulator Setup (if required)
  - a. Prepare the simulator as follows:

- 1) Reset to any full power IC
  - 2) Place LV10B in manual control
  - 3) Adjust LV10B valve position to ~35% open
  - 4) **Insert Malfunction FW52B**, 2FWS-LV10B Lockup
  - 5) Verify the LV10B 86-device has actuated
  - 6) Set LV10B Controller Horizontal Output to ~45%
  - 7) **Delete Malfunction FW52B**
  - 8) Allow plant conditions to stabilize
- b. Set **Malfunction FW13**, FEEDWATER MASTER CONTROLLER FAILURE – HIGH, **FV=95%**, on **Trigger 1** with no Delay Time
- c. Set the following **Event Trigger** on **Event 1**:

Event Action: HZLC33R601B(2)==1

Command: **Blank**

Description: LV10B Controller AUTO Green Indicating Light is ON.

6. JPM Setup (if required)
- a. Prepare a copy of N2-SOP-06. Include a copy of both flow charts marked up to "Restore Valve Control per Attachment 1, Step 1.1.3". Mark up Attachment 1, Steps 1.1.3.a and 1.1.3.b as complete.



## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<p><b>INITIAL CONDITIONS</b></p>	<p>Given:</p> <ul style="list-style-type: none"> <li>• The plant is at 100% power.</li> <li>• The crew has entered N2-SOP-06, Feedwater Failures due to an LV10B Lockup</li> <li>• The cause of the LV10B Lockup was due to an operator inadvertently bumping a power supply breaker on 2NHS-MCC003</li> <li>• The breaker was inspected for damage and determined to be functioning correctly.</li> <li>• Operators have restored power to LV10B.</li> <li>• The Master FWLC Controller is currently controlling LV10A in automatic with LV10B in manual and locked up at ~35% open</li> <li>• There is no evidence that LV10B is drifting or that Feedwater Pump Limits are being challenged.</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<p><b>INITIATING CUE</b></p>	<p><b>(Operators Name),</b> Restore LV10B valve control and return LV10B to automatic control per N2-SOP-06, Attachment 1, Step 1.1.3</p>
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<p><b>START TIME</b></p>	
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	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	<p>Provide repeat back of initiating cue</p> <p><b>Cue:</b> Acknowledge repeat back providing correction if necessary.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.</p>
2.	<p>Obtain a copy of N2-SOP-06 and review / utilize the correct section of the procedure</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Current version of N2-SOP-06 obtained and Attachment 1, Step 1.1.3 reviewed IAW CNG-PR-2.01-1000, Document Control.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
3.	At 2NHS-MCC003, verify power is available AND breaker is ON: <ul style="list-style-type: none"> <li>2NHS-MCC003-7C (2FWS-LV10A)</li> <li>2NHS-MCC003-21B (2FWS-LV10B)</li> <li>2NHS-MCC003-14A (2FWS-LV10C)</li> </ul> At 2FWS-PNL10A (B,C), verify circuit breaker is ON	P	SAT / UNSAT  <i>STD: Determines these steps are already completed per the provided marked up procedure copy.</i>
4.	Verify affected controller 2FWS-HIC1010A (B, C) in Manual	P	SAT / UNSAT  <i>STD: At 2CEC*PNL603, observes the AMBER manual light is lit and the GREEN auto light is not lit on 2FWS-HIC1010B controller.</i>
Procedure Conditions		If the horizontal output indicator does not match actual valve position, the valve will reposition when the 86 device is reset.	
Evaluator Notes		Due to the size of the position increments on the LV10B controller, it may be difficult for an evaluator to determine if the valve position and controller outputs are correctly matched per Steps 5 and 10 of this JPM. The evaluator may ask the simulator booth operator to document the exact values shown on the controller as the candidates complete these steps. The evaluator may then use these values to assist in grading of these steps. See the Evaluator Job Aide at the end of this JPM for additional information.	
5.	Set 2FWS-HIC1010A (B,C) output (horizontal) to match actual valve position	P	PASS / FAIL  <i>STD: At 2CEC-PNL603, using the OPEN and CLOSE pushbutton on 2FWS-HIC1010B, matches the CONTROLLER output meter to within 5% of the actual valve position.</i>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
6.	Verify Annunciator 603143 is clear (within deadband)	P	SAT / UNSAT  <i>STD: At 2CEC*PNL603, observes Annunciator 603143 not lit.</i>
7.	At panel 603, reset 86 device (Control signal reset)	P	<b>*PASS / FAIL</b>  <i>STD: At 2CEC*PNL603, rotates the LV108 CONTROL SIGNAL RESET switch clockwise to reset the lockout.</i>
8.	IF desired, return valve to automatic control as follows:	P	SAT / UNSAT  <i>STD: Per the provided initiating cue determines it is desired to return the valve to automatic control.</i>
9.	<ul style="list-style-type: none"> <li>IF a single feed pump is in service, restore control to automatic per N2-OP-3, F.8.4</li> </ul>	P	SAT / UNSAT  <i>STD: At 2CEC*PNL852, observes that two feed pumps are running and determines this step is not applicable.</i>
<b>Evaluator Note:</b>		Steps 10 and 11 may be performed concurrently.	
10.	<ul style="list-style-type: none"> <li>Using OPEN/CLOSE detent pushbuttons on 2FWS-HIC1010A (B, C) controller, throttle 2FWS-LV10A (B, C), Feedwater Pump 1A (B, C) Level Control Valve, UNTIL input signal (vertical) AND output signal (horizontal) on 2FWS-HIC1010A (B, C) controller are matched</li> </ul>	P	<b>*PASS / FAIL</b>  <i>STD: At 2CEC*PNL603, using the OPEN and CLOSE pushbutton on 2FWS-HIC1010B, matches the CONTROLLER output meter to within 5% of the output meter.</i>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
11.	<ul style="list-style-type: none"> <li>Verify unaffected valve responds to control level</li> </ul>	P	SAT / UNSAT  <b>STD:</b> At 2CEC*PNL603, observes that LV10A position indication responds to control RPV water level.
	<b>Operator Note:</b> After completion of the next step, the Master FWLC Controller will fail causing RPV water to rise. The operator will take manual control of the FWLC system to mitigate the event.		
12.	<ul style="list-style-type: none"> <li>Place 2FWS-LV10A (B, C) in Auto by momentarily depressing Auto (A) pushbutton on 2FWS-HIC1010A (B, C) controller</li> </ul>	P	<b>*PASS / FAIL</b>  <b>STD:</b> At 2CEC*PNL603, depresses the AUTO pushbutton on 2FWS-HIC1010B. Observes the AMBER manual light is not lit and the GREEN auto light lit.
13.	Observe RPV Level is Rising  <b>Cue:</b> As necessary, respond as the CRS to reports of rising RPV water level. Direct the operator to "Respond per the appropriate procedure".	P	SAT / UNSAT  <b>STD:</b> At 2CEC*PNL603, observes that RPV level is rising.
	<b>Evaluator Note:</b> There are several methods available to mitigate this event. The most likely action to take by the operator would be to place the FWLC Master Controller in MANUAL and control level manually. However, the operator may also choose to place LV10B back in MANUAL control and attempt to control level using the OPEN/CLOSE pushbuttons. This is an acceptable action but it may also cause the operator to have to place LV10A in MANUAL as well. In the end, the critical aspect of the below steps is to take MANUAL control of the FWLC system and control level to prevent a Level 3 or 8 trip -and- to prevent a trip of either feed pump due to runout/low suction conditions.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
14.	Place FWLC system in MANUAL	P	<b>*PASS / FAIL</b>  <i>STD: At 2CEC*PNL603, depresses the MANUAL pushbutton for the FWLC Master Controller and/or LV10B and/or LV10A.</i>
15.	Manually operate the FWLC System and restore RPV water level to normal band.	P	<b>*PASS / FAIL</b>  <i>STD: At 2CEC*PNL603, using the OPEN and CLOSE pushbutton on the FWLC Master Controller and/or LV10A, and/or LV10B, adjusts RPV water level to prevent level from reaching the Level 8 trip setpoint (202.5 inches) or the Level 3 trip setpoint (159.3 inches). Additionally, feed flow is controlled such that a feed pump does not trip on low suction or runout conditions. Once level is under control, adjusts the controller to reestablish ~184 inches in the RPV.</i>
<b>Evaluator Note:</b>		At the evaluator's discretion, after the operator has demonstrated that he has adequate control over RPV water level and level is being returned to the normal band, provide the following cue:  <b>Cue:</b> <i>Your task is complete, another operator will complete any remaining actions.</i>	

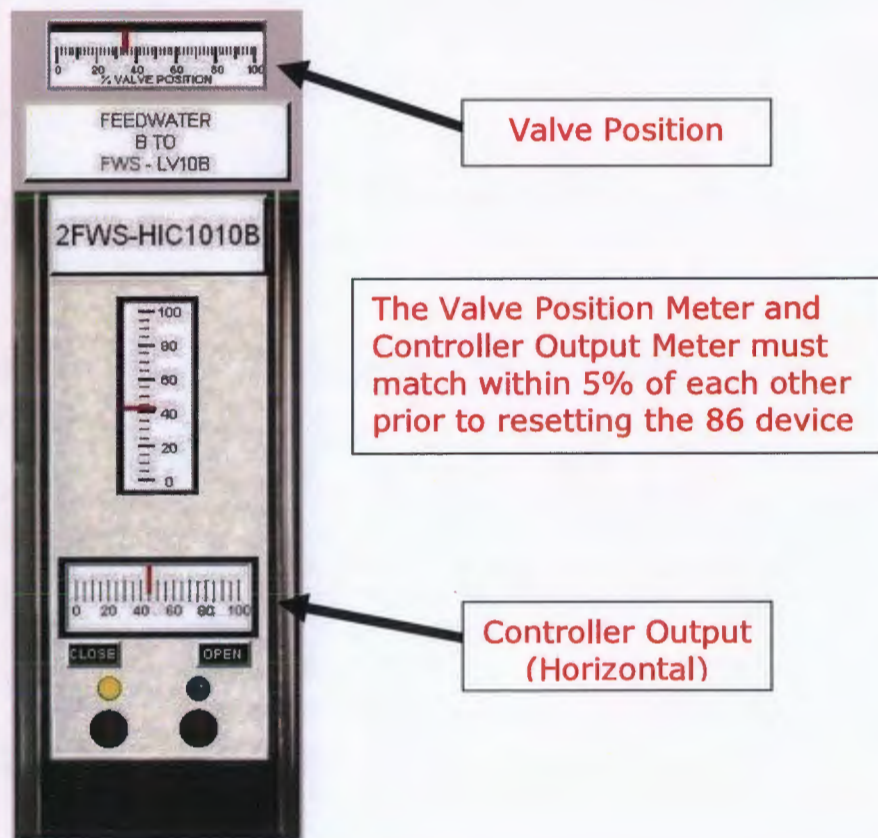
<b>TERMINATING CUE</b>	<i>FWLC Master Controller is in manual control and RPV Water Level is being restored to the normal band.</i>
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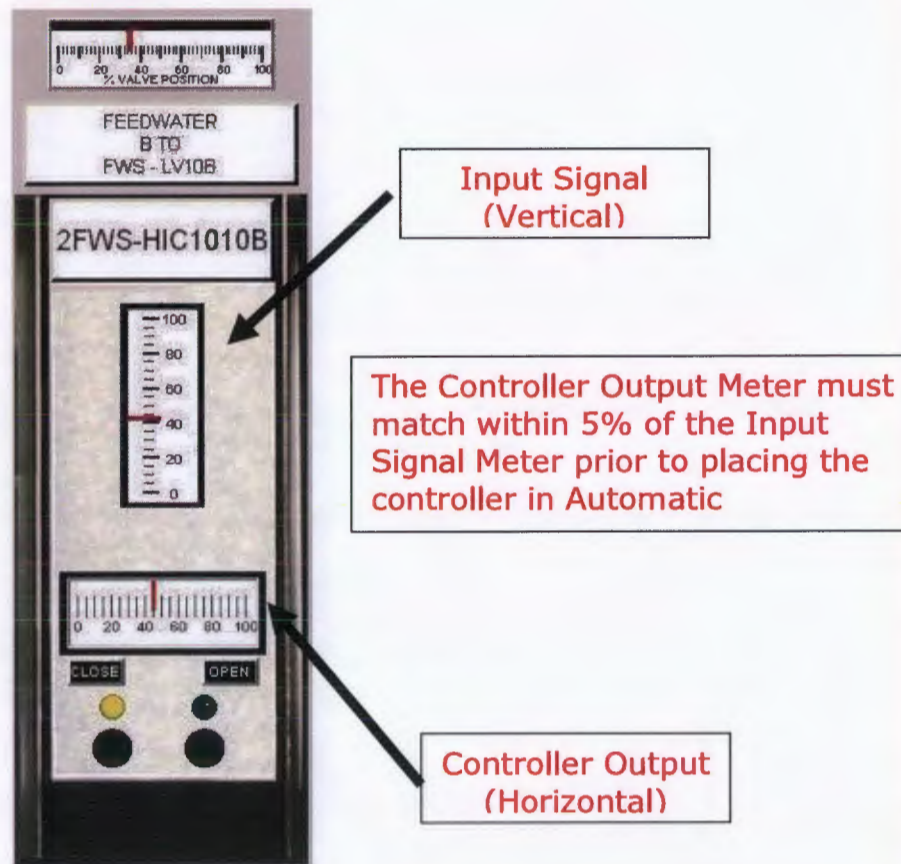


## Evaluator Job Aid Do Not Provide to Candidate

### Step 5:



### Step 10:



## JPM Handout

### INITIAL CONDITIONS

Given:

- The plant is at 100% power.
- The crew has entered N2-SOP-06, Feedwater Failures due to an LV10B Lockup
- The cause of the LV10B Lockup was due to an operator inadvertently bumping a power supply breaker on 2NHS-MCC003
- The breaker was inspected for damage and determined to be functioning correctly.
- Operators have restored power to LV10B.
- The Master FWLC Controller is currently controlling LV10A in automatic with LV10B in manual and locked up at ~35% open
- There is no evidence that LV10B is drifting or that Feedwater Pump Limits are being challenged.

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

### INITIATING CUE



**(Operators Name),** Restore LV10B valve control and return LV10B to automatic control per N2-SOP-06, Attachment 1, Step 1.1.3



Training Id: **2013 NRC Simulator S-5**Revision: **0.0**

**Energize 2ENS\*SWG103 from Division 2 EDG and Energize 2NNS-**  
Title: **SWG015 (Stub Bus) from 2ENS\*SWG103 During a Station Blackout**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Jason Sawyer	12/03/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 20 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. N2-SOP-03, Loss of AC Power
2. N2-SOP-01 and 02, Station Blackout

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operator's ability to Maximize RDS Flow after a reactor scram as well as respond to a high suction strainer differential pressure.
- b. This JPM is considered alternate path because once RDS flow is maximized, a high suction strainer differential pressure alarm will occur. The operator will be required to recognize the degraded condition and take conditional steps to mitigate it in accordance with the operating procedure.

#### 2. Task Information:

- a. N2-SOP-03-01001, Respond to N2-SOP-03, Loss of AC Power
- b. K/A 262001, A4.01 (3.4/3.7)

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Perform
<b>Evaluation Location</b>	Simulator
<b>Time Critical Task</b>	No
<b>Alternate Path</b>	No
<b>LOD &gt;1.0</b>	Yes

#### 4. Recommended Start Location

- a. Unit 2 Simulator

5. Simulator Setup (if required)

a. Prepare the simulator as follows:

- 1) Reset to a Full Power IC
- 2) **Insert the following Malfunctions:**
  - DG05A** EDG1 OVERSPEED
  - DG05B** EDG2 OVERSPEED
  - DG04B** EDG3 FAIL TO UV/LOCA AUTO START
- 3) **Insert Malfunctions ED02A and 02B** Loss of Line 5 and 6
- 4) Place the Mode Switch in Shutdown
- 5) Complete the steps of N2-SOP-03, Attachment 1, Step 1.6 Fault Identification
- 6) Allow plant conditions to stabilize.
- 7) Place the Control Switch for the Division 2 EDG to Start

6. JPM Setup (if required)

- a. Prepare a copy of N2-SOP-03, and markup section 1.6 as complete. Provide a copy the Precautions and Limitations, marked up Section 1.6, Section 1.7, Attachment 8, and Attachment 9.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>• The Reactor has just been manually scrammed.</li> <li>• A Station Blackout (SBO) is in progress.</li> <li>• A loss of coolant condition does NOT exist.</li> <li>• 2ENS*SWG 103 &amp; 2NNS-SWG015 are required for SBO recovery.</li> <li>• Division 2 Emergency Diesel Generator is running</li> <li>• Fault identification per N2-SOP-03, Attachment 1, Section 1.6 is complete</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<p><b>(Operators Name)</b>, Energize 2ENS*SWG103 from the DIV 2 EDG and 2NNS-SWG015 from 2ENS* SWG103, in accordance with N2-SOP-03, Attachment 1, Section 1.7.</p>
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<b>START TIME</b>	
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	<b>PERFORMANCE</b>	<b>ACT. CODE</b> P / S / NA	<b>EVALUATOR</b>
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of N2-SOP-03 and review / utilize the correct section of the procedure	P	SAT / UNSAT  <b>STD:</b> Current version of N2-OP-03 obtained and Attachment 1, Step 1.7.5 and Attachment 8 reviewed IAW CNG-PR-2.01-1000, Document Control.
<b>Procedure Note:</b>	The following steps are performed at Panel 852 unless otherwise noted.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
3.	<p>Attachment 8 Prerequisites:</p> <p>PRIOR to executing the following steps, power must be available from one of the following sources:</p> <ul style="list-style-type: none"> <li>• Reserve Station Service Transformer 1B (Attachment 6)</li> <li>• Aux Boiler transformer (Attachment 10)</li> <li>• Division II EDG (2EGS*EG3) (N2-OP-100A)</li> <li>• Division III EDG (2EGS*EG2) (N2-OP-100B)</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Per the turnover provided, determines power is available from the Division 2 EDG.</p>
4.	<p>Attachment 1, Section 1.6, Fault Identification and Isolation, is complete.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Per the turnover provided, determines Attachment 1, Section 1.6 Fault Identification is Complete.</p>
5.	<p>Upon completion of Attachment 8, return to Attachment 1, Section 1.7, as appropriate to restore power to the plant.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Determines return to Attachment 1, Section 1.7 is not required at this time.</p>
6.	<p>At switchgear 2ENS*SWG103 (CB 261'), verify reset the following lockouts:</p> <ul style="list-style-type: none"> <li>• 86A-2ENSY02 for Breaker 103-2</li> <li>• 86B-2ENSY02 for Breaker 103-2</li> <li>• 86A-2ENSY01 for Breaker 103-4</li> <li>• 86B-2ENSY01 for Breaker 103-4</li> <li>• 86C-2ENSY01 for Breaker 103-N2</li> <li>• 86C-2ENSY02 for Breaker 103-N2</li> <li>• 86-2EJSY03 for Breaker 103-1</li> <li>• 86-2EJSY04 for Breaker 103-13</li> </ul> <p><b>Cue:</b> As PO, inform the operator that all lockouts listed in Attachment 8 Step 8.1.4 are reset.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Contacts a PO and directs them to reset lockouts on 2ENS*SWG103 per N2-SOP-03, Attachment 8, Step 8.1.4</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
7.	Attachment 8, Section 8.4:  At 2ENS*SWG103 (CB 261') verify reset the following lockouts: <ul style="list-style-type: none"> <li>• 86 2EGPY01 for Breaker 103-13</li> <li>• 86-2-2EGPY02 for Breaker 103-14</li> <li>• 86-1-2EGPY02 for Breaker 103-14</li> </ul> <b>Cue:</b> As PO, inform the operator that all lockouts listed in Attachment 8 Step 8.4.1 are reset.	P	SAT / UNSAT  <b>STD:</b> Contacts a PO and directs them to reset lockouts on 2ENS*SWG103 per N2-SOP-03, Attachment 8, Step 8.4.1
8.	Place the SYNC switch to ON (SYNCHRONIZE TO BUS 103)	P	<b>*PASS / FAIL</b>  <b>STD:</b> On 2CEC*PNL852, places the Division 2 EDG SYNCHRONIZE TO BUS 103 switch to ON.
9.	Close 103-14	P	<b>*PASS / FAIL</b>  <b>STD:</b> On 2CEC*PNL852, places BREAKER 103-14 control switch to CLOSE.
10.	Place the SYNC switch to OFF	P	SAT / UNSAT  <b>STD:</b> On 2CEC*PNL852, places the Division 2 EDG SYNCHRONIZE TO BUS 103 switch to OFF.
11.	At Panel 601, verify started, one Division II service water pump.	P	SAT / UNSAT  <b>STD:</b> On 2CEC*PNL601, observes GREEN LIGHT off and RED LIGHT on for 2SWP*P1B.
<b>Procedure Caution:</b>		Fluid systems may have drained due to the loss of power.	



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
12.	<p>Start additional loads as directed by SM/CRS in accordance with Attachment 12 Section 12.1</p> <p><b>Cue:</b> As SM, inform the operator that no additional loads need to be started at this time.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Contacts the SM and determines no additional loads need to be started at this time.</p>
13.	<p>Return to Attachment 1, Section 1.7 and then reference Attachment 9.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> References Attachment 1 Section 1.7 and determines Attachment 9 is the next section to go to.</p>
14.	<p>Prerequisites:</p> <p>PRIOR to executing the following steps, power must be available from one of the following sources:</p> <ul style="list-style-type: none"> <li>• 2NPS-SWG003 (Attachment 7)</li> <li>• 2ENS*SWG103 (Division II Emergency Switchgear) (Attachment 8)</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Determines power is available from 2ENS*SWG103.</p>
15.	<p>Attachment 1 Section 1.6 Fault Identification and Isolation is complete.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Per the turnover provided, determines Attachment 1, Section 1.6 Fault Identification is Complete.</p>
16.	<p>Upon completion of Attachment 9, return to Attachment 1, Section 1.7, as appropriate to restore power to the plant.</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Determines return to Attachment 1, Section 1.7 is not required at this time.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
17.	At Panel 804 (CB 288'), verify reset 86-2NNSY15 (4.16KV BUS NNS-015 PROTECTION LOCKOUT RELAY).  <b>Cue:</b> As PO, inform the operator that the lockout listed in Attachment 9 Step 9.1.4 is reset.	P	SAT / UNSAT  <b>STD:</b> Contacts a PO and directs them to reset the lockout on Panel 804 per N2-SOP-03, Attachment 9, Step 9.1.4
<b>Procedure Caution:</b>		Energizing 2NNS-SWG015 from 2ENS*SWG103 when the Div II Diesel is supplying the bus is not permitted during a LOCA.	
18.	Section 9.3:  Place 15-3 in PULL-TO-LOCK.	P	SAT / UNSAT  <b>STD:</b> On 2CEC*PNL852, determines Breaker 15-3 is already in PULL-TO-LOCK.
<b>Procedure Note:</b>		The following step requires a PA 2235 Key located in the CRO's desk.	
19.	IF 2NNS-SWG015 is needed for SBO recovery, THEN at Panel 852, place the Div II LOCA SIGNAL BYPASS switch to ON.	P	<b>*PASS / FAIL</b>  <b>STD:</b> Determines per the turnover that 2NNS-SWG015 is needed for SBO recovery. Obtains a PA 2235 Key from the CRO Desk and at 2CEC*PNL852, places the DIVISION 2 LOCA SIGNAL BYPASS keylock switch to ON.
20.	Do NOT exceed the emergency diesel generator rating, 4400 KW (4840 KW 2 hour limit) WHEN re-energizing STUB Bus 2NNS-SWG015.	P	SAT / UNSAT  <b>STD:</b> Observes on the Division 2 EDG Load Meter at 2CEC*PNL852 that the diesel is operating with <4400 KW load.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
21.	At 2ENS*SWG103 (CB 261'), verify reset 86-2ENSY12. (Breaker 103-8)  <b>Cue:</b> As PO, inform the operator that the lockout listed in Attachment 9 Step 9.3.4 is reset.	P	SAT / UNSAT  <b>STD:</b> Contacts a PO and directs them to reset the lockout on 2ENS*SWG103 per N2-SOP-03, Attachment 9, Step 9.3.4
22.	Close 103-8	P	<b>*PASS / FAIL</b>  <b>STD:</b> On 2CEC*PML852, places BREAKER 103-8 control switch to CLOSE
23.	Close 15-8.	P	<b>*PASS / FAIL</b>  <b>STD:</b> On 2CEC*PML852, places BREAKER 15-8 control switch to CLOSE

<b>TERMINATING CUE</b>	2ENS*SWG103 is being powered from the Division 2 EDG and 2NNS-SWG015 is being powered from 2ENS*SWG103.
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<b>STOP TIME</b>	
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## JPM Handout

### INITIAL CONDITIONS

Given:

- The Reactor has just been manually scrammed.
- A Station Blackout (SBO) is in progress.
- A loss of coolant condition does NOT exist.
- 2ENS\*SWG 103 & 2NNS-SWG015 are required for SBO recovery.
- Division 2 Emergency Diesel Generator is running
- Fault identification per N2-SOP-03, Attachment 1, Section 1.6 is complete

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

### INITIATING CUE


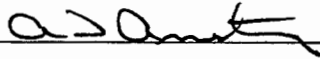
**(Operators Name)**, Energize 2ENS\*SWG103 from the DIV 2 EDG and 2NNS-SWG015 from 2ENS\* SWG103, in accordance with N2-SOP-03, Attachment 1, Section 1.7.

Training Id: **2013 NRC Simulator S-6**

Revision: **0.0**

Title: **Bypass RCIC Room High Temperature Isolation (Alternate Path)**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Jason Sawyer	12/03/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 15 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## References

1. N2-SOP-02, Station Blackout Support Procedure

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operator's ability bypass the RCIC Room High Temperature Isolations during a Station Blackout as well as reset a RCIC Turbine Trip from the Control Room.
- b. This JPM is considered alternate path because once the RCIC Room High Temperature Isolations have been bypassed, a RCIC Turbine Trip will occur. The operator will mitigate by resetting the RCIC turbine from the Control Room.

#### 2. Task Information:

- a. N2-21700-01048, Latch the RCIC TTV From The Control Room
- b. K/A 217000, A4.02 (3.9/3.9)

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Perform
<b>Evaluation Location</b>	Simulator
<b>Time Critical Task</b>	No
<b>Alternate Path</b>	Yes
<b>LOD &gt;1.0</b>	Yes

#### 4. Recommended Start Location

- a. Unit 2 Simulator

5. Simulator Setup (if required)

- a. Prepare the simulator as follows:
  - 1) Reset to a full power IC
  - 2) Place the Mode Switch in Shutdown and manually trip the turbine
  - 3) Insert **Malfunctions ED02A** and **ED02B**, Loss of Lines 5 and 6.
  - 4) Manually initiate RCIC
  - 5) Insert **Remote Function RC02A**, RCIC Level 8 Defeated,  
**FV=DEFEATED**
  - 6) Manually Initiate Division 1 and 2 ECCS Systems
  - 7) Insert **Malfunctions ED05A**, **ED05B**, and **ED05C** to deenergize  
Division 1, 2, and 3 emergency busses.
  - 8) Insert **Malfunction RR20**, DBA LOCA at a value of **0.2%**
  - 9) Insert **Override AN601332**, RCIC TEMPERATURE HIGH to **ON**
- b. Set **Malfunction RC06**, RCIC TURBINE TRIP **FV=TRUE** on **Trigger 1**  
with a no time delay
- c. Set the following **Event Trigger** on **Event 1**:  
Event Action: **ZDLDS4B(1)==1**  
Command: **Blank**  
Description: Keylock Switch E31-S4B in BYPASS.
- d. Set the following **Event Trigger** on **Event 2**:  
Event Action: **HZLRCV150(2)==0**  
Command: **DMF RC06**  
Description: MOV150 Red Light Off.



6. JPM Setup (if required)

- a. Prepare a copy of N2-SOP-02, Attachment 4. No steps need to be marked up.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>The plant has experienced a Station Blackout.</li> <li>N2-SOP-2, Station Blackout Support Procedure, is in progress.</li> <li>Drywell pressure is above 1.68 psig due to a LOCA</li> <li>RCIC is in service, injecting into the core.</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<p><b>(Operators Name), ) Bypass the RCIC Room High Temperature Isolations in accordance with N2-SOP-02, Attachment 4.</b></p>
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<b>START TIME</b>	
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	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of N2-SOP-02 and review / utilize the correct section of the procedure,  Determines that Attachment 4, Step 3.1 is not applicable at this time.	P	SAT / UNSAT  <b>STD:</b> Current version of N2-SOP-02 obtained and Attachment 4 reviewed IAW CNG-PR-2.01-1000, Document Control.
<b>Procedure Note:</b>	The following annunciators will alarm during performance of the next step: <ul style="list-style-type: none"> <li>601306, Division I RWCU/RCIC/RHR ISOLATION IN BYPASS</li> <li>601307, DIVISION II RWCU/RCIC/RHR ISOLATION IN BYPASS</li> </ul>		
3.	Places the following switches in BYPASS <ul style="list-style-type: none"> <li>E31A-S2A, STEAM SUPPLY LINE OUTBD ISOL. VLV. BYPASS ICS*MOV121</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Operator key from the CNO desk and on the ZOECS*MOV121 places the ICS switch E31A-S2A to BYPASS</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
4.	<ul style="list-style-type: none"> <li>E31A-S4A, RHR/RCIC ISOLATION BYPASS</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Obtains a key from the CRO desk and at 2CEC*PNL601, places keylock switch E31A-S4A to BYPASS.</p>
5.	<ul style="list-style-type: none"> <li>31A-S2B, STEAM SUPPLY LINE INBD ISOL. VLV. BYPASS ICS*MOV128</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Obtains a key from the CRO desk and at 2CEC*PNL602, places keylock switch E31A-S2B to BYPASS.</p>
<b>After-Event Action:</b>		Completion of the next step will cause the RCIC Turbine to trip. The operator will mitigate the event by resetting the RCIC TTV from the Control Room	
6.	<ul style="list-style-type: none"> <li>E31A-S4B, RHR/RCIC ISOLATION BYPASS</li> </ul>	P	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> Obtains a key from the CRO desk and at 2CEC*PNL603, places keylock switch E31A-S4B to BYPASS.</p>
7.	<p><b>Cue:</b> If the operator does not respond to the RCIC turbine trip, provide a prompt to have them evaluate conditions on 2CEC*PNL601.</p> <p>Identify and report RCIC Turbine Has Tripped</p> <p><b>Cue:</b> As CRS, acknowledge report. Inform the operator that the cause of the trip is known and corrected. Direct the operator to reset and reopen 2ICS*MOV150 from the control room.</p>	P	<p><b>SAT / UNSAT</b></p> <p><b>STD:</b> Identifies that Annunciators 601301 and 601305 are in alarm. Observes the 2ICS*MOV150 is closed. Informs the CRS.</p>
<b>Procedure Notes:</b>		The following annunciators will alarm during performance of the next step: <ul style="list-style-type: none"> <li>852136 EDG 1 LOCA Bypass Switch ON</li> </ul>	

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
8.	References N2-SOP-02, Attachment 4, Step 3.1:  IF the RCIC turbine trip throttle valve (2ICS*MOV150) trips with a LOCA signal present, THEN perform the following: <ul style="list-style-type: none"> <li>Place in ON the Division I LOCA SIGNAL BYPASS switch at P852</li> </ul>	P	<b>PASS / FAIL</b>  <b>STD:</b> Once the LOCA signal is present, the operator will place the Division I key from the control room at 2CEC*PNL852, places the DIVISION I EDG LOCA SIGNAL BYPASS keylock switch to BYPASS
9.	<ul style="list-style-type: none"> <li>Reset 2ICS*MOV150 at P601</li> </ul>	P	<b>PASS / FAIL</b>  <b>STD:</b> At 2CEC*PNL601, places the Control Switch for ICS*MOV150 to CLOSE and closes the valve as indicated by the GREEN light lit and RED light not lit.
<b>Procedure Note:</b>		The following annunciator will clear during performance of the next step: <ul style="list-style-type: none"> <li>852136 EDG 1 LOCA Bypass Switch ON</li> </ul>	
10.	<ul style="list-style-type: none"> <li>At Panel 2CEC*PNL852, verify LOCA SIGNAL BYPASS switch in OFF for 2EGS*EG1 Division I Diesel Generator</li> </ul>	P	<b>SAT / UNSAT</b>  <b>STD:</b> At 2CEC*PNL851, places the DIVISION 1 EDG LOCA SIGNAL BYPASS keylock switch to OFF
<b>Evaluation Note:</b>		The reopening of 2ICS*MOV150 may be done prior to placing the LOCA SIGNAL BYPASS switch to OFF. Additionally, the operator may choose to reference N2-EOP-HC and/or N2-OP-35 for guidance on reopening 2ICS*MOV150. The critical step is to reopen 2ICS*MOV150 from CEC*PNL601. Which procedure (or no procedure) they use to accomplish this is not important to the grading of the step.	

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
11.	Open 2ICS*MOV150	P	<p><b>*PASS / FAIL</b></p> <p><i>STD: At 2CEC*PASS04, Places the Control Switch for ICS*MOV150 to OPEN and opens the valve as indicated by the GREEN light (OK) and RED light (X). The operator may choose to manually open MOV150 using intermittent operation of the control switch. This is also acceptable.</i></p>

<b>EVALUATOR NOTES</b>	<p>Once 2ICS*MOV150 has been opened, provide the following cue:</p> <p><b>Cue:</b> <i>Your task is complete, another operator will complete any remaining actions.</i></p>
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<b>TERMINATING CUE</b>	<p><i>The RCIC Room High Temperature Isolations are bypassed and 2ICS*MOV150 has been reset and reopened.</i></p>
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<b>STOP TIME</b>	
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## JPM Handout

### INITIAL CONDITIONS

Given:

- The plant has experienced a Station Blackout.
- N2-SOP-2, Station Blackout Support Procedure, is in progress.
- Drywell pressure is above 1.68 psig due to a LOCA
- RCIC is in service, injecting into the core.

**Evaluator:** *Ask trainee if he/she has any questions after presenting initial conditions*

### INITIATING CUE


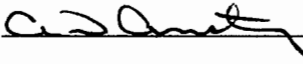
**(Operators Name),** ) *Bypass the RCIC Room High Temperature Isolations in accordance with N2-SOP-02, Attachment 4.*

Training Id: **2013 NRC Simulator S-7**

Revision: **0.0**

**Override the Control Room Envelope ACU Cross-Divisional**  
Title: **Operating Interlock (Time Critical)**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Jason Sawyer	12/03/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 13 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## References

1. N2-OP-53A, Control Building Ventilation System

## Instructor Information

### A. JPM Information

1. Description
  - a. This JPM tests the operator's ability to override the Control Room Envelope ACU Cross-Divisional Operating Interlock.
  - b. The critical tasks of this JPM must be completed within 13 minutes of starting the JPM. Failure to complete the steps may cause the control room temperature to rise above 90°F.
2. Task Information:
  - a. N2-288003-01051, Perform Override of Control Room Envelope ACU Cross-Divisional Operations Interlock
  - b. K/A 290003 A3.01 3.3/3.5
3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Simulator
Time Critical Task	Yes
Alternate Path	No
LOD > 1.0	Yes

4. Recommended Start Location
  - a. Unit 2 Simulator
5. Simulator Setup (if required)
  - a. Prepare the simulator as follows:

- 1) Reset to full power IC
  - 2) Place the control switches for ACU1A and 2A to PULL TO LOCK.  
Observe that ACU1B and 2B have auto started. The interlocks have a time delay so it may take a few seconds.
  - 3) Place the control switches for ACU1A and 2A back to RED FLAG.  
ACU1A and 2A should not restart due to interlock. The point is to make it look like ACU1A and 2A tripped and 1B and 2B auto started.
  - 4) Insert **Overrides** for **AN870326** and **AN870327**, CONTROL ROOM C UNIT 1A AUTO TRIP and RELAY ROOM AC UNIT 2A AUTO TRIP, **FV=CRY WOLF**
  - 5) Insert **Override AN849128**, FIRE DETECTED PNL 129 W STAIR/288, **FV=CRY WOLF**
6. JPM Setup (if required)
- a. Prepare a copy of N2-OP-53A, Section 15.0. Include a copy of the precautions and limitations.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>The reactor is at 100% power.</li> <li>A fire has occurred in the Control Building</li> <li>Annunciator 849128, FIRE DETECTED PNL 129 W STAIR/288 is in alarm, with Fire Zone 352 NW as the affected zone.</li> <li>The Fire Brigade Leader has confirmed the fire</li> <li>2HVC*ACU1A and 2A were running and have since tripped due to the fire.</li> <li>2HVC*ACU1B and 2HVC*ACU2B have auto started.</li> <li>The Shift Manager's permission has been received to override the control room envelope ACU cross-divisional operating interlock.</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<p><b>(Operators Name)</b>, Override the Control Room Envelope ACU Cross-Divisional Operating Interlock per N2-OP-53A, Section H.15.0.</p> <p><i>This is a Time Critical JPM</i></p>
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<b>START TIME</b>	
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	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of N2-OP-53A and review / utilize the correct section of the procedure	P	SAT / UNSAT  <b>STD:</b> Current version of N2-OP-53A obtained and Step H.15.0 reviewed IAW CNG-PR-2.01-1000, Document Control.
<b>Procedure</b> <ul style="list-style-type: none"> <li>The control logic for the Control Room Envelope air handling units</li> </ul>			

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>NOTE:</b>	<p>2HVC*ACU1A/B and *ACU2A/B includes a start permissive which precludes simultaneous operation the units and is intended to auto start the unit in the opposite division in the event of a trip of the running unit. A fire affecting one division has the potential to override this interlock such that the opposite division ACU may become disabled. This subsection will utilize override switches to ensure operability of the division without the fire.</p> <ul style="list-style-type: none"> <li>Actuation of the override switches is required to be completed within 13 minutes after a fire that has disabled the previously running Control Room Envelope ACUs to ensure Control Room Envelope temperature remains &lt;90°F.</li> <li>This section is only used in response to a confirmed fire in Fire Areas 16, 17, 18 or 19.</li> <li>The actions in this section are performed at 2CEC*PNL870(871) unless otherwise specified.</li> <li>The Fire Zones listed in Step H.15.1 affect Division I components.</li> </ul>		
3.	<p>IF the fire is in any of the following Fire Zones:</p> <ul style="list-style-type: none"> <li>321NW - Cable Chase West, Control Bldg, 237' (Fire Area 16)</li> <li>332NW - Cable Chase West, Control Bldg, 261' (Fire Area 16)</li> <li>352NW - Cable Chase West, Control Bldg, 288'6" (Fire Area 16)</li> <li>371NW - Cable Chase West, Control Bldg, 306' (Fire Area 16)</li> <li>333XL - Div I Switchgear Room, Control Bldg, 261' (Fire Area 17)</li> </ul> <p>THEN perform the following:</p>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Determines per the turnover that the fire is in Fire Zone 352 NW (Fire Area 16). Determines that the Division 1 ACUs are affected and that the Cross-Divisional interlocks need to be disabled for Division 2 components. Continues on in Section H.15.1.</p>
4.	<p>Check the following ACUs are available OR are in service:</p> <ul style="list-style-type: none"> <li>HVC*ACU1B, CONTROL ROOM AC FAN</li> <li>HVC*ACU2B, RELAY ROOM AC FAN</li> </ul>	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes the RED running lights for ACU1B and 2B are lit and that the GREEN not-running lights are not lit.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>Procedure Note:</b>	The following steps will cause an auto start of HVC*ACU1B and *ACU2B, if not already running.		
5.	Verify control switch is in PULL-TO-LOCK for the following: <ul style="list-style-type: none"> <li>HVC*ACU1A, CONTROL ROOM AC FAN</li> </ul>	P	<b>*PASS / FAIL</b>  <i>STD: At 2CEC*PNLB70, places the control switch for HVC*ACU1A in Pull-To-Lock.</i>
6.	<ul style="list-style-type: none"> <li>HVC*ACU2A, RELAY ROOM AC FAN</li> </ul>	P	<b>*PASS / FAIL</b>  <i>STD: At 2CEC*PNLB70, places the control switch for HVC*ACU2A in Pull-To-Lock.</i>
7.	Notify SM to declare 2HVC*ACU1A AND 2HVC*ACU2A inoperable AND to take actions per TS 3.7.2 AND 3.7.3.  <b>Cue:</b> As SM, inform the operator that ACU1A and 2A have been declared inoperable and TS 3.7.2 and 3.7.3 have been reviewed.	P	SAT / UNSAT  <i>STD: Contact the SM and informs him that HVC*1A and 2A are inoperable.</i>
8.	Obtain SM permission to override the HVC ACU cross divisional operating interlock for 2HVC*ACU1A AND 2HVC*ACU2A  <b>Cue:</b> If necessary, as the SM, inform the operator that he has permission to override the cross divisional interlock for ACU1A and 2A.	P	SAT / UNSAT  <i>STD: Refers to the initial conditions and determines that the SM has been given permission to override the cross divisional interlocks for ACU1A and 2A.</i>
<b>Procedure Note:</b>	If HVC*ACU1B is not running, the following step should cause an automatic start of HVC*ACU1B.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
9.	At 2CEC*PNL871, place keylock switch APPENDIX R CR ACU1B OVERRIDE SW, to OVERRIDE.	P	<b>*PASS / FAIL</b>  <i>STD:</i> Obtains a key from the CRO desk and at 2CEC*PNL871, places the APPENDIX R CR ACU1B OVERRIDE KEYLOCK SW to OVERRIDE.
10.	Verify HVC*ACU1B running.	P	SAT / UNSAT  <i>STD:</i> Observes the RED running light is lit and the GREEN off light is not lit for ACU1B
11.	WHILE continuing in this subsection, wait approximately 2 minutes, THEN confirm proper operation of HVC*ACU1B.	P	SAT / UNSAT  <i>STD:</i> Determines the time the Appendix R switch was placed in OVERRIDE and determines when two minutes will be completed. Continues on to the next step while waiting for two minutes to be complete.
12.	Place HVC*ACU1B control switch, CONTROL ROOM AC FAN, in Normal-After-START.	P	SAT / UNSAT  <i>STD:</i> At 2CEC*PNL871, places the control switch for HVC*ACU1B in NORMAL-AFTER-START (i.e. Red Flag).
<b>Procedure Note</b>	If HVC*ACU2B is not running, the following step should cause an automatic start of HVC*ACU2B.		
13.	At 2CEC*PNL871, place keylock switch APPENDIX R RR ACU2B OVERRIDE SW, to OVERRIDE.	P	<b>*PASS / FAIL</b>  <i>STD:</i> Obtains a key from the CRO desk and at 2CEC*PNL871, places the APPENDIX R RR ACU2B OVERRIDE KEYLOCK SW to OVERRIDE.



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>Evaluators Note:</b>	<p>Once the second Appendix R switch is placed in OVERRIDE, mark down the time the step was completed here: _____</p> <p>Calculate the time the operator took to complete the critical steps of the JPM by subtracting the start time from the time documented above. Document the completed time here: _____ minutes</p>		
14.	Evaluator, determine if the critical task completion time was within the required timeframe.	N/A	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> All operator critical steps of this JPM completed within 15 minutes from the start of the JPM.</p>
15.	Verify HVC*ACU2B running.	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Observes the RED running light is lit and the GREEN off light is not lit for ACU2B</p>
16.	WHILE continuing in this subsection, wait approximately 2 minutes, THEN confirm proper operation of HVC*ACU2B.	P	<p>SAT / UNSAT</p> <p><b>STD:</b> Determines the time the Appendix R switch was placed in OVERRIDE and determines when two minutes will be completed. Continues on to the next step while waiting for two minutes to be complete.</p>
17.	Place HVC*ACU2B control switch, RELAY ROOM AC FAN, in Normal-After-START.	P	<p>SAT / UNSAT</p> <p><b>STD:</b> At 2CEC*PNL871, places the control switch for HVC*ACU2B in NORMAL-AFTER-START (i.e. Red Flag).</p>
<b>Evaluators Note:</b>	<p>Once the HVC*ACU2B control switch is placed in NORMAL-AFTER-START, provide the following cue:</p> <p><b>Cue:</b> Your task is complete. Another operator will complete any remaining actions.</p>		

**TERMINATING  
CUE**

*The two appendix R switches for ACU1B and 2B have been placed in  
OVERRIDE.*

**STOP TIME**

## JPM Handout

### INITIAL CONDITIONS

Given:

- The reactor is at 100% power.
- A fire has occurred in the Control Building
- Annunciator 849128, FIRE DETECTED PNL 129 W STAIR/288 is in alarm, with Fire Zone 352 NW as the affected zone.
- The Fire Brigade Leader has confirmed the fire
- 2HVC\*ACU1A and 2A were running and have since tripped due to the fire.
- 2HVC\*ACU1B and 2HVC\*ACU2B have auto started.
- The Shift Manager's permission has been received to override the control room envelope ACU cross-divisional operating interlock.


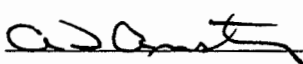
**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

### INITIATING CUE

**(Operators Name),** Override the Control Room Envelope ACU Cross-Divisional Operating Interlock per N2-OP-53A, Section H.15.0.

*This is a Time Critical JPM*

Training Id: **2013 NRC Simulator S-8**Revision: **0.0**Title: **Respond to an Inadvertent Closure of 2SWP\*MOV50B****Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Jason Sawyer	12/03/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014

Approximate Duration: 20 minutes**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. N2-SOP-11, Loss or Degraded SWP System

## Instructor Information

### A. JPM Information

1. Description
  - a. This JPM tests the operator's ability to respond to an inadvertent closure of 2SWP\*MOV50B per N2-SOP-11
2. Task Information:
  - a. N2-SOP-11-01001, Respond to SOP-11, Loss of or Degraded Service Water System
  - b. K/A 400000, A4.01 (3.1/3.0)
3. Evaluation / Task Criteria

Evaluation Method	Perform
Evaluation Location	Simulator
Time Critical Task	No
Alternate Path	No
LOD > 1.0	Yes

4. Recommended Start Location
  - a. Unit 2 Simulator
5. Simulator Setup (if required)
  - a. Prepare the simulator as follows:
    - 1) Reset to full power IC
    - 2) Place the control switches for 2SWP\*MOV50B in the CLOSE position and allow it to fully shut.

- 3) Allow plant conditions to stabilize for a few minutes.
6. JPM Setup (if required)
    - a. Prepare a copy of N2-SOP-11. Include a copy of the Discussion section as well as Attachment 1.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.



<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>• The plant is at 100% power</li> <li>• An inadvertent closure of 2SWP*MOV50B, PMP 1B DISCH HEADER CROSS-TIE ISOL VLV occurred.</li> <li>• NO Operator Actions have been completed.</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<p><b>(Operators Name)</b>, Enter N2-SOP-11, Loss or Degraded Service Water and perform all applicable actions for an inadvertent closure of 2SWP*MOV50B.</p>
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<b>START TIME</b>	
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	<b>PERFORMANCE</b>	<b>ACT. CODE</b> P / S / NA	<b>EVALUATOR</b>
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of N2-SOP-11 and review / utilize the correct section of the procedure	P	SAT / UNSAT  <b>STD:</b> Current version of N2-OP-11 obtained and the flowchart and Attachment 11 reviewed IAW CNG-PR-2.01-1000, Document Control. Writes the Date and Time the SOP was entered on the top of the flowchart.
<b>Evaluators Note:</b>	Steps 3 through 6 may be performed in any order and/or may be delayed until the "THEN" statement of the override is ready to be performed.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
3.	Reviews the overrides of N2-SOP-11 and determines the following overrides are met: <ul style="list-style-type: none"> <li>SWP pump flow is GREATER THAN 10,000 gpm</li> </ul>	P	SAT / UNSAT  <b>STD:</b> On 2CEC*PNL601, observes that the Division 1 SWP flow indicators 2SWP*FI96A and C indicate SWP P1A and C flows are >10K gpm.
4.	<ul style="list-style-type: none"> <li>Additional SWP flow is required</li> </ul>	P	SAT / UNSAT  <b>STD:</b> On 2CEC*PNL601, observes that the Division 1 SWP flow indicators 2SWP*FI96A and C indicate SWP P1A and C flows are >10K gpm and that additional SWP flow could be necessary at this time.
5.	<ul style="list-style-type: none"> <li>Pump flow can NOT be maintained above low flow alarm,</li> </ul>	P	SAT / UNSAT  <b>STD:</b> On 2CEC*PNL601, observes that Annunciator 601219 is in alarm and that 2SWP*FI96B and D indicate low flow.
6.	<ul style="list-style-type: none"> <li>2SWP*MOV50A(B) is inadvertently closed AND SWP non-essential header isolation valves are NOT closed.</li> </ul> <p><b>Cue:</b> If asked, inform the operator that MOV50B was inadvertently shut due to operator error.</p>	P	SAT / UNSAT  <b>STD:</b> Determines per the turnover that 2SWP*MOV50B inadvertently closed. Additionally, on 2CEC*PNL601, observes the RED OPEN light lit and the GREEN CLOSED light not lit for 2SWP*MOV50B.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>Evaluators Note:</b>	<p>There are several strategies for successful mitigation of this event prior to executing Attachment 1. The expected course of action would be for the operator to first start SWP P1E and then throttle the MOV74's of the Division 1 pumps to maintain flows <math>\leq 10K</math> gpm. The low flow alarm on Division 2 would then be mitigated by establishing SWP flow through RHS B Heat Exchanger. Alternatively, the operator may choose to not start an extra Division 1 pump at this time and instead choose to only throttle the MOV74s on the already running Division 1 pumps. Either of these methods is acceptable. If the operator chooses not to start another pump at this time, then that step may marked as N/A and is not required to be graded.</p>		
<b>Evaluators Note:</b>	<p>Steps 7, 8, and 9 may be performed in any order. Step 11 (Attachment 1) however should not be performed without first completing Steps 8 and 9.</p>		
<b>Evaluators Note:</b>	<p>While executing the following step, the operator may choose to reference N2-OP-11 for starting of the additional service water pump. Additionally, the operator may choose to use the general guidance of N2-SOP-11 for starting of the pump. Either method is acceptable.</p>		
7.	<p>Start additional SWP pumps.</p> <p><b>Cue:</b> <i>As appropriate, if contacted as a PO, provide feedback to the operator that prestart checks/venting of strainers/good start checks/etc. have been completed.</i></p>	P	<p><b>*PASS / FAIL / NA</b></p> <p><i>STD: On 2CEC*FI96A, places the Control Switch for 2SWP*P1E in NORMAL-AFTER-START. Observes that amps and flow rise on the P1E meters.</i></p>
<b>Evaluators Note:</b>	<p>Successful completion of Step 8 may require the operator to alternate throttling of MOV74's to maintain both pump flows below 10K gpm as indicated on 2SWP*FI96A, C, and/or E. This is acceptable and the step should be graded as PASS provided that at the completion of the step, all pump flows are <math>\leq 10K</math> gpm.</p>		
8.	<p>Throttle SWP*MOV74s as required to maintain pump flow LESS THAN 10,000 gpm.</p>	P	<p><b>*PASS / FAIL</b></p> <p><i>STD: On 2CEC*FI96A, throttles the 2SWP*MOV74s, C and/or E Control Switches as necessary to achieve <math>\leq 10K</math> gpm on 2SWP*FI96A, C and E.</i></p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
9.	Throttle SWP flow through an RHR HX as required.	P	<p><b>*PASS / FAIL</b></p> <p><i>STD: On 2CEC*PNL601, places the CONTROL SWITCH for 2SWP*MOV50B to OPEN. Observes the RED OPEN light lit and the GREEN CLOSED light not lit.</i></p>
10.	<p><b>Cue:</b> <i>If asked as RP, inform the operator that RE23B has been placed in service.</i></p>	P	<p><b>*PASS / FAIL</b></p> <p><i>STD: On 2CEC*PNL601, places the CONTROL SWITCH for SWP*MOV50B to OPEN and throttles Service Water flow as needed to cause a pressure 601249 to rise. Service water flow to RHR HX on ELS R602B should not decrease below 7400 gpm.</i></p>
<div> <div> <p>Procedure Notes</p> </div> <div> <p>Attachment 1:</p> <ul style="list-style-type: none"> <li>Initial actions to stabilize the Service Water System are taken per the flowchart and should result in three Division I Service Water Pumps running (if available) with their associated Discharge MOVs throttled as required to maintain pump flows at 10,000 gpm and Service Water flow established to RHS "B" Heat Exchanger to maintain flow for the running Division II Pumps above 2,500 gpm.</li> <li>This Attachment is written for actions to re-open the closed Service Water Cross-Tie MOVs to meet the one hour action in Tech Spec 3.7.1, Action A.1.</li> </ul> </div> </div>			
11.	<p>Perform Attachment 1:</p> <p>Dispatch Operators to the Valves AND Breakers to determine whether SWP Cross-Tie MOV(s) may be re-opened</p> <p><b>Cue:</b> <i>As the PO dispatched to perform an inspection of the valve and breaker, inform the operator that the inspection was completed and there are no issues with the valve or breaker.</i></p>	P	<p><b>SAT / UNSAT</b></p> <p><i>STD: Contacts a PO and dispatches them to 2SWP*MOV50B and its associated breaker and directs them to inspect them for abnormalities.</i></p>

PERFORMANCE		ACT. CODE P / S / NA	EVALUATOR
<p>For grading of the below step, the operator may choose either 2SWP*P1B or D to secure. Either one is acceptable. For the pump that is not secured, grading of the applicable step is not required and the step may be marked as N/A.</p>			
12.	<p>WHEN it has been determined that Service Water System conditions allow re-opening the SWP Cross-Tie MOV(s), reduce the number of operating Division II Service Water Pumps to one by placing control switches in Normal-After-STOP AND verifying that the associated Discharge MOVs close:</p> <p><b>Cue:</b> <i>If asked as the CRS, inform the operator you have no preference for which pump to secure.</i></p> <ul style="list-style-type: none"> <li>2SWP*P1B AND 2SWP*MOV74B</li> </ul>	P	<p><b>PASS / FAIL / NA</b></p> <p><b>STD:</b> At 2CEC*PNL601, places the Control Switch for 2SWP*P1B in NORMAL-AFTER-STOP. Observes that MOV74B fully closes as indicated by the RED OPENING LIGHT and the GREEN CLOSED LIGHT.</p>
13.	<ul style="list-style-type: none"> <li>2SWP*P1D AND 2SWP*MOV74D</li> </ul>	P	<p><b>PASS / FAIL / NA</b></p> <p><b>STD:</b> At 2CEC*PNL601, places the Control Switch for 2SWP*P1D in NORMAL-AFTER-STOP. Observes that MOV74D fully closes as indicated by the RED OPENING LIGHT and the GREEN CLOSED LIGHT.</p>
14.	<ul style="list-style-type: none"> <li>2SWP*P1F AND 2SWP*MOV74F</li> </ul>	P	<p><b>SAT / UNSAT</b></p> <p><b>STD:</b> At 2CEC*PNL601, determines 2SWP*P1E is already secured. Marks this step as NA</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
15.	IF 2SWP*MOV50A was closed, open 2SWP*MOV50A by taking BOTH control switches to OPEN	P	SAT / UNSAT  <i>STD: At 2CEC*PNL601, determines that 2SWP*MOV50A is NOT closed by observing the RED OPEN light lit and the GREEN CLOSED light not lit. Marks this step as NA</i>
16.	IF 2SWP*MOV50B was closed, open 2SWP*MOV50B by taking BOTH control switches to OPEN	P	<b>*PASS / FAIL</b>  <i>STD: Places BOTH the CONTROL SWITCHES for 2SWP*MOV50B one at a time to the OPEN position. Observes the RED OPEN light lit and the GREEN CLOSED light is not lit.</i>
<b>Procedure Note:</b>	The following two steps may be performed concurrently.		
<b>Evaluators Note:</b>	Steps 17, 18, and 19 may be performed in any order.		
<b>Evaluators Note:</b>	If the operator chose to not start an additional pump while performing the initial flow chart actions, then in order to successfully complete the step for reopening the MOV74's in Division 1, they must start one additional service water pump. If 4 service water pumps are all ready running, then Step 17 may be marked as N/A and is not required to be graded. If however only 3 service water pumps are running at this time, then the operator is required to start an additional service water pump and Step 17 is required to be graded. For Step 17, the operator may choose to start/restart any additional SWP pump from Division 1 or 2. Additionally, the operator may choose to reference N2-OP-11 or N2-SOP-11 for starting of the additional service water pump. Either method is acceptable. Step 17 may be performed at anytime while in Attachment 1.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
17.	<p>Start an additional Service Water Pump</p> <p><b>Cue:</b> <i>If asked as the CRS, inform the operator you have no preference for which pump to start.</i></p> <p><b>Cue:</b> <i>As appropriate, if contacted as a PO, provide feedback to the operator that prestart checks/venting of strainers/good start checks/etc. have been completed.</i></p>	P	<p><b>*PASS / FAIL / NA</b></p> <p>STD-ON 2GEC-PN1601, Pages the Control Switch for 2SWP MOV 33B to OPEN. NORMALLY OPEN STATE. Observes that pump start flow rise or pressure and pump meters.</p>
18.	<p>WHILE maintaining a minimum of 2,500 gpm on the running Division II Service Water Pumps, slowly close 2SWP*MOV33B</p>	P	<p><b>*PASS / FAIL</b></p> <p>STD-ON 2GEC-PN1601, Pages the CONTROL SWITCH for 2SWP MOV 33B to CLOSE. Observes the RED OPEN light not lit and the GREEN CLOSED light lit.</p>
<b>Evaluators NOTE</b>	<p>If the operator has not started a 4<sup>th</sup> service water pump before attempting to complete the next step, they will be unable to fully open all Division 1 MOV74's. If necessary, provide the following cue if this situation occurs:</p> <p><b>Cue:</b> <i>Start a fourth service water pump per the initial flow chart override of N2-SOP-11.</i></p>		
19.	<p>WHILE maintaining Pump flows less than 10,000 gpm, slowly open Discharge MOVs for the running Division I Service Water Pumps</p>	P	<p><b>*PASS / FAIL</b></p> <p>STD-ON 2GEC-PN1601, throttles the 2SWP MOV 74A, C, and/or E CONTROL SWITCHES as necessary to achieve all MOV 74's open as indicated by their RED OPEN lights lit and their GREEN CLOSED lights not lit.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
20.	Close 2SWP*MOV90B	P	SAT / UNSAT  <b>STD:</b> On 2CEC*PNL601, places the CONTROL SWITCH for 2SWP*MOV90B to CLOSE. Observes the RED OPEN light not lit and the GREEN CLOSED light lit.
<b>EXAMINER'S NOTES</b> Once the operator has placed the control switch for 2SWP*MOV90B in the CLOSE position, then provide the following cue:  <b>Cue:</b> Your task is complete. Another operator will complete any remaining actions.			
<b>TERMINATING CUE</b>		2SWP*MOV50B is open, flow is secured through RHS B Heat Exchanger, all MOV74's are fully open with all pump flows $\leq 10K$ gpm.	
<b>STOP TIME</b>			



## JPM Handout

### INITIAL CONDITIONS

Given:

- The plant is at 100% power
- An inadvertent closure of 2SWP\*MOV50B, PMP 1B DISCH HEADER CROSS-TIE ISOL VLV occurred.
- NO Operator Actions have been completed.

**Evaluator:** Ask trainee if he/she has any questions after presenting initial conditions

### INITIATING CUE



**(Operators Name)**, Enter N2-SOP-11, Loss or Degraded Service Water and perform all applicable actions for an inadvertent closure of 2SWP\*MOV50B.

Training Id: **2013 NRC Plant P-1B**

Revision: **0.0**

Title: **Local Start of Division 2 Diesel Generator (Alternate Path)**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Mike Storms	12/13/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 15 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. NS-OSP-EGS-M@001, Diesel Generator and Diesel Air Start Valve Operability Test – Division 1 and 2
2. N2-OP-100A, Standby Diesel Generators

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operator's ability to locally start and secure the Division 2 Emergency Diesel Generator.
- b. This JPM is considered alternate path because after locally starting the Division 2 Emergency Diesel Generator, a low lube oil condition will occur. The operator will mitigate the event by manually shutting down the diesel.
- c. Note this JPM is written for the Division 2 Diesel. If plant conditions do not support entering the Division 2 Diesel Room, then an alternate JPM is available (JPM P-1A) to use for the Division 1 Diesel.

#### 2. Task Information:

- a. N2-264001, Perform Emergency Stop of Division 1 (2) Emergency Diesel Generator
- b. K/A 264000, A4.04 3.7/3.7

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Simulate
<b>Evaluation Location</b>	Plant
<b>Time Critical Task</b>	No
<b>Alternate Path</b>	Yes
<b>LOD &gt; L0</b>	Yes

4. Recommended Start Location
  - a. Unit 2 WEC
5. JPM Setup (if required)
  - a. Prepare a copy of N2-OSP-EGS-M@001, Section 8.2. Include a copy of the precautions and limitations.
  - b. Print out a full copy of N2-OP-100A and N2-OSP-EGS-M@001 for use by the operators when they are preparing to perform the JPM.
  - c. Additionally, prepare separate copies of N2-OP-100A, Section H.1.0. Do not hand this section out to the operator until cued by the JPM.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>• The plant is at 100% power.</li> <li>• N2-OSP-EGS-M@001, Diesel Generator and Diesel Air Start Valve Operability Test is about to be performed for the Division 2 Diesel.</li> <li>• N2-OSP-EGS-M@001, Steps 8.2.1 through 8.2.6 have been completed</li> <li>• You are the Plant Operator in the Field assigned to support the Diesel Run.</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<p><b>(Operators Name),</b> Perform the Diesel Generator Regular Monthly Start and Load Test for the Division 2 Diesel per N2-OSP-EGS-M@001, Section 8.2.</p>
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<b>START TIME</b>	
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	<b>PERFORMANCE</b>	<b>ACT. CODE</b> P / S / NA	<b>EVALUATOR</b>
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of N2-OSP-EGS-M@001 and review / utilize the correct section of the procedure	P	SAT / UNSAT  <b>STD:</b> Current version of N2-OSP-EGS-M@001 obtained and Section 8.2 referenced IAW CNG-PR-2.01-1000, Document Control.
<b>Procedure Note:</b>	All indications and controls are located at 2CES*IPNL406 (408) unless otherwise specified.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
3.	At 2CES*IPNL407 (412), GENERATOR CONTROL PANEL, verify Voltage Regulator Switch in AUTO.  <b>Cue:</b> The Voltage Regulator Switch is in AUTO	S	SAT / UNSAT  <b>STD:</b> At 2CES*IPNL412, Observes the Voltage Regulator Switch is already in AUTO.
4.	At 2CES*IPNL406 (408), ENGINE CONTROL PANEL, place CONTROL MODE keylock switch in LOCAL AND ensure the white LOCAL indicating light is illuminated.  <b>Cue:</b> The CONTROL MODE keylock switch is in LOCAL and the white LOCAL indicating light is illuminated.	S	<b>PASS / FAIL</b>  <b>STD:</b> At 2CES*IPNL408, places the CONTROL MODE keylock switch to LOCAL. Observes the white LOCAL indicating light is illuminated.
5.	At 2CEC*PNL852, ELECTRIC CONTROL BOARD, perform the following: <ul style="list-style-type: none"> <li>Verify DIVISION 1 (2) 2EGS*EG1 (EG3) START switch in Normal-After-STOP.</li> <li>Verify 2ENS*SWG101-N1 (103-N1), NEUTRAL BREAKER 101-N1 (103-N1), closed.</li> <li>Verify EMERGENCY DSL GEN 1 (3) VOLTAGE REGULATOR MODE SELECT switch in AUTO.</li> </ul> <b>Cue:</b> As the control room, acknowledge the direction to perform Step 8.2.9. Inform the operator that Step 8.2.9 is complete.	P	SAT / UNSAT  <b>STD:</b> Contacts the control room and directs them to perform Step 8.2.9.
<b>Procedure Note:</b>		In the following step when the EMERGENCY DSL GEN 1 (3) PARALLEL switch is placed to ON, the REMOTE indicating light will illuminate for the CONTROL MODE switch at panel 2CES*IPNL406 (408) resulting in dual LOCAL/REMOTE indication.	



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
6.	<p>At 2CEC*PNL852, place EMERGENCY DSL GEN 1 (3) PARALLEL switch to ON.</p> <p><b>Cue:</b> As the control room, acknowledge the direction to perform Step 8.2.10. Inform the operator that Step 8.2.10 is complete.</p> <p><b>Cue:</b> The REMOTE indicating light is illuminated.</p>	S	<p>SAT / UNSAT</p> <p><b>STD:</b> Contacts the control room and directs them to perform Step 8.2.10. Once the step is completed, observes the REMOTE indicating light is illuminated at 2CES*IPNL406</p>
<p><b>Process Note:</b> False negative results for IST test of air start valves can be received if diesel air compressor(s) are running prior to taking data in the following step.</p>			
7.	<p>Record 2EGA-PI15A (B), STARTING AIR PRESS:</p> <ul style="list-style-type: none"> <li>RED-L. RECEIVER</li> <li>BLACK-R. RECEIVER</li> </ul> <p><b>Cue:</b> Both receiver tanks read 240 psig.</p>	S	<p>SAT / UNSAT</p> <p><b>STD:</b> At 2EGA-PI15B, documents the pressures indicated in Step 8.2.11</p>
8.	<p>At 2CES*IPNL406 (408), depress ENGINE CONTROL START pushbutton.</p> <p><b>Cue:</b> The ENGINE CONTROL START pushbutton has been depressed. You hear the sound of the diesel starting up. It sounds like a normal start.</p>	S	<p><b>*PASS / FAIL</b></p> <p><b>STD:</b> At 2CES*IPNL406, depresses the ENGINE CONTROL START pushbutton. Listens for a good start of the diesel.</p>
9.	<p>At 2CES*IPNL407 (412), GENERATOR CONTROL PANEL, observe the following Diesel Generator start indications:</p> <ul style="list-style-type: none"> <li>Diesel Speed as indicated on 12ESI-2EGSA04 (12ESI-2EGSB04), ENGINE SPEED, rises to about 600 RPM</li> </ul> <p><b>Cue:</b> Diesel Speed indicates 600 RPM</p>	S	<p>SAT / UNSAT</p> <p><b>STD:</b> At 2CES*PNL412, observes the diesel speed on the RPM meter indicates 600 RPM.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
10.	<ul style="list-style-type: none"> <li>Generator Voltage as indicated on GVM-2EGPA22 (GVM-2EGPB22), VOLTS GENERATOR, rises to about 4160 A-C VOLTS</li> </ul> <p><b>Cue:</b> Diesel Voltage indicates 4160 Volts</p>	S	SAT / UNSAT  <b>STD:</b> At 2CES*PNL412, observes the Diesel Voltage at 4160 Volts.
11.	<ul style="list-style-type: none"> <li>Generator Frequency as indicated on FM-2EGPA22 (FM-2EGPB22), FREQUENCY GENERATOR, rises to about 60 HERTZ</li> </ul> <p><b>Cue:</b> Diesel Frequency indicates 60 Hertz</p>	S	SAT / UNSAT  <b>STD:</b> At 2CES*PNL412, observes the Diesel Frequency at 60 Hertz.
12.	<ul style="list-style-type: none"> <li>Generator Field Current as indicated on GFAM-2EGPA21 (GFAM-2EGPB21), AMPS FIELD, rises to about 91 DC AMPERES</li> </ul> <p><b>Cue:</b> Generator Field Current has risen to 91 DC AMPS</p>	S	SAT / UNSAT  <b>STD:</b> At 2CES*PNL412, observes the Generator Field Current has risen to 91 DC Amps.
13.	At 2CEC*PNL852, observe the following Diesel Generator start indications: <ul style="list-style-type: none"> <li>SWP*MOV66A (B), SERVICE WTR OUTLET, opens</li> <li>Diesel Service Water Flow indicated on 2SWP*FI76A (B), SERVICE WTR FLOW, is <math>\geq 800</math> GPM</li> <li>Annunciator 852117 (852217), EDG 1 (3) RUNNING, alarms</li> </ul> <p><b>Cue:</b> As the control room, acknowledge the direction to perform Step 8.2.14. Inform the operator that Step 8.2.14 is complete</p>	S	SAT / UNSAT  <b>STD:</b> Contacts the control room and directs them to perform Step 8.2.14.
<b>Alternate Path:</b>		Once the diesel is up and running, the Evaluator will give a cue to the operator that there is an alarm at the Diesel Control Panel. The operator will respond and determine that a low oil pressure condition exists and the diesel should have shutdown automatically. The operator will take action to manually shutdown the diesel.	

PERFORMANCE		ACT. CODE P / S / NA	EVALUATOR
Procedure Note:		The cause of the low lube oil pressure condition must be corrected prior to restart of the Diesel Generator.	
14.	<p><b>Cue:</b> Inform the operator that there is an audible alarm coming from 2CES*IPNL408. When the operator looks at the Annunciator tiles, inform the operator that Annunciator 408-1-1, Low Lube Oil Pressure Engine is alarming.</p> <p>ARP for Annunciator 408-1-1:</p> <p>IF in the test mode, VERIFY that the automatic response occurs.</p> <p><b>Cue:</b> Inform the operator that the diesel is still running and if asked for Lube Oil Pressure, inform him that lube oil pressure indication is 15 psig.</p> <p><b>Cue:</b> Once the operator determines the diesel did not shutdown and should have, direct the operator to "Perform an Emergency Shutdown of the Division 2 Emergency Diesel IAW N2-OP-100A, Section H.1.0". Hand the operator the procedure section for N2-OP-100A, Section H.1.0.</p>	S	<p>SAT / UNSAT</p> <p><b>STD:</b> Responds to the annunciator by referencing the ARP for 408-1-1. Determines the Diesel is operating in TEST MODE and should have shut down automatically. Acknowledges direction to perform an emergency shutdown of the Division 2 EDG.</p>

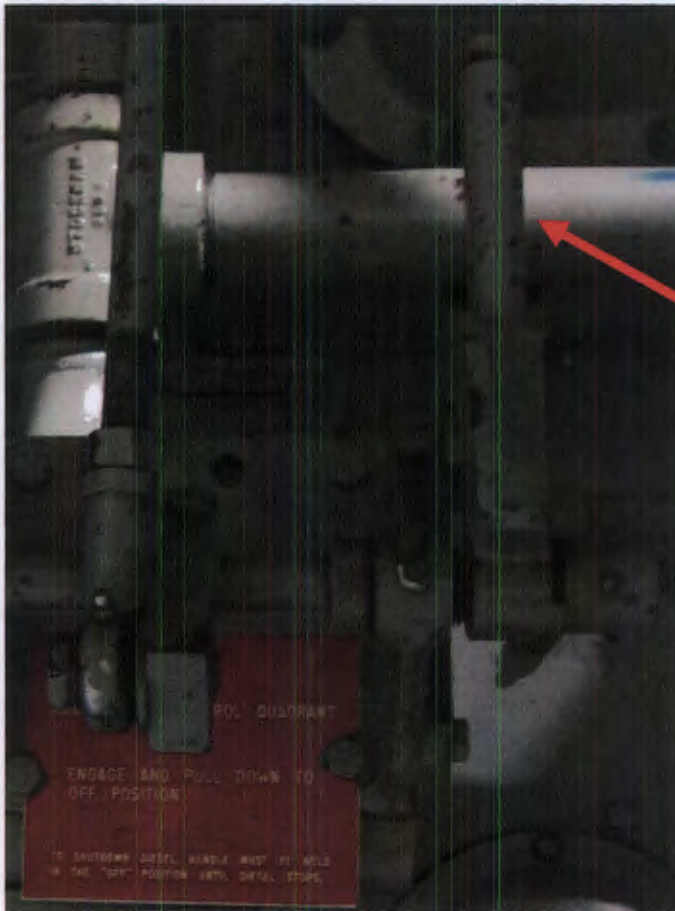
	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
15.	<p>IF Diesel Generator is in Test Mode, perform the following:</p> <ul style="list-style-type: none"> <li>At 2CEC*PNL852, using GOVERNOR switch, reduce Diesel Generator Load to 100 KW.</li> <li>Using VOLTAGE REGULATOR switch, adjust VARS to &gt;0 AND &lt;100 A-C KILOVARS TO BUS.</li> <li>Open 2ENS*SWG101-1 (103-14), OUTPUT BREAKER 101-1 (103-14).</li> <li>Continue at Step H.1.3.</li> </ul> <p><b>Cue:</b> If necessary as the control room, acknowledge the direction to perform N2-OP-100A, Step H.1.1. Inform the operator that Step H.1.1 is complete</p>	S	<p>SAT / UNSAT</p> <p><b>STD:</b> May determine this step is already complete as the diesel has not been loaded -or- may contact the control room and directs them to perform N2-OP-100A, Step H.1.1.</p>
<b>Procedure Note:</b>		The following step will cause the Diesel Generator to stop immediately without a cooldown period.	
16.	<p>At 2CES*IPNL406 (408), ENGINE CONTROL PANEL, depress EMERGENCY STOP red STOP pushbutton.</p> <p><b>Cue:</b> The EMERGENCY STOP red STOP pushbutton has been depressed. The diesel continues to run.</p>	S	<p>SAT / UNSAT</p> <p><b>STD:</b> At 2CES*INPL408, depresses the EMERGENCY STOP pushbutton. Determines the diesel did not stop.</p>
<b>Evaluators Note:</b>		<p>In order to shutdown the diesel, the operator is required to perform Step 17, 18, or 19. Performance of any one of the steps will cause the diesel to shutdown. Once the operator decides on which method they would like to use to shutdown the diesel, the step must be graded. If the operator fails to perform that step correctly, then the step is graded as FAIL. The steps not performed are not required to be graded and may be marked as NA. For a description of each of the below methods see the evaluators job aide at the end of this JPM.</p>	

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
17.	<p>IF Diesel does NOT stop, perform one of the following:</p> <p>Depress button AND pull Manual Fuel Control Quadrant Handle down AND hold down UNTIL Diesel Generator comes to a complete stop.</p> <p><b>Cue:</b> <i>The BUTTON has been depressed and MANUAL FUEL CONTROL QUADRANT HANDLE is down. The diesel is starting to coast down.</i></p> <p><b>Cue:</b> <i>After 5 seconds, as long as the operator continues to hold the handle down, provide the following cue "The diesel has come to a complete stop".</i></p>	S	<p><b>PASS / FAIL / NA</b></p> <p><b>STD:</b> Depresses the Button and pulls the MANUAL FUEL CONTROL QUADRANT HANDLE down until the diesel comes to a complete stop. Once the diesel has stopped, releases the handle.</p>
18.	<p>Pull out latching rod of Overspeed Trip Valve at Overspeed Governor.</p> <p><b>Cue:</b> <i>The LATCHING ROD of the OVERSPEED TRIP VALVE at the overspeed GOVERNOR has been PULLED. The diesel is coasting down.</i></p>	S	<p><b>PASS / FAIL</b></p> <p><b>STD:</b> Pulls the LATCHING ROD of the OVERSPEED TRIP VALVE at the overspeed governor.</p>
19.	<p>Trip Combustion Air Inlet Butterfly Valve closed by pulling Overspeed Governor output lever towards the Generator End with a 1" open ended wrench. (The action will force the output arm towards the Butterfly Valve.)</p> <p><b>Cue:</b> <i>A 1 inch open ended wrench has been obtained.</i></p> <p><b>Cue:</b> <i>The OVERSPEED GOVERNOR OUTPUT LEVER has been PULLED towards the GENERATOR END. The COMBUSTION AIR INLET BUTTERFLY VALVE has been tripped. The diesel is coasting down.</i></p>	S	<p><b>PASS / FAIL</b></p> <p><b>STD:</b> Using a 1 inch wrench, trips the COMBUSTION AIR INLET BUTTERFLY VALVE closed by pulling the OVERSPEED GOVERNOR OUTPUT LEVER towards the Generator END.</p>

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
<b>EVALUATORS NOTES:</b>	<p>Once the operator is informed that the diesel is coasting down, provide the following cue:</p> <p><b>Cue:</b> <i>Your task is complete. Another operator will complete any remaining actions.</i></p>		
<b>TERMINATING CUE</b>	<p><i>An Emergency Trip has been performed on the Division 2 Diesel.</i></p>		
<b>STOP TIME</b>			

**Evaluator Job Aid  
Do Not Provide to Candidate**

**Manual Fuel Control Quadrant Handle:**



**Manual Fuel  
Handle  
(Push Button and  
Pull Down)**

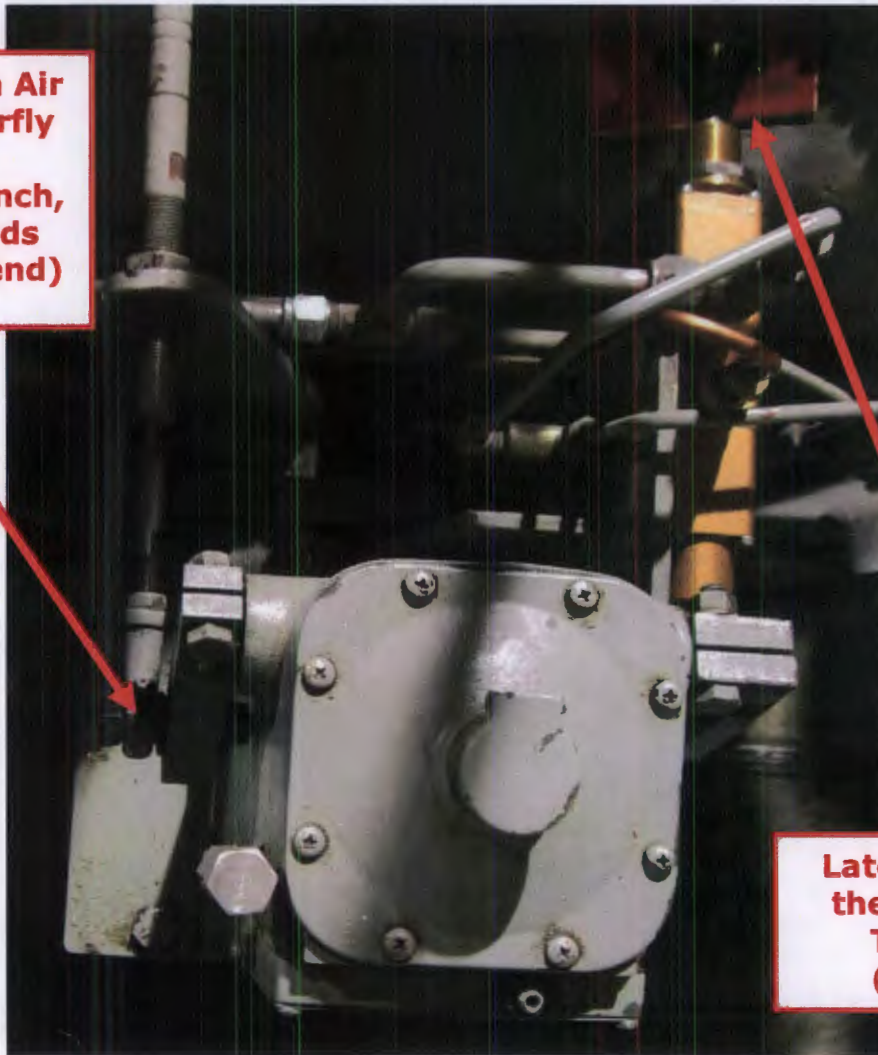


## **Evaluator Job Aid Do Not Provide to Candidate**

### **Overspeed Trip Valve and Combustion Air Inlet Butterfly Valve:**

- **On the Walkway where the Diesel Connects to the Generator.**
- **Looking over the railing straight down at the two trip devices.**

**Combustion Air  
Inlet Butterfly  
Valve  
(Using Wrench,  
pull towards  
Generator end)**



**Latching Rod of  
the Overspeed  
Trip Valve  
(Pull Out)**



## JPM Handout

### INITIAL CONDITIONS

Given:


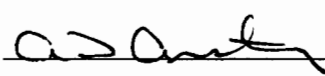
- The plant is at 100% power.
- N2-OSP-EGS-M@001, Diesel Generator and Diesel Air Start Valve Operability Test is about to be performed for the Division 2 Diesel.
- N2-OSP-EGS-M@001, Steps 8.2.1 through 8.2.6 have been completed
- You are the Plant Operator in the Field assigned to support the Diesel Run.

**Evaluator:** *Ask trainee if he/she has any questions after presenting initial conditions*

### INITIATING CUE

**(Operators Name),** *Perform the Diesel Generator Regular Monthly Start and Load Test for the Division 2 Diesel per N2-OSP-EGS-M@001, Section 8.2.*

Training Id: **2013 NRC Plant P-2**Revision: **0.0**Title: **Isolate a Hydraulic Control Unit with Cooling Water****Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Mike Storms	12/13/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 15 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## References

1. N2-OP-30, Control Rod Drive

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operator's ability to isolate a Hydraulic Control Unit With Cooling Water.

#### 2. Task Information:

- a. N2-201001-04006, Isolate a Hydraulic Control Unit
- b. K/A 203000, A2.02 3.5/3.5

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Simulate
<b>Evaluation Location</b>	Plant
<b>Time Critical Task</b>	No
<b>Alternate Path</b>	No
<b>LOD &gt;1.0</b>	Yes

#### 4. Recommended Start Location

- a. Unit 2 WEC

#### 5. JPM Setup (if required)

- a. Prepare a copy of N2-OP-30, Section 8.0. Include a copy of the precautions and limitations.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>• The plant is at 100% power.</li> <li>• Rod 22-59 is stuck at position 10 and has been declared inoperable.</li> <li>• The CRS has determined HCU 22-59 needs to be isolated.</li> <li>• 2RDS-P1A is in service.</li> <li>• No other HCUs are currently isolated.</li> <li>• Maintenance is not going to be performed on HCU 22-59 and it will not be isolated for an extended period of time.</li> <li>• A drain line has already been installed and routed per N2-OP-30, Step 8.2.5</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	<p><b>(Operators Name)</b>, Isolate HCU 22-59 with cooling water per N2-OP-30, Section F.8.0.</p>
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<b>START TIME</b>	
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	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of N2-OP-30 and review / utilize the correct section of the procedure	P	SAT / UNSAT  <b>STD:</b> Current version of N2-OP-30 obtained and Section 8.0 referenced IAW CNG-PR-2.01-1000, Document Control.
<b>Procedure Note:</b>	Where XX-YY appears, XX-YY is the number of the HCU being manipulated.		

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
Procedure Note	<ul style="list-style-type: none"> <li>Isolating an HCU without cooling water should be performed when reactor water temperature is less than 200°F, or isolating an HCU without cooling water when reactor water temperature is greater than 200°F should be minimized (less than one shift duration) or seal degradation could occur.</li> <li>When returning an isolated HCU to service, extreme care must be taken. Restore cooling water slowly or thermal shock and seal damage could occur.</li> <li>Isolating HCUS with 2RDS*V101(XX-YY) or 2RDS*V104(XX-YY) closed raises the Cooling Water Differential Pressure. A Cooling Water Differential Pressure of 35 psid is sufficient to operate the Collet Piston and unlatch Control Rods which could result in unplanned Control Rod withdrawals. Isolating more than 80 HCUs with a CRD Pump in service could raise Cooling Water Differential Pressure to <math>\geq 35</math> psid and result in unplanned Control Rod withdrawals. Refer to INPO SEN 264. [C12]</li> </ul>		
Procedure Note	<ul style="list-style-type: none"> <li>The following step is to be performed to prevent control rod movement, not for maintenance.</li> <li>A withdrawn control rod that is stuck should be disarmed hydraulically, preferably with cooling water flow, per the following step (hydraulically disarming a withdrawn control rod that is stuck is required in accordance with Technical Specification 3.1.3).</li> </ul>		
3.	IF an RDS Pump is in service, verify $\leq 79$ HCUs are isolated.	S	SAT / UNSAT  <b>STD:</b> Determines per the turnover that 2RDS-P1A is in service and no additional HCUs are isolated.
4.	Close 2RDS*V101, (XX-YY) Insert Isolation. <b>Cue:</b> 2RDS*V101 is closed.	S	<b>*PASS / FAIL</b>  <b>STD:</b> At the 2RDS, close 2RDS*V101 by turning the hand wheel in the clockwise direction until the valve is seated.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
5.	Close 2RDS*V102, (XX-YY) Withdraw Isolation. <b>Cue:</b> 2RDS*V102 is closed.	S	<b>PASS / FAIL</b>  <i>STD:</i> At HCU 22-55, Close 2RDS*V102 by rotating the hand wheel in the clockwise direction until the valve is sealed.
6.	Close 2RDS-V113, (XX-YY) Charging Water Isolation. <b>Cue:</b> 2RDS*V113 is closed.	S	<b>PASS / FAIL</b>  <i>STD:</i> At HCU 22-55, Close 2RDS*V113 by rotating the hand wheel in the clockwise direction until the valve is sealed.
<b>Procedure Caution:</b>	Rx water will drain out of 2RDS*V107 if a Reactor Scram occurs.		
7.	Using thread lubricant, (Loctite 58031 - symbol number 95-74-180), ATTACH drain line to HCU at 2RDS*V107, (XX-YY) Accumulator Drain AND route to floor/equipment drain. (Lubricant use N/A for Swagelok Fittings)	S	SAT / UNSAT  <i>STD:</i> Determines per the turnover that this step is complete.
8.	Slowly open 2RDS*V107 (XX-YY) to depressurize accumulator. <b>Cue:</b> 2RDS*V107 is open. The accumulator is depressurized.	S	<b>PASS / FAIL</b>  <i>STD:</i> At HCU 22-55, slowly opens 2RDS*V107 by rotating the hand wheel in the counter clockwise direction until the accumulator is fully depressurized.
9.	Close 2RDS*V107 (XX-YY). <b>Cue:</b> 2RDS*V107 is closed.	S	<b>PASS / FAIL</b>  <i>STD:</i> At HCU 22-55, Close 2RDS*V107 by rotating the hand wheel in the clockwise direction until the valve is sealed.



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
10.	Open 2RDS*V107 (XX-YY) one turn. <b>Cue:</b> 2RDS*V107 is open one turn.	S	<b>*PASS / FAIL</b>  STD: At HCU 22-59, opens 2RDS*V107 one turn by rotating the hand wheel in the counter clockwise direction one revolution.
11.	Close 2RDS-V103, (XX-YY) Drive Water Isolation. <b>Cue:</b> 2RDS*V103 is closed.	S	<b>*PASS / FAIL</b>  STD: At HCU 22-59, closes 2RDS*V103 by rotating the hand wheel in the clockwise direction until the valve is seated.
12.	Close 2RDS-V105, (XX-YY) Exhaust Water Isolation. <b>Cue:</b> 2RDS*V105 is closed.	S	<b>*PASS / FAIL</b>  STD: At HCU 22-59, closes 2RDS*V105 by rotating the hand wheel in the clockwise direction until the valve is seated.
13.	Open 2RDS*V101, (XX-YY) Insert Isolation. <b>Cue:</b> 2RDS*V101 is open.	S	<b>*PASS / FAIL</b>  STD: At HCU 22-59, opens 2RDS*V101 by rotating the hand wheel in the counter clockwise direction.

<b>TERMINATING CUE</b>	2RDS*V101 has been opened for HCU 22-59
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<b>STOP TIME</b>	
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## JPM Handout



<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"><li>• The plant is at 100% power.</li><li>• Rod 22-59 is stuck at position 10 and has been declared inoperable.</li><li>• The CRS has determined HCU 22-59 needs to be isolated.</li><li>• 2RDS-P1A is in service.</li><li>• No other HCU's are currently isolated.</li><li>• Maintenance is not going to be performed on HCU 22-59 and it will not be isolated for an extended period of time.</li><li>• A drain line has already been installed and routed per N2-OP-30, Step 8.2.5</li></ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
<b>INITIATING CUE</b>	<p><b>(Operators Name)</b>, Isolate HCU 22-59 with cooling water per N2-OP-30, Section F.8.0.</p>

Training Id: **2013 NRC Plant P-3**

Revision: **0.0**

Title: **Align Firewater to RHS B**

**Approvals:**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/18/2013
Validated By	Mike Storms	12/13/2013
Facility Reviewer	 Aaron Armstrong	1/3/2014
Approximate Duration: 20 minutes		

**Documentation of Performance:**

Performer: \_\_\_\_\_

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

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Completion Time \_\_\_\_\_

Grade: **Pass / Fail**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluators Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## References

1. N2-EOP-6.6, RHR Fire Water Cross-Tie

## Instructor Information

### A. JPM Information

#### 1. Description

- a. This JPM tests the operator's ability to align Fire Water to the RHS System.

#### 2. Task Information:

- a. N2-EOP06-01001-06, Implement N2-EOP-6.6, Cross-Tie RHR Fire Water System
- b. K/A 203000, A2.02 3.5/3.5

#### 3. Evaluation / Task Criteria

<b>Evaluation Method</b>	Simulate
<b>Evaluation Location</b>	Plant
<b>Time Critical Task</b>	No
<b>Alternate Path</b>	No
<b>LOD &gt; 1.0</b>	Yes

#### 4. Recommended Start Location

- a. Unit 2 WEC

#### 5. JPM Setup (if required)

- a. Prepare a copy of N2-EOP-6.6, Section 6.2. Include a copy of the precautions and limitations.

## **B. Read Before Every JPM Performance**

1. For the performance of this JPM, I will act as all those you need to talk to. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary. (Note, read the next only if conducting a plant JPM). With the exception of accessing panels, no plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

## **C. Read Before Each Evaluated JPM**

1. This evaluated JPM is a measure of your ability to perform this task independently. The CRS has determined that a verifier is not available and that additional verification will not be provided.

<b>INITIAL CONDITIONS</b>	<p>Given:</p> <ul style="list-style-type: none"> <li>• A LOCA has occurred.</li> <li>• The CRS has determined Fire Water is needed for injection into the RPV via RHS B.</li> <li>• N2-EOP-6.6, Steps 6.2.1 through 6.2.5 have been completed.</li> </ul> <p><b>Evaluator:</b> Ask trainee if he/she has any questions after presenting initial conditions</p>
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<b>INITIATING CUE</b>	(Operators Name), Align Fire Water to RHS Loop B per N2-EOP-6.6, Section 6.2.
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<b>START TIME</b>	
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	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
1.	Provide repeat back of initiating cue  <b>Cue:</b> Acknowledge repeat back providing correction if necessary.	P	SAT / UNSAT  <b>STD:</b> Proper communications used IAW CNG-OP-1.01-2001, Communications and Briefings.
2.	Obtain a copy of N2-EOP-6.6 and review / utilize the correct section of the procedure.	P	SAT / UNSAT  <b>STD:</b> Current version of N2-EOP-6.6 obtained and Section 6.2 referenced IAW CNG-PR-2.01-1000, Document Control.
3.	Verify closed 2CNS-V622, CNS TO RHR SUPPLY ISOL (Rx Bldg, EL289 Southside across from CRD maintenance room)  <b>Cue:</b> 2CNS-V622 is closed.	S	SAT / UNSAT  <b>STD:</b> Checks 2CNS-V622 is closed by rotating the hand wheel in the clockwise direction and observing no movement.

	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
4.	Verify closed 2RHS*V79, CONDENSATE FLUSH TO HEAD SPRAY HDR ISOL. (Rx Bldg EL 289)  <b>Cue:</b> 2RHS*V79 is closed.	S	SAT / UNSAT  <b>STD:</b> Checks 2RHS*V79 is closed by rotating the hand wheel in the clockwise direction and observing no movement.
	<b>Procedure Caution:</b> Residual pressure may exist when removing the test connection blind flange between valves 2CNS-V622 and 2RHS*V79 (Figure 4).		
	<b>Evaluators Note:</b> Several of the remaining steps require specific tools and/or equipment from the EOP Gang Box Located on RB 289'. The operator should show the evaluator where the gang box is, but <b>SHOULD NOT</b> open the gang box or break the inventory seal for any step in this JPM. As necessary the evaluator may question the operator as to what tools he/she is obtaining from the box.		
5.	Remove test connection blind flange from between valves 2CNS-V622 AND 2RHS*V79 (Figure 4). (Rx Bldg EL 289)  <b>Cue:</b> Blank Flange is removed.	S	<b>*PASS / FAIL</b>  <b>STD:</b> Identifies that tools are needed from the EOP Gang Box. Simulates obtaining the tools and simulates using the tools to remove the blank flange downstream of 2CNS-V622.
6.	Install 2½" firehose adapter to test connection flange (Figure 4). (Rx Bldg EL 289)  <b>Cue:</b> The 2.5" firehose adapter to test connection flange is installed.	S	<b>*PASS / FAIL</b>  <b>STD:</b> Identifies that tools are needed from the EOP Gang Box. Simulates obtaining the tools and simulates installing the firehose adapter to test connection flange.



	PERFORMANCE	ACT. CODE P / S / NA	EVALUATOR
7.	<p>Connect male end of 2½" firehose from EOP gangbox, to test connection flange adapter(Figure 4). (Rx Bldg EL 289</p> <p><b>Cue:</b> <i>The male end of the 2.5" firehose is connected to the test connection flange adapter.</i></p>	S	<p><b>*PASS / FAIL</b></p> <p><i>STD: Identifies that tools are needed from the EOP Gang Box. Simulates connecting the tools and simulates connecting the firehose to the test connection flange adapter.</i></p>
	<p><b>Disconnection Note:</b> FHR 78 (Rx Bldg EL 289 near South stairwell entrance) OR FHR 86 (Rx Bldg EL 289 Across from SLS Tank) may be used to supply firewater to RHS B.</p>		
	<p><b>Evaluators Note:</b> N2-EOP-6.6 allows the operator to lineup fire water from either FHR 78 or FHR 86. The operator may choose either one.</p>		
8.	<p>Align firewater supply to RHR B via test connection flange adapter as follows: (Rx Bldg, EL 289, near South stairwell entrance)</p> <ul style="list-style-type: none"> <li>• Disconnect firehose at FHR 78 OR FHR 86</li> </ul> <p><b>Cue:</b> <i>The firehose is disconnected from FHR 78(86)</i></p>	S	<p><b>*PASS / FAIL</b></p> <p><i>STD: At FHR 78 or 86, disconnects the firehose by rotating the union connection in the counter clockwise direction.</i></p>
9.	<ul style="list-style-type: none"> <li>• Connect 2½" EOP firehose from test connection flange adapter, to FHR 78 OR FHR 86</li> </ul> <p><b>Cue:</b> <i>The EOP firehose is connected to FHR 78(86)</i></p>	S	<p><b>*PASS / FAIL</b></p> <p><i>STD: Simulates loading the EOP firehose from the test connection flange to FHR 78 or 86. Connects the firehose to FHR 78 or 86 by rotating the union in the clockwise direction.</i></p>
10.	<ul style="list-style-type: none"> <li>• Open 2FPW-V375, FHR 78 ANGLE VALVE OR 2FPW-V383, FHR 86 ANGLE VALVE</li> </ul> <p><b>Cue:</b> <i>2FPW-V375 -or- 2FPW-V383 is open. The firehose is pressurizing.</i></p>	S	<p><b>*PASS / FAIL</b></p> <p><i>STD: Operates 2FPW-V375 or 2FPW-V383 by rotating the hand wheel in the counter clockwise direction until the valve is open.</i></p>

	PERFORMANCE	ACT CODE P / S / NA	EVALUATOR
11.	<ul style="list-style-type: none"> <li>Unlock AND open 2RHS*V79. (Rx Bldg EL 289)</li> </ul> <p><b>Cue:</b> 2RHS*V79 is open.</p>	S	<p><b>PASS / FAIL</b></p> <p>Stop Valve 2RHS*V79 by rotating the hand wheel in the counter clockwise direction until the valve is open.</p>

<b>TERMINATING CUE</b>	The firehose has been connected to the test flange and is pressurized. 2RHS*V79 is open.
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<b>STOP TIME</b>	
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## JPM Handout

### INITIAL CONDITIONS

Given:

- A LOCA has occurred.
- The CRS has determined Fire Water is needed for injection into the RPV via RHS B.
- N2-EOP-6.6, Steps 6.2.1 through 6.2.5 have been completed.

**Evaluator:** *Ask trainee if he/she has any questions after presenting initial conditions*

### INITIATING CUE

**(Operators Name),** *Align Fire Water to RHS Loop B per N2-EOP-6.6, Section 6.2.*

Copy \_\_\_\_ of \_\_\_\_

Training Id: NRC 2013 Scenario 1Revision: 0.0**RL 2- Small break LOCA and loss of high pressure injection.**Title: Blowdown Required and recover level with low pressure ECCSSignature / Printed NameDate

Developed By



David Huff

12/17/2013

Validated By

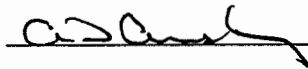
Michael Storms

12/13/2013

Phil MacEwen

Doug Mizener

Facility Reviewer



Aaron Armstrong

1/3/2014

## References

1. N2-OP-101D, Power Changes
2. N2-OP-11, Service Water System
3. N2-OP-33, High Pressure Core Spray System
4. N2-SOP-30, Control Rod Drive Failures
5. N2-SOP-03, Loss of AC
6. N2-EOP-RPV, RPV Control
7. N2-EOP-PC, Primary Containment Control
8. N2-EOP-C2, RPV Blowdown
9. Unit 2 Technical Specifications

## Instructor Information

### A. Scenario Description

Sequence of Events / Expected Crew Response:

The plant is operating at 90% power with 2WCS-P1B out of service for maintenance. The crew will take the shift and raise reactor power to 95% using recirculation flow. After the reactivity maneuver, Service Water Pump 1A will trip on motor electric fault. The crew will take action to start a standby service water pump per N2-OP-11. When starting the standby pump, the discharge valve will fail to automatically open requiring the crew to manually open the valve.

Once the standby service water pump is started, HPCS inadvertently initiates and injects into the RPV. FWLC will respond and automatically maintain RPV level below the Level 8 setpoint. The crew will attempt to reset HPCS and place it back in standby per N2-OP-33, however the HPCS malfunction will prevent the system from being returned to standby. The crew will be required to place HPCS in pull to lock (PTL). After the HPCS pump is in PTL, suction strainer clogging will cause the running Control Rod Drive Pump to trip. The crew will take action per N2-SOP-30 and swap suction strainers. Once the suction strainers have been swapped, the crew will restart the Rod Drive pump.

Following the restoration of the Control Rod Drive Pump, a loss of both Line 5 and 6 will occur. An electrical fault will cause a complete loss of the Division 1 electrical switchgear. A fault on the Division 2 EDG will prevent it from automatically starting. The crew will take actions per N2-SOP-03 and manually start the Division 2 EDG and power the Division 2 electrical switchgear **(CRITICAL TASK)**. The loss of Division 1 switchgear will require the crew to manually scram the reactor, trip the turbine, and trip

both recirculation pumps. The crew will enter N2-EOP-RPV and begin actions to stabilize RPV pressure and level.

After the reactor is scrammed, a small LOCA will occur. The LOCA will cause RPV level to lower. The crew will attempt to maintain level using HPCS, however once HPCS is taken out of PTL, it will trip on motor electric fault. The crew will attempt to start RCIC for level control, however it will fail to automatically start using the initiation pushbutton. Once the crew manually starts up RCIC, it will trip on a failed pressure transmitter. The crew will manually start the Standby Liquid Control system (SLS). When RPV level reaches the TAF, the CRS will enter N2-EOP-C2 and direct all 7 ADS valves be opened. The crew will open the ADS valves and blowdown the reactor (**CRITICAL TASK**). As RPV pressure lowers, the low pressure ECCS systems will begin to inject and recover RPV level. The crew will control the low pressure ECCS systems to raise RPV level back to the normal band.

1. Termination Criteria

- a. RPV level has been recovered above the top of active fuel.

2. Critical Tasks

*CT-1.0 Justification: This task is identified as critical because without operator action to manually start the Division 2 EDG, the station would be in Station Blackout conditions.*

- a. CT-1.0, Given a failure of the Division 2 EDG to start, the crew will take action to manually start the Division 2 EDG IAW N2-SOP-03

*CT-2.0 Justification: This task is identified as critical because without operator action to open the 7 ADS valves, RPV water level would continue to lower until the fuel is no longer adequately cooled.*

- b. CT-2.0, Given RPV water level at or below the TAF but above the MSCWL, the crew will open 7 ADS valves IAW N2-EOP-C2
3. Length
  - a. ~70 minutes
4. Mitigation Strategy Code
  - a. RL 2- Small break LOCA or loss of high pressure injection, RPV level cannot be maintained above the top of active fuel, RPV Blowdown, recover level above TAF with low pressure systems and / or alternate coolant injection systems.
5. Technical Specifications
  - a. TS 3.7.1
  - b. TS 3.5.1
6. EAL Classification
  - a. Alert, FA1.1, ANY loss or ANY potential loss of EITHER Fuel Clad barrier OR RCS barrier.
  - b. Table F-1, RCS Barrier A.1, B.2, C.4
  - c. Alert, SA1.1, AC power capability to 4.16 KV emergency buses 2ENS\*SWG101 and 2ENS\*SWG103 reduced to a single power source, Table S-1, for  $\geq 15$  min. (Note 4)  
  
**AND**  
  
ANY additional single power source failure will result in a loss of all power to 4.16 KV emergency buses 2ENS\*SWG101 and 2ENS\*SWG103
7. Special Orders
  - a. None



## B. Initial Conditions

### 1. IC Number

- a. IC-150

### 2. Presets / With Triggers

- a. Malfunctions

- |   |                 |
|---|-----------------|
| 1) <b>CW10E</b> , 2SWP*MOV74E FAILS TO AUTO-OPEN            | <b>INSERTED</b> |
| 2) <b>CW10F</b> , 2SWP*MOV74F FAILS TO AUTO-OPEN            | <b>INSERTED</b> |
| 3) <b>DG04B</b> , DIV 2 EDG FAILS TO AUTO START,<br>FV=TRUE | <b>INSERTED</b> |
| 4) <b>RC01</b> , RCIC AUTO START FAILURE                    | <b>INSERTED</b> |
| 5) <b>CW01A</b> , SWP A TRIP, FV=TRUE                       | <b>TRG1</b>     |
| 6) <b>CS01B</b> , HPCS INITIATION ON LOW LEVEL,<br>FV=TRUE  | <b>TRG2</b>     |
| 7) <b>RD18</b> , CLOGGED RDS SUCTION STRAINER,<br>FV=TRUE   | <b>TRG3</b>     |
| 8) <b>ED02A</b> , LOSS OF LINE 5, FV=TRUE                   | <b>TRG4</b>     |
| 9) <b>ED02B</b> , LOSS OF LINE 6, FV=TRUE, DT=3             | <b>TRG4</b>     |
| 10) <b>ED05A</b> , DIV 1 BUS FAULT, FV=TRUE, DT=10          | <b>TRG4</b>     |
| 11) <b>RR20</b> , DBA LOCA, FV=0.5, RT=15:00                | <b>TRG15</b>    |
| 12) <b>RC06</b> , RCIC TURBINE TRIP, FV=TRUE, DT=30         | <b>TRG16</b>    |
| 13) <b>CS05</b> , HPCS PUMP TRIP, FV=TRUE, DT=5             | <b>TRG17</b>    |

- b. Remotes

- |   |             |
|---|-------------|
| 1) <b>CW55</b> , 2SWP*MOV95A BKR, FV=OPEN, DT=120             | <b>TRG5</b> |
| 2) <b>CW54</b> , 2SWP*MOV95A VALVE POSITION, FV=0,<br>DT=120  | <b>TRG5</b> |
| 3) <b>CW58</b> , 2SWP*V1230 VALVE POSITION, FV=100,<br>DT=130 | <b>TRG5</b> |

- 4) **CW59**, 2SWP-V1233 VALVE POSITION, FV=OPEN, DT=130 **TRG5**
- 5) **DG10**, HPCS LOCKOUT RESET, FV=RESET, DT=140 **TRG5**
- 6) **CW57**, 2SWP\*MOV95B BKR, FV=OPEN, DT=20 **TRG6**
- 7) **CW56**, 2SWP\*MOV95B VLV POSITION, FV=0, DT=25 **TRG6**
- 8) **RM02-041**, SWP 23B RAD MONITOR ONLINE, FV=ON **TRG7**
- 9) **RM03-041**, SWP 23B RAD MONITOR SAMPLE PUMP POWER, FV=ON **TRG7**
- c. Overrides
- 1) None
- d. Annunciators
- 1) None
- e. Event Triggers

Event #	Event Action	Command
15	zdrps1d==1 (mode switch to SD)	Blank
16	hzarcr606>0.625 (RCIC flow meter >500 gpm)	Blank
17	zdrps1d==1 .and. hzacshr603>0.04 (mode switch in shutdown and HPCS flow meter >2K gpm)	Blank

- f. Equipment Out of Service
- 1) 2WCS-P1B in Pull To Lock
- g. Support Documentation
- 1) None

## SHIFT TURNOVER INFORMATION

ON COMING SHIFT: ☐ N ☒ D

DATE: Today

**PART I:** To be performed by the oncoming Operator before assuming the shift.

- Control Panel Walkdown (all panels) (SRO, ROs)

**PART II:** To be reviewed by the oncoming Operator before assuming the shift.

- LCO Status (SRO)
- Shift Turnover Information Sheet

Evolutions/General Information/Equipment Status:

- Reactor Power = 90% due to Reactor Engineering request.
- 2WCS-P1B is out of service for maintenance.
- All LCOs are met

**PART III:** Remarks/Planned Evolutions:

- Raise power to 95% using Recirculation Flow per N2-OP-101D and provided RMI.

## ATTACHMENT 2: REACTIVITY MANEUVER INSTRUCTION

Reactivity Maneuver: Raise Power to 95%

Step: 3697

INITIAL CONDITIONS/STEP DESCRIPTION					
RE presence required in the Control Room? Yes___ No <input checked="" type="checkbox"/> ___ If YES above, RE presence not required for steps  Initial conditions to be verified prior to initiation of step:					
Parameter	Expected Range	Actual	Parameter	Expected Range	Actual
CTP	3600-3630 MWth		Load Line	<100%	
Time	Now		MFLCPR	<0.90	
Description of Step: 1. Raise recirculation flow to achieve 95% CTP (3783-3793 MWth) at a 25%CTP/hr rate					
Critical parameters to be monitored DURING Step: Critical parameters not used must be deleted OR marked N/A					
Critical Parameter	Limit	Owner	Frequency	Contingency	
MFLCPR	0.98	STA	Hourly and every 5% rise in CTP	Notify SM and RE Supervision; Demand and review 3D cases every 15 minutes.	
MFLPD or MAPRAT	0.97	STA	Hourly and every 5% rise in CTP	Notify SM and RE Supervision; Demand and review 3D cases every 15 minutes.	
Load Line	114.5%	STA	Every ½ hour	Plot location on power flow map every 15 minutes; Implement contingency RMI to lower load line.	
RMI evaluated against approved power profile: <input checked="" type="checkbox"/> N/A <input type="checkbox"/> .					
Other Comments: <ul style="list-style-type: none"> <li>Recirculation flow adjustments may be made per Shift Manager direction at the recommendation of Reactor Engineering.</li> </ul>					
Step Prepared By: <u>Joe Engineer</u>		Today <u>          </u>		Step Reviewed By: <u>John Engineer</u>	
RE/STA		Date		RE/STA/SRO	
Approval to Perform Step: <u>Joe Manager</u>		Today <u>          </u>		Step Completed By: <u>                    </u>	
Shift Manager		Date		SRO	
				Date	

## Shift Turnover

Instructor Actions / Plant Response	Operator Actions
<p>Take the Simulator out of freeze before the crew enters for the pre-shift walkdown.</p> <ul style="list-style-type: none"> <li>• Verify annunciator sound turned on</li> <li>• If recording scenario, start the recording device during the pre-shift walkdown</li> </ul>	
<p>Allow no more than 5 minutes to walkdown the panels.</p>	<p><b><u>Crew</u></b></p> <ul style="list-style-type: none"> <li>• Walkdown panels</li> <li>• Conduct shift turnover brief</li> <li>• Assume the shift</li> </ul>

## Event #1: Raise Power to 95% using Recirculation Flow

<b>Event Information</b>	<ul style="list-style-type: none"> <li>Initial reactor power is ~90%</li> <li>The crew will raise reactor power using Recirc to ~95% power</li> </ul>
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	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>Directs RO to raise power to 95% using Recirc flow per RMI and N2-OP-101D.</li> </ul>
	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges direction to raise reactor power to 95% using Recirc flow.</li> <li>Raises power to 95% by raising core flow: <ul style="list-style-type: none"> <li>Moves RCS*HYV17A&amp;B individually in the open direction, maintaining loop flow differential at a minimal value by alternating between the two valves.</li> </ul> </li> <li>Monitors APRMs and rate of power change.</li> </ul>
	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>Monitors plant parameters to verify proper operations.</li> <li>Provides peer checks as needed</li> </ul>

<b>Event Termination Criteria</b>	<ul style="list-style-type: none"> <li>Reactor power has been raised sufficiently as determined by the Lead Evaluator.</li> </ul>
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## Event #2: Service Water Pump Trip

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• Service Water Pump P1A trips on motor electric fault.</li> <li>• Operators will respond per the ARPs and start an additional pump.</li> <li>• The discharge valve will not automatically open when starting the standby pump requiring operators to manually open the valve.</li> </ul>
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<p>Verify inserted the following malfunctions:</p> <p><b>CW10E</b>, 2SWP*MOV74E FAILS TO AUTO-OPEN  <b>CW10F</b>, 2SWP*MOV74F FAILS TO AUTO-OPEN</p> <p>When directed by lead instructor/evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG1      CW01A</b>, SWP A TRIP, FV=TRUE</p> <p><i>Service Water Pump P1A trips</i></p> <p><i>The following annunciators alarm:</i></p> <ul style="list-style-type: none"> <li>• 601113, Service Water Pump 1A/1C/1E Auto Trip Fail to Start</li> <li>• 601114, Service Water Pump 1A/1C/1E Motor/Feeder Elec Fault</li> </ul>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports loss of SWP P1A</li> </ul>

<p><b>Note:</b></p> <p>The SRO may determine that a SWP must be started immediately and direct the BOP to start a pump without going through the in plant actions. This method is acceptable. If the SRO decides on this course of action, then throttling of the MOV74's will not be required.</p>	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Directs BOP to respond to trip of SWP P1A</li> <li>• References TS 3.7.1 and determines &lt;4 operable service water pumps are in operation</li> <li>• Enters condition E of TS 3.7.1 and determines he has 72 hours to restore 4 service water pumps to operation.</li> </ul>
<p><b><u>Role Play</u></b></p> <p>As PO dispatched to inspect SWP P1A, wait two minutes and inform them that the pump motor is abnormally hot to the touch and the breaker overcurrent flag is tripped.</p> <p><b>Note:</b></p> <p>The SRO may direct starting either SWP E or F</p> <p><b><u>Role Play</u></b></p> <p>As PO dispatched to perform prestart checks on SWP E or F, wait one minute and report that prestart checks have been completed satisfactorily.</p> <p><b>Note:</b></p> <p>P&amp;L 13. States the following: With three operable and running SWP pumps, the plant shall restore 4 operable pumps to service in an expedited fashion. In this condition the plant is in a degraded state, see Tech Spec 3.7.1 for required actions.</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to respond to SWP P1A trip</li> <li>• May contact PO and direct them to inspect SWP A pump and breaker</li> <li>• References ARP 60113 and determines flows on the operating SWPs are &gt;10,000 gpm</li> <li>• Throttles shut on 2SWP*MOV74B, C, D to maintain flows &lt;10,0000 gpm</li> <li>• Determines that time permits to start a SWP per N2-OP-11, Section E.2.0</li> <li>• Contacts PO and directs him to perform prestart checks of SWP E(F)</li> <li>• Determines conditions in P&amp;L 13.0 are met</li> <li>• Verifies 2SWP*MOV74E(F) IS SHUT</li> </ul>



<p><b><u>Role Play</u></b></p> <p>As PO directed to perform steps E.2.4 through E.2.6, wait one minute and inform the control room that those steps have been complete</p> <p><b>Note:</b></p> <p>When SWP P1E(F) is started, its associated discharge valve will fail to open.</p> <p><b><u>Role Play</u></b></p> <p>As Electrical Maintenance contacted for SWP A trip, inform them you will begin working on a troubleshooting plan.</p>	<p><b><u>BOP (cont.)</u></b></p> <ul style="list-style-type: none"> <li>• Contacts PO and directs them to perform N2-OP-11, Steps E.2.4 through E.2.6 for SWP E(F)</li> <li>• Determines sufficient flow is available for each SWP to have at least 2500 gpm</li> <li>• Starts SWP E(F) by placing control switch in NORMAL AFTER START</li> <li>• Verifies the following parameters:                         <ul style="list-style-type: none"> <li>○ Red running light lit.</li> <li>○ Pump Current is <math>\leq 76</math> amps.</li> <li>○ 2SWP*MOV74E(F) opens fully.</li> <li>○ ALL running Service Water Pump Flows are <math>\geq 2500</math> gpm.</li> </ul> </li> <li>• Determines that 2SWP*MOV74E(F) failed to open and manually opens MOV74E(F).</li> <li>• Informs SRO that SWP E(F) has been started and its associated discharge valve failed to open automatically.</li> <li>• May place SWP P1A control switch in PTL</li> <li>• Contacts Electrical Maintenance</li> <li>• Fully opens 2SWP*MOV74B, C, and D</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges BOP report of 2SWP*MOV74E(F) failing to automatically open.</li> <li>• If P1E was started, declares 2SWP*P1E inoperable and determines he is still in condition E of TS 3.7.1 and also TS 3.7.1, Condition C now applies (only one operable service water pump in one division). Determines he has 72 hours to restore the Division 1 SW Subsystem to operable status.</li> </ul>

	<p><b><u>SRO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>If P1F was started, declares 2SWP*P1F inoperable and determines he is still in TS 3.7.1, Condition E and has 72 hours to start a fourth operable SWP.</li> </ul>
<p><b><u>Role Play</u></b></p> <p>As the SM, acknowledge the report from the SRO and inform him to maintain SWP P1E(F) running until an evaluation can be made.</p>	<ul style="list-style-type: none"> <li>Contacts SM and informs him that both SWP P1A and E(F) are inoperable.</li> </ul>

<p><b>Event Termination Criteria</b></p>	<ul style="list-style-type: none"> <li>2SWP*P1E(F) is running and its associated discharge valve is open.</li> </ul>
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## Event #3: Inadvertent Initiation of HPCS

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• With the plant at power, an inadvertent initiation of HPCS will occur.</li> <li>• FWLC will automatically respond and the plant will remain online.</li> <li>• The crew will take action to secure HPCS.</li> </ul>
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<p>When directed by lead instructor/evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG2 CS01B</b>, HPCS INITIATION ON LOW LEVEL, FV=TRUE</p> <p><i>HPCS will auto start and begin injecting into the core.</i></p> <p><i>RPV water level will rise and FWLC will respond to lower level.</i></p> <p><i>MWth lowers.</i></p> <p><i>The following annunciators alarm:</i></p> <ul style="list-style-type: none"> <li>• 852311 EDG 2 TROUBLE</li> <li>• 852317 EDG2 RUNNING</li> <li>• 603139 REACTOR WATER LEVEL HIGH/LOW</li> </ul>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports HPCS initiation and injection into the RPV</li> </ul>
	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>• Monitors RPV water level and FWLC response.</li> <li>• Reports to the SRO that FWLC is responding</li> </ul>

	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of HPCS initiation and injection into the core and FWLC responding</li> <li>• Directs BOP to determine if the HPCS initiation signal is valid</li> </ul>
<p><b><u>Role Play</u></b></p> <p>If contacted as booth to provide indication of the HPCS trip units all read normal and are not tripped.</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Determines drywell pressure is &lt;1.68 psig</li> <li>• Determines RPV water level is &gt;108.8 inches</li> <li>• Goes to back panels and calls the booth for indication on the HPCS trip units</li> <li>• Informs the SRO that HPCS did not initiate on a valid signal</li> </ul>
<p><b><u>Note:</u></b></p> <p>The SRO may direct a normal shutdown first before directing a shutdown to inoperable status.</p>	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report from BOP that HPCS did not initiate on a valid signal</li> <li>• Directs BOP to shutdown HPCS per N2-OP-33, Section G.3.0 or place HPCS in Pull-To-Lock</li> </ul>
<p><b><u>Role Play</u></b></p> <p>As PO dispatched to perform running checks on HPCS diesel, acknowledge report</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to shutdown HPCS</li> <li>• May depresses HPCS MANUALLY OUT OF SERVICE pushbutton</li> <li>• Places HPCS control switch in PTL</li> <li>• Informs SRO that HPCS is shutdown</li> <li>• May contact PO and direct them to perform running checks on HPCS DG</li> </ul>

<p><b><u>Role Play</u></b> As SM, acknowledge report of HPCS inadvertent initiation and inform the control room that you will contact the work week manager.</p>	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report that HPCS is shutdown</li> <li>• Declares HPCS inoperable and enters TS 3.5.1 Condition B</li> <li>• May contact SM and inform them of HPCS initiation</li> </ul>
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<p><b>Event Termination Criteria</b></p>	<ul style="list-style-type: none"> <li>• The HPCS pump is in Pull to Lock</li> </ul>
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## Event #4: Loss of CRD due to Suction Strainer Clogging

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• A clogged suction strainer will cause a loss of the running CRD pump.</li> <li>• The crew will take action to swap suction strainers and restart the CRD pump.</li> </ul>
<p>When directed by lead instructor/evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG3 : RD18, CLOGGED RDS SUCTION STRAINER, FV=TRUE</b></p> <p><i>The following annunciator alarms:</i></p> <ul style="list-style-type: none"> <li>• 603318 CRD Pmp Suction Fltr Diff Press High</li> </ul> <p><i>After the CRD pump trips then:</i></p> <ul style="list-style-type: none"> <li>• 603308 CRD Pmp 1A/1B Auto Trip</li> <li>• 603309 CRD Pmp 1A Suct Press Low</li> <li>• 603311 CRD Charging Wtr Press Low</li> <li>• 603315 CRD PMP 1B Suct Press Low</li> <li>• 603446 CRD Pmp Disch Hdr Press Low</li> <li>• 603441 ROD DRIVE ACCUMULATOR Trouble</li> </ul> <p><i>Multiple Accumulator Trouble Alarms come in.</i></p> <p><i>After a period of time following the pump trip:</i>          603316 CONTROL ROD TEMPERATURE HIGH          602324, RWCU PUMP CLG WTR TEMP HIGH</p>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports to the SRO RDS high suction filter DP</li> <li>• References ARP 603318</li> <li>• Reports trip of RDS*P1A</li> </ul>

	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges trip of RDS*P1A</li> <li>• Directs RO to enter N2-SOP-30</li> </ul>
<p><b><u>Role Play</u></b>  As PO directed to report accumulator pressures, wait two minutes and report that all accumulator pressures are ~1000 psig.</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports the accumulator trouble alarms</li> <li>• References AN603441: <ul style="list-style-type: none"> <li>○ Determines which accumulators have trouble alarms by looking at the full core display</li> <li>○ References N2-OP-30, Section F.7.0</li> <li>○ Contacts a PO and directs them to report accumulator pressures for the alarming accumulators</li> <li>○ Reports to the SRO that Accumulators are all reading above 940 psig</li> </ul> </li> </ul>
<p><b><u>Role Play</u></b>  As PO directed to go swap RDS suction filters, wait until WCS is isolated then <b>delete</b> the following <b>malfunction</b>:</p> <p style="text-align: center;"><b>RD18, CLOGGED RDS SUCTION STRAINER</b></p> <p>Inform the RO that the RDS suction filters have been swapped.</p>	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to enter N2-SOP-30</li> <li>• Performs the actions of N2-SOP-30: <ul style="list-style-type: none"> <li>○ Determines a RDS pump is not operating</li> <li>○ Shifts RDS flow controller to manual and closes it</li> <li>○ Contacts PO and directs them to swap RDS suction filters per N2-SOP-30, Section F.1.0</li> <li>○ While waiting for the PO to swap suction filters, responds to Annunciator 602324 (when it alarms) as follows: <ul style="list-style-type: none"> <li>▪ Throttles 2WCS*MOV200 until the in-service filters are on hold.</li> <li>▪ Trips WCS pump.</li> </ul> </li> </ul> </li> </ul>

<p><b><u>Role Play</u></b></p> <p>When contacted by the RO to verify seal flows and backfill flows, wait two minutes and say they are satisfactory.</p>	<p><b><u>RO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>○ Once PO reports back the suction filters have been swapped, restarts RDS*P1A</li> <li>○ Once an RDS pump is running, adjusts the RDS flow control valve so system flow is approximately 63 gpm</li> <li>○ Places RDS flow controller back in automatic</li> <li>○ Contacts PO and directs them to verify WCS/RCS seal flows and backfill flows per N2-OP-30, Section F.2.5 through F.2.9</li> </ul>
<p><b><u>Note:</u></b></p> <p>Approximately 4 minutes after trip of RDS pump, AN603316, Control Rod Temp. High will alarm.</p> <p><b><u>Role Play</u></b></p> <p>As PO dispatched to monitor CRDM temperatures, wait two minutes after start of RDS pump, (and AN603316 is clear), and report CRDM temperatures are back to normal.</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports high CRDM temperature alarm</li> <li>• Contacts PO and dispatches them to monitor CRDM temperatures at 2RDS-TRS165</li> </ul>

<p><b>Event Termination Criteria</b></p>	<ul style="list-style-type: none"> <li>• CRD Suction Strainers have been swapped and a CRD pump has been restarted.</li> </ul>
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## Event #5: Loss of Line 5 and 6, Division 2 EDG Fails to Auto Start

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• A loss of Line 5 and 6 will occur.</li> <li>• Division 1 bus will not be reenergized due to a bus fault</li> <li>• Division 2 EDG will not auto start however it can be manually started.</li> </ul>
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<p>Verify <b>inserted</b> the following <b>malfunction</b>:</p> <p><b>DG04B</b>, DIV 2 EDG FAILS TO AUTO START, FV=TRUE</p> <p>When directed by lead instructor/evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG4</b>     <b>ED02A</b>, LOSS OF LINE 5, FV=TRUE  <b>ED02B</b>, LOSS OF LINE 6,  FV=TRUE, DT=3  <b>ED05A</b>, DIV 1 BUS FAULT,  FV=TRUE, DT=10</p> <p><i>Power is lost to Div 1 and 2 SWG  Div 1 EDG starts, but does not power its bus  Div 2 EDG fails to start  Division 3 EDG starts up and powers its bus</i></p>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports loss of line 5 and 6 and failure of Div 2 EDG to automatically start</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of loss of line 5 and 6</li> <li>• Directs BOP to enter N2-SOP-03</li> </ul>

**Note:**

The crew may attempt to start the start the Division 2 EDG before dispatching an operator to align Firewater to the HPCS EDG. If this is the case, then they will be able to start the diesel and not have to supply Firewater to the HPCS EDG.

**Role Play**

As PO, if dispatched to align firewater to HPCS EDG, insert the following remote functions:

**TRG5**      **CW55**, 2SWP\*MOV95A BKR,  
 FV=OPEN, DT=120  
               **CW54**, 2SWP\*MOV95A VALVE  
 POSITION, FV=0, DT=120  
               **CW58**, 2SWP\*V1230 VALVE  
 POSITION, FV=100, DT=130  
               **CW59**, 2SWP-V1233 VALVE  
 POSITION, FV=OPEN, DT=130  
               **DG10**, HPCS LOCKOUT RESET,  
               FV=RESET, DT=140

When the above remotes are in, contact the control room and confirm that flow is indicated in the control room on 2SWP\*FI535. When flow is confirmed, insert the following remote functions:

**BOP (N2-SOP-03)**

- Acknowledges direction to enter N2-SOP-03
- Determines HPCS EDG has started and Division I and II EDGs are not powering their bus
- Using HPCS DIESEL ENGINE EMERGENCY STOP pushbutton on 2CEC\*PNL852, immediately trips the HPCS Diesel.
- Contacts PO and directs them to supply fire water to HPCS EDG per N2-SOP-03, Detail B
- Determines both divisions lost power
- Determines Division 1 EDG will not be able to power its bus due to a bus fault (Annunciators 852131 and 852148)
- Determines Division 2 EDG did not start and power its bus
- Attempts to manually start and load the Division II EDG as follows:
  - Verifies the following annunciators are not lit:
    - 852211
    - 852225
    - 852227
    - 852231
    - 852235
    - 852239
    - 852247
    - 852248

<p><b>TRG6</b>      <b>CW57</b>, 2SWP*MOV95B BKR, FV=OPEN, DT=20 <b>CW56</b>, 2SWP*MOV95B VALVE POSITION, FV=0, DT=25</p> <p>Report to the control room that firewater has been aligned to the HPCS EDG</p> <p><b>CT-1.0: Given a failure of the Division 2 EDG to automatically start, the crew will take action to manually start the Division II EDG IAW N2-SOP-03</b></p>	<p><b><u>BOP (N2-SOP-03) (cont.)</u></b></p> <ul style="list-style-type: none"> <li>○ <b>Places Division II 2EGS*EG3 control switch to START.</b></li> <li>○ Verifies Emergency DSL GEN 3 frequency 60 Hz.</li> <li>○ Verifies Emergency DSL GEN 3 voltage is 4160 V.</li> <li>○ Determines that Division 2 EDG started and re-energized the Division 2 SWG</li> <li>• Reports to the SRO that EDG has started and is powering the Division II SWG</li> <li>• Informs the SRO that N2-SOP-03 requires entry into N2-SOP-11</li> </ul>
	<p><b><u>SRO (N2-SOP-11)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of Division 2 EDG running and powering its bus and the requirement to enter N2-SOP-11</li> <li>• Directs RO/BOP to enter N2-SOP-11.</li> </ul>
<p><b>Note:</b> Because only Division 2 has electrical power, a reactor scram will be required per N2-SOP-11.</p>	<p><b><u>RO/BOP (N2-SOP-11)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to enter N2-SOP- 11.</li> <li>• Enters N2-SOP-11</li> <li>• Determines that SWP Non-Essential Headers are isolated and cannot be restored.</li> <li>• Informs the SRO that N2-SOP-11 requires the following actions: <ul style="list-style-type: none"> <li>○ Scram the reactor</li> <li>○ Trip the Turbine</li> <li>○ Trip both Recirculation Pumps</li> </ul> </li> </ul>

	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report from BOP that a reactor scram is required.</li> <li>• Directs the RO to manually scram the reactor.</li> </ul>
	<p><b><u>RO (N2-SOP-11)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to manually scram the reactor.</li> <li>• Places the Mode Switch in SHUTDOWN.</li> <li>• Determines all rods inserted.</li> <li>• Provides Scram Report to the SRO.</li> </ul>
	<p><b><u>BOP (N2-SOP-21)</u></b></p> <ul style="list-style-type: none"> <li>• Trips the Turbine as follows per N2-SOP-21: <ul style="list-style-type: none"> <li>○ Determines power is &lt;21%</li> <li>○ Depresses both Turbine TRIP pushbuttons.</li> <li>○ Determines the Turbine Tripped and verifies the MSVs, CVs, and CIVs closed.</li> </ul> </li> <li>• Recognizes that the turbine trip caused a loss of both SWG001 and 003.</li> <li>• Verifies tripped both Recirculation Pumps by placing the control switches to STOP.</li> <li>• As timer permits, continues actions in Attachment 1 of N2-SOP-03</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges scram report.</li> <li>• Enters N2-EOP-RPV</li> </ul>

<b>Event Termination Criteria</b>	<ul style="list-style-type: none"> <li>• Reactor is scrammed</li> <li>• N2-EOP-RPV is entered.</li> </ul>
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## Event #6: Small LOCA and Loss of High Pressure Injection

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• A small LOCA and loss of high pressure injection sources will require an RPV Blowdown due to RPV Level.</li> <li>• RPV Level will be recovered using low pressure ECCS pumps.</li> </ul>
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<p><b>Note:</b>          When the crew placed the mode switch in shutdown in the previous event, the below <b>malfunction</b> was <b>inserted</b>:</p> <p style="padding-left: 40px;"><b>RR20</b>, DBA LOCA, FV=0.5,          RT=15:00</p> <p><i>DW pressure starts to rise slowly</i>  <i>RPV water level starts to lower</i>  <i>The following annunciator alarms:</i></p> <ul style="list-style-type: none"> <li>• 851254 PROCESS AIRBORNE RADN MON ACTIVATED</li> </ul>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports rising drywell pressure and lowering RPV level</li> </ul>
	<p><b><u>SRO (N2-EOP-RPV)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of rising drywell pressure and lowering RPV level.</li> <li>• When drywell pressure reaches 1.68 psig, enters N2-EOP-PC.</li> <li>• Directs RO to perform actions of N2-SOP-101C</li> <li>• Directs RO to maintain RPV water level 160 to 200 inches using RCIC</li> </ul>

<p><b>Note:</b></p> <p>Due to the electrical failure of Division 1, the SRO may given out the order of 500 to 1000 psig using sustained opening of the SRVs instead of 800 to 1000 psig.</p>	<ul style="list-style-type: none"> <li>• Directs BOP to coordinate with the RO and maintain RPV pressure 800 to 1000 psig (500 to 1000 psig) using RCIC, supplement with SRVs</li> </ul>
<p><b>Role Play</b></p> <p>As PO directed to energize 2WCS-MOV107, acknowledge the report.</p>	<p><b><u>RO (N2-SOP-101C)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to take actions per N2-SOP-101C</li> <li>• Acknowledges direction to maintain RPV water level 160 to 200 inches using RCIC</li> <li>• Performs initial actions of N2-SOP-101C: <ul style="list-style-type: none"> <li>○ Verifies turbine has tripped and TSV/TCVs are shut</li> <li>○ Verifies generator has tripped and house loads have transferred</li> <li>○ Verifies SDV vent and drain valves have closed</li> <li>○ Verifies RCS pumps are not running</li> <li>○ As necessary inserts SRMs and IRMs</li> <li>○ May direct energizing 2WCS-MOV107</li> <li>○ May shutdown HWC</li> </ul> </li> </ul>
	<p><b><u>BOP (N2-EOP-RPV)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to coordinate with the RO and maintain RPV pressure 800-1000 (500 to 1000) psig using RCIC and supplement with SRVs</li> <li>• Monitors RPV pressure and cycles SRVs as necessary to maintain 800-1000 (500 to 1000) psig.</li> </ul>
<p><b>Note:</b></p> <p>Malfunctions will prevent RCIC from automatically starting with the RCIC Pushbutton.</p>	<p><b><u>RO (N2-EOP-HC)</u></b></p> <ul style="list-style-type: none"> <li>• Initiates RCIC as follows: <ul style="list-style-type: none"> <li>○ Determines RCIC is not already running, and arms AND depresses RCIC MANUAL INITIATION pushbutton</li> <li>○ Determines RCIC did not start using the</li> </ul> </li> </ul>

	<p>initiation pushbutton and a manual RCIC start is required.</p> <ul style="list-style-type: none"> <li>Manually initiates RCIC as follows:           <ul style="list-style-type: none"> <li>Places 2ICS*FC101 in Manual AND sets output to 20%</li> </ul> </li> </ul>
	<p><b><u>RO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>Starts GLAND SEAL SYSTEM AIR COMPRESSOR</li> <li>Opens ICS*MOV116, LUBE OIL COOLING WATER SUPPLY</li> <li>Opens ICS*MOV120, TURB STM SUPPLY VLV, AND observes RCIC Turbine speed rising</li> <li>Verifies open ICS*MOV143, PMP MINIMUM FLOW TO SUPPRESSION POOL</li> <li>WHEN ICS*MOV120 is full open, opens ICS*MOV126, PMP 1 DISCH TO REACTOR</li> <li>Slowly raises RCIC Turbine speed using RCIC FLOW CONTROLLER in Manual AND verifies the following:           <ul style="list-style-type: none"> <li>RCIC Turbine speed rises on E51-C002-M1</li> <li>RCIC pump discharge pressure rises on E51-R601</li> </ul> </li> <li>WHEN RCIC pump discharge pressure exceeds reactor pressure, verifies the following:           <ul style="list-style-type: none"> <li>ICS*V156, REACTOR INJECTION OUTBD CHECK VLV, opens</li> <li>ICS*V157, REACTOR INJECTION INBD CHECK VLV, opens</li> <li>RCIC injection flow rises on E51-R606</li> </ul> </li> <li>WHEN system flow exceeds 220 gpm, verify ICS*MOV143, PMP MINIMUM FLOW TO SUPPRESSION POOL, closes</li> </ul>

<p>After RCIC flow is above 500 gpm, verify <b>inserted</b> the following <b>malfunction</b>:</p> <p><b>RC06</b>, RCIC TURBINE TRIP,  FV=TRUE, DT=30  <i>RCIC trips on high turbine exhaust pressure.</i></p>	<ul style="list-style-type: none"> <li>○ WHEN RCIC injection flow reaches 600 gpm, place flow controller in Automatic</li> </ul>
	<p><b><u>RO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>• ~30 seconds after RCIC flow reaches 500 gpm, determines that RCIC tripped and cannot be restarted.</li> <li>• Informs SRO that RCIC has tripped.</li> </ul>
	<p><b><u>SRO (N2-EOP-RPV)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of RCIC trip.</li> <li>• Directs BOP to maintain RPV pressure 800-1000 psig using SRVs.</li> <li>• Directs RO to maintain RPV Level 160-200 inches using HPCS.</li> </ul>
<p>~8 seconds after HPCS starts, verify <b>inserted</b> the following <b>malfunction</b>:</p> <p><b>CS05</b>, HPCS PUMP TRIP, FV=TRUE,  DT=5  <i>HPCS pump trips on motor electric fault.</i></p>	<p><b><u>RO (N2-EOP-RPV)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges order to maintain RPV Level 160-200 inches using HPCS.</li> <li>• Takes HPCS control switch out of PTL</li> <li>• Determines that HPCS tripped on motor electric fault.</li> <li>• Reports to the SRO that HPCS tripped on motor electric fault.</li> </ul>
	<p><b><u>BOP (N2-EOP-RPV)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to maintain RPV pressure 800-1000 psig using SRVs only.</li> </ul>
	<p><b><u>SRO (N2-EOP-RPV)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report that HPCS has tripped.</li> <li>• Determines alternate injection systems</li> </ul>



	<p>are needed and performs the following:</p> <ul style="list-style-type: none"> <li>○ Directs RO to inject with SLS per N2-OP-36A, Section H.1.0</li> </ul>
	<p><b><u>SRO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>○ Determines water level cannot be restored and maintained above -14 inches and enters center leg of N2-EOP-RPV</li> <li>○ Directs BOP to inhibit ADS</li> </ul>
	<p><b><u>RO (N2-EOP-RPV)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to inject with SLS per N2-OP-36A, Section H.1.0</li> <li>• Injects with SLS as follows: <ul style="list-style-type: none"> <li>○ Places keylock switches for both SLS*P1B in RUN</li> <li>○ Recognizes SLS P1B started as expected and all indications are normal</li> <li>○ Reports to the SRO that SLS is injecting with SLS P1B</li> </ul> </li> </ul>
	<p><b><u>BOP (N2-EOP-HC)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to inhibit ADS</li> <li>• Inhibits ADS by performing the following: <ul style="list-style-type: none"> <li>○ Places BOTH DIV I and Div II ADS AUTOMATIC INITIATION DISABLE keylock switches in ON</li> </ul> </li> <li>• Informs the SRO that ADS is inhibited</li> </ul>

<p><b>Note:</b>  The SRO may also direct to lineup RHS B for injection through shutdown cooling before blowing down. This is an acceptable action but not required.</p> <p><b>Note:</b>  At the Lead Evaluator's discretion, the following malfunction may be adjusted to raise or lower the rate at which RPV level is lowering:</p> <p style="text-align: center;"><b>RR20, DBA LOCA</b></p> <p><b>CT-2.0 Given RPV level at or below the TAF but above the MSCWL, the crew will open 7 ADS valves IAW N2-EOP-C2</b></p>	<p><b><u>SRO (N2-EOP-RPV and N2-EOP-C2)</u></b></p> <ul style="list-style-type: none"> <li>• Determines at least two injection systems are lined up</li> <li>• Waits until RPV water level is at TAF</li> <li>• Determines LPCI B and C ECCS systems are lined up with a pump running</li> <li>• Waits until RPV water level is at TAF</li> <li>• Determines LPCI B and C ECCS systems are lined up with a pump running</li> <li>• Enters N2-EOP-C2, RPV Blowdown: <ul style="list-style-type: none"> <li>○ Determines Reactor will stay shutdown without boron</li> <li>○ Determines drywell pressure is above 1.68 psig</li> <li>○ Determines there is no need to prevent LPCI or LPCS injection</li> <li>○ Determines suppression pool level is &gt;192 feet</li> </ul> </li> <li>○ <b>Directs BOP to open 7 ADS valves.</b></li> </ul>
<p><b>CT-2.0 Given RPV level at or below the TAF but above the MSCWL, the crew will open 7 ADS valves IAW N2-EOP-C2</b></p>	<p><b><u>BOP (N2-EOP-HC)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to open 7 ADS valves and performs the following: <ul style="list-style-type: none"> <li>○ Determines no SRVs are stuck open and an ECCS pump is running</li> <li>○ <b>Arms and depresses both ADS pushbuttons for each division</b></li> <li>○ <b>Informs the SRO that 7 ADS valves are open</b></li> </ul> </li> <li>• Verifies LPCI B and C ECCS systems inject when pressure is lowered sufficiently</li> </ul>
<p><b>Note:</b>  As RPV pressure lowers, LPCI B and C will inject and RPV level will begin to rapidly rise.</p>	<p><b><u>SRO (N2-EOP-RPV)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report from BOP that 7 ADS valves are open</li> </ul>



	<p><b><u>SRO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>• Directs BOP to inject with all available injection system to restore RPV level &gt;MSCWL</li> <li>• As water level rises above MSCWL and TAF, directs RO to secure injection sources as necessary to establish and maintain an RPV water level of 160 to 200 inches</li> <li>• May direct BOP to remove RHS B and place it into suppression chamber sprays per N2-EOP-6, Attachment 22</li> </ul>
<p><b><u>Note</u></b></p> <p>Actions in EOP-RPV regarding establishing adequate core cooling will be prioritized, however as systems become available, the SRO may choose to use systems as necessary to mitigate primary containment parameters</p>	<p><b><u>SRO, (N2-EOP-PC)</u></b></p> <ul style="list-style-type: none"> <li>• Determines DW pressure cannot be maintained &lt;1.68 psig</li> <li>• Directs BOP to place suppression chamber sprays in service on RHS B per N2-EOP-6.22</li> </ul>
	<p><b><u>BOP (N2-EOP-6.22)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction from SRO to spray the suppression chamber using RHS B: <ul style="list-style-type: none"> <li>○ Verifies open MOV90B</li> <li>○ Verifies shut and overridden MOV24B</li> <li>○ Verifies RHS B is running</li> <li>○ Verifies open 2RHS*MOV33B</li> <li>○ Throttles open 2SWP*MOV33B as necessary to establish service water flow to RHS heat exchanger</li> </ul> </li> </ul>

Copy \_\_\_\_ of \_\_\_\_

Training Id: **NRC 2013 Scenario 2**

Revision: **0.0**

**PC 4, High containment pressure approaching PCPL, exceeds PSP,**  
Title: **RPV Blowdown required**

	<u>Signature / Printed Name</u>	<u>Date</u>
Developed By	 David Huff	12/17/2013
Validated By	Michael Storms	12/13/2013
	Phil MacEwen	
	Doug Mizener	
Facility Reviewer	 Aaron Armstrong	1/3/2014

## References

1. N2-OP-101D, Power Changes
2. N2-OP-92, Neutron Monitoring System
3. N2-OP-25, Auxiliary Steam, Auxiliary Condensate, and Gland Seal
4. N2-SOP-97, RPS Failures
5. N2-SOP-11, Loss or Degraded Service Water
6. N2-EOP-RPV, RPV Control
7. N2-EOP-PC, Primary Containment Control
8. N2-EOP-C2, RPV Blowdown
9. Unit 2 Technical Specifications

## Instructor Information

### A. Scenario Description

The crew will take the shift at ~65% power. The shutdown is on hold pending surveillance results. Instrument Air Compressor C is out of service due to maintenance. After the crew takes the shift, a malfunction in the normal station service transformer cooling system causes transformer temperatures to rise. The crew will dispatch a PO to investigate. The PO will report that several of the transformer cooling fans are not running and cannot be started. The crew will coordinate with the PO and lower power per N2-SOP-101D to stabilize transformer temperatures. Once temperatures are under control, APRM 2 will fail upscale. The crew will take action per the ARP's and N2-OP-92 to bypass APRM 2. The CRS will evaluate TS 3.3.1.1 for the inoperable APRM.

Once APRM 2 is bypassed, the running Gland Seal Exhaust Fan will trip on motor electric fault. The crew will take action per the ARP's and N2-OP-25 to isolate the tripped Gland Seal Exhaust Fan and start a standby fan. After the Gland Seal Exhaust Fan is started, the RPS B Motor Generator will trip causing a half scram on RPS B side. The crew will enter N2-SOP-97 and align the RPS B solenoids to their alternate power supply. While resetting the EPA's per N2-SOP-97, the Plant Operator will report that the undervoltage trip relay had to be bypassed in order to reset one of the EPA's. The CRS will declare the associated EPA inoperable and evaluate TS 3.3.8.3.

After the RPS B solenoids are powered from their alternate power supply, Service Water intake clogging will occur causing Service Water intake bay level to lower. The crew will take action per N2-SOP-11 and attempt to clean the traveling screens. Intake bay will continue to lower to 234 feet. The intake bay bypass valves 2SWP\*MOV77A/B will fail to automatically open requiring the crew

to take manual action to open the valves **(CRITICAL TASK)**.

Once MOV77A and B are open, intake bay level will recover.

Once Service Water intake bay level is restored, a loss of all feed pumps will occur. The loss will require the crew to place the Mode Switch in shutdown. Once RPV level has been stabilized using alternate level control systems, a LOCA will occur. The LOCA will cause Primary Containment (PC) parameters to degrade and the crew will enter N2-EOP-PC to stabilize PC parameters.

Malfunctions in the Division 1 RHS systems will prevent RHS A from being used for primary containment control and the crew will be required to use RHS B to spray the suppression chamber. As PC conditions continue to degrade, the crew will attempt to spray the drywell using RHS B. While the crew is attempting to align drywell sprays, 2RHS\*MOV25B (Drywell Spray Valve) will stick shut. Plant Operators will be dispatched in an attempt to manually open MOV25B. While the POs are attempting to manually open MOV25B, primary containment parameters will continue to degrade. The CRS will determine that Suppression Chamber Pressure cannot be restored and maintained within the Pressure Suppression Limit and will enter N2-EOP-C2 and direct 7 ADS valve be opened. The crew will open 7 SRV's and blowdown the reactor **(CRITICAL TASK)**. The scenario may be terminated once 7 SRV's are opened.

1. Termination Criteria
  - a. 7 SRV's are open.

2. Critical Tasks

*CT-1.0 Justification: This task is identified as critical because without operator action, the plant will lose its ultimate heat sink.*

- a. CT-1.0, Given service water intake bay level less than 234 ft and a failure of 2SWP\*MOV77A & 77B to automatically open, the crew will take action to manually open 2SWP\*MOV77A & 77B per N2-SOP-11.

*CT-2.0 Justification: This task is identified as critical because without operator action the primary containment pressure suppression function would continue to degrade and would not be able to accept a full blowdown of the reactor.*

- b. CT-2.0, Given Suppression Chamber Pressure unable to be restored and maintained within the Pressure Suppression Limit, the crew will open 7 SRV's IAW N2-EOP-C2.

3. Length

- a. ~80 minutes

4. Mitigation Strategy Code

- a. PC 4, High containment pressure approaching PCPL, exceeds PSP, RPV Blowdown required

5. Technical Specifications

- a. TS 3.3.1.1
- b. TS 3.3.8.3

6. EAL Classification

- a. Alert, FA1.1, ANY loss or ANY potential loss of EITHER Fuel Clad barrier OR RCS barrier.
- b. Table F-1, RCS Barrier B.2, C.4

7. Special Orders

- a. None



**B. Initial Conditions**

1. IC Number

a. IC-151

2. Presets / With Triggers

a. Malfunctions

- |  |                 |
|--|-----------------|
| 1) <b>ED16</b> , Main Transformer Loss of Cooling, FV = 89   | <b>INSERTED</b> |
| 2) <b>RH14A</b> , ECCS FAILS TO INITIATE (DIV 1),<br>FV=TRUE | <b>INSERTED</b> |
| 3) <b>RH10B</b> , RHS*MOV25B JAMMED, FV=TRUE                 | <b>INSERTED</b> |
| 4) <b>NM11B</b> , APRM 2 FAIL UPSCALE, FV=TRUE               | <b>TRG1</b>     |
| 5) <b>MS20A</b> , GLAND SEAL EXHAUST FAN TRIP,<br>FV=TRUE    | <b>TRG2</b>     |
| 6) <b>RP06B</b> , LOSS OF MOTOR GENERATOR MG01B,<br>FV=TRUE  | <b>TRG3</b>     |
| 7) <b>CW09</b> , SW INTAKE CLOGGING, FV=50, RT=4:00          | <b>TRG5</b>     |
| 8) <b>RR20</b> , DBA LOCA, FV=1.5, RT=15:00                  | <b>TRG6</b>     |
| 9) <b>FW03A</b> , FEED PUMP TRIP (P1A) FV=TRUE               | <b>TRG6</b>     |
| 10) <b>FW03B</b> , FEED PUMP TRIP (P1B) FV=TRUE, DT=3        | <b>TRG6</b>     |
| 11) <b>FW03C</b> , FEED PUMP TRIP (P1C) FV=TRUE, DT=15       | <b>TRG7</b>     |
| 12) <b>RD12A</b> , CRD FEED PUMP TRIP (P1A) FV=TRUE          | <b>TRG8</b>     |
| 13) <b>RD12B</b> , CRD FEED PUMP TRIP (P1B) FV=TRUE,<br>DT=3 | <b>TRG8</b>     |

b. Remotes

- |  |                 |
|--|-----------------|
| 1) <b>CW26</b> , 2SWP*MOV77A/B FAIL TO AUTO OPEN,<br>FV=TRUE | <b>INSERTED</b> |
| 2) <b>RP02</b> , RPS MG2 EPA, FV=RESET                       | <b>TRG4</b>     |

- 3) **RM02-041**, SWP 23B RAD MONITOR ONLINE, FV=ON
- 4) **RM03-041**, SWP 23B RAD MONITOR SAMPLE PUMP POWER, FV=ON
- c. Overrides
  - 1) **DI03513**, RHS A SWITCH IN PTL, FV=OFF
  - 2) **DI03514**, RHS A SWITCH IN STOP, FV=OFF
  - 3) **DI03515**, RHS A SWITCH IN NORMAL AFTER STOP, FV=ON
  - 4) **DI0360**, RHS A SWITCH IN NORMAL AFTER START, FV=OFF
  - 5) **DI0361**, RHS A SWITCH IN START, FV=OFF
- d. Annunciators
  - 1) None
- e. Event Triggers

**TRG9**

**TRG9**

**INSERTED**

**INSERTED**

**INSERTED**

**INSERTED**

**INSERTED**

Event #	Event Action	Command
6	<b>zdrps1d==1</b> (mode switch to shutdown)	<b>Blank</b>
7	<b>zdrps1d==1 .and. zdfwsc11(2)==1</b> (mode switch to shutdown and Feed Pump C control switch to start)	<b>Blank</b>
8	<b>zdrps1d==1 .and. zdrd001b(2)==1</b> (mode switch to shutdown and RDS Pump B control switch to start)	<b>Blank</b>

- f. Equipment Out of Service
  - 1) Instrument Air Compressor C is out of service for maintenance. Red Tag compressor switch in PTL and protect IAS A and B
- g. Support Documentation
  - 1) None

### SHIFT TURNOVER INFORMATION

ON COMING SHIFT: ☐ N ☒ D

DATE: Today

**PART I:** To be performed by the oncoming Operator before assuming the shift.

- Control Panel Walkdown (all panels) (SRO, ROs)

**PART II:** To be reviewed by the oncoming Operator before assuming the shift.

- LCO Status (SRO)
- Shift Turnover Information Sheet

Evolutions/General Information/Equipment Status:

- Reactor Power ~65% and in the process of shutting down
- Shutdown is on hold awaiting surveillance testing results. Results are expected in ~3 hrs.
- IAS Compressor C is red tagged for maintenance.
- All LCOs are met

**PART III:** Remarks/Planned Evolutions:

- There are no evolutions planned for the next 3 hours of shift.

## Shift Turnover

Instructor Actions / Plant Response	Operator Actions
<p>Take the Simulator out of freeze before the crew enters for the pre-shift walkdown.</p> <ul style="list-style-type: none"> <li>• Verify annunciator sound turned on</li> <li>• If recording scenario, start the recording device during the pre-shift walkdown</li> </ul>	
<p>Allow no more than 5 minutes to walkdown the panels.</p>	<p><b><u>Crew</u></b></p> <ul style="list-style-type: none"> <li>• Walkdown panels</li> <li>• Conduct shift turnover brief</li> <li>• Assume the shift</li> </ul>

## Event #1: Main Transformer Overheat

<b>Event Information</b>	<ul style="list-style-type: none"> <li>Initial reactor power is ~65%</li> <li>The crew will respond to an overheating main transformer by reducing MVARs and reactor power.</li> </ul>
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<p>Verify <b>inserted</b> the following <b>malfunction</b> and ensure transformer temperatures have stabilized:</p> <p><b>ED16</b>, Main Transformer Loss of Cooling, FV = 89</p> <p>When directed by the lead evaluator, <b>modify</b> the following <b>malfunction</b>:</p> <p><b>ED16</b>, Main Transformer Loss of Cooling, FV = 100</p> <p><i>The following computer point alarms after ~1.5 minutes:</i></p> <ul style="list-style-type: none"> <li>SPMTC01, MN XFMR XM1A OIL TEMP</li> </ul> <p><i>The following annunciator alarms:</i></p> <ul style="list-style-type: none"> <li>852618, Main XFMR 1A/1B/1C/1D Oil System Trouble</li> </ul>	
	<p><b><u>Crew</u></b></p> <ul style="list-style-type: none"> <li>Recognizes / reports annunciator 852618</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges report annunciator 852618</li> <li>Directs BOP to respond per the ARP</li> </ul>
	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>Determines computer point SPMTC01 in alarm and references ARP 852618</li> </ul>

<p><b><u>Role Play:</u></b>  When directed as field operator to investigate local main transformer oil temperatures and indications, wait 3 minutes and report that local gauge temperature indicates 100°C and rising slowly and it appears one bank of the cooling fans are not running. Attempts to start the additional cooling fans have not been successful. Also, if asked, both oil pumps are running.</p>	<ul style="list-style-type: none"> <li>• Dispatches Field Operator to investigate local temperature indications</li> </ul>
<p><b><u>Role Play:</u></b>  If asked, report that the red alarm light on the gas analyzer is not lit.</p>	<ul style="list-style-type: none"> <li>• May ask field operator if red Alarm light on gas analyzer is lit</li> </ul>
<p><b><u>Role Play:</u></b>  If asked to verify breaker status for transformer cooling, report the following status for only those breakers requested:</p> <ul style="list-style-type: none"> <li>• Circuit Breaker 8-3 Group No. 1 Cooler - <b>on</b></li> <li>• Circuit Breaker 8-4 Group No. 2 Cooler - <b>on</b></li> <li>• Circuit Breaker 8P-1 Pump No. 1 - <b>on</b></li> <li>• Circuit Breaker 8P-1 Pump No. 2 - <b>on</b></li> <li>• 2NJS-US4-4D normal supply breaker to 2MTX-XM1A - <b>on</b></li> <li>• 2NJS-US4-11C alternate supply breaker to 2MTX-XM1A - <b>on</b></li> </ul>	<ul style="list-style-type: none"> <li>• May contact a PO and ask them to check the breaker status for the transformer cooling fans.</li> </ul>
<p><b><u>Role Play:</u></b>  When requested by the control room for a temperature update, report local gauge main transformer temperatures indicate 103°C and rising slowly. As necessary, continue to provide indication of up to 105°C</p>	<ul style="list-style-type: none"> <li>• Determines that local gauge temperature will exceed 105°C.</li> <li>• Informs the SRO that: <ul style="list-style-type: none"> <li>○ A MVAR reduction is required</li> <li>○ A rapid power reduction is required per N2-SOP-101D.</li> </ul> </li> </ul>

	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report from BOP of the need to reduce MVAR loading and reduce reactor power per N2-SOP-101D</li> <li>• Directs RO to enter N2-SOP-101D and lower reactor power using Rods and/or Recirc.</li> </ul>
<p><b>Note:</b></p> <p>The SRO may direct MVAR reduction without contacting power control.</p>	<ul style="list-style-type: none"> <li>• May direct BOP to contact power control for guidance to reduce MVAR loading</li> </ul>
<p><b><u>Role Play:</u></b></p> <p>If contacted as power control, report that a reduction in MVAR to 0 MVAR's (unity) is permissible</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• May contact power control to determine what value of MVAR loading is acceptable</li> <li>• Informs SRO that power control can support an MVAR reduction to 0 MVAR</li> </ul>
	<p><b><u>CRS</u></b></p> <ul style="list-style-type: none"> <li>• Directs BOP to reduce generator MVAR's to 0 MVAR</li> </ul>
	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to reduce generator MVAR loading</li> <li>• Using the guidance of N2-OP-68, reduces MVAR loading by lowering the Main Generator AC Voltage Regulator control switch position until 0 MVAR is indicated on the Main Generator MEGVARS meter</li> <li>• Reports to CRS that main generator VARS have been adjusted to 0 MVAR's</li> </ul>

	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to enter N2-SOP-101D to reduce power</li> <li>• Determines that Core flow is &gt; 60 Mlbm/hr</li> <li>• Determines that core power/flow is not above the MELLLA boundary</li> <li>• Determines that Reactor Manual Control is available</li> <li>• Lowers reactor power to pre-established power level using recirculation flow control and or rods.</li> </ul>
<p><b><u>Role Play:</u></b>  When contacted as field operator to provide local main transformer temperatures report that local gauge temperature indicates 105°C and rising slowly, but the rate of temperature rise has slowed. Once power has been lowered at least 5%, give a report that temperatures are beginning to lower and <b>delete</b> the following <b>malfunction</b>:</p> <p><b>ED16</b>, Main Transformer Loss of Cooling</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Contacts field operator to request to update local temperature indication</li> <li>• Informs the SRO and RO that transformer temperatures have begun to lower.</li> </ul>
	<p><b><u>CRS</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report that main transformer temperature is lowering.</li> </ul>

<p><b>Event Termination Criteria</b></p>	<ul style="list-style-type: none"> <li>• Reactor power has been lowered sufficiently as determined by the Lead Evaluator.</li> </ul>
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## Event #2: APRM 2 Fails Upscale

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• APRM 2 fails upscale</li> <li>• The crew will respond per the ARP's and bypass APRM 2</li> </ul>
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<p>When directed by lead evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG1      NM11B, APRM 2 FAIL UPSCALE, FV=TRUE</b></p> <p><i>APRM 2 indication will fail upscale</i></p> <p><i>The following annunciators alarms:</i></p> <ul style="list-style-type: none"> <li>• 603202, APRM Trip System Upscale/Inoperable</li> <li>• 603208, APRM Trip System Upscale</li> <li>• 603442, Control Rod Out Block</li> </ul>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports APRM 2 failure</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of the APRM 2 failure</li> <li>• Directs RO to respond per the ARP's</li> </ul>
	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to respond per the ARPs.</li> <li>• Refers to ARP 603202 and/or 603208</li> <li>• Informs the SRO that APRM 2 may be bypassed per N2-OP-92</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report that APRM 2 may be bypassed.</li> <li>• Directs RO to bypass APRM 2.</li> </ul>

<p>The following annunciators clear:</p> <ul style="list-style-type: none"> <li>603202, APRM Trip System Upscale/Inoperable</li> <li>603208, APRM Trip System Upscale</li> <li>603442, Control Rod Out Block</li> </ul>	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges report to bypass APRM 2</li> <li>References N2-OP-92 and bypasses APRM 2 as follows: <ul style="list-style-type: none"> <li>Determines no other APRM is bypassed.</li> <li>Performs a channel check by verifying APRM 1, 3, and 4 are all reading within 2% of each other.</li> <li>Places the APRM BYPASS joystick to the "2" position</li> <li>Verifies APRM 2 BYPASS light on 2CEC*PNL603 is lit.</li> <li>Asks the BOP to go to the back panel and verify APRM 2 bypass indications</li> </ul> </li> </ul>
<p><b><u>Role Play</u></b></p> <p>As the booth operator, inform the BOP that APRM 2 indicates bypassed on all 2/4 MDL modules.</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>Verifies APRM 2 is bypassed in the back panels as follows: <ul style="list-style-type: none"> <li>Determines that "BYP" is displayed in inverse video in the header for APRM 2</li> <li>Determines the blue BYPASSED LED is lit for APRM 2 on the 2/4 MDL</li> <li>Contacts the booth and asks for the BYPASSED LED 2/4 MDL indications on APRMs 1, 3, and 4.</li> </ul> </li> <li>Informs the RO that APRM 2 indicates bypassed on the back panels.</li> </ul>
	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges report from BOP that APRM 2 indicates bypassed on the back panels.</li> <li>Informs the SRO that APRM 2 has been bypassed per N2-OP-92.</li> <li>May continue on with ARP 603200 actions and ask the BOP to reset the memories on the 2/4 MDL Modules per N2-OP-92, Section F.4.0.</li> </ul>

<p><b><u>Role Play</u></b>  As the booth operator, inform the BOP that all memories have been cleared on the 2/4 MDL Modules for APRMs 1, 3, and 4.</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• May reset the 2/4 MDL Modules per N2-OP-92, Section F.4.0 as follows: <ul style="list-style-type: none"> <li>○ Depresses the TRIP MEMORY RESET pushbutton for APRM 2 on the 2/4 MDL Module.</li> <li>○ Observes that all Red and Yellow LEDs are extinguished on the 2/4 Module.</li> <li>○ Contacts the booth and directs them to Depresses the TRIP MEMORY RESET pushbutton for APRM 1, 3, and 4.</li> </ul> </li> <li>• Informs the RO that the 2/4 MDL Module memories have been cleared.</li> </ul>
<p><b><u>Role Play</u></b>  As the SM, acknowledge the failed APRM 2 and inform the SRO that you will contact I&amp;C and inform them of the failure.</p>	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report from RO that APRM 2 is bypassed.</li> <li>• References TS 3.3.1.1, Table 3.3.1.1-1 and no additional actions are required due to APRMs 1, 3, and 4 being still operable.</li> <li>• May contact the SM and inform him of the APRM 2 Failure.</li> </ul>

<p><b>Event Termination Criteria</b></p>	<ul style="list-style-type: none"> <li>• APRM 2 bypassed and the SRO has referenced TS 3.3.1.1.</li> </ul>
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## Event #3: Gland Seal Exhaust Fan Trip

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• A trip of the running gland seal exhaust fan will occur.</li> <li>• The crew will take action to start a standby exhaust fan.</li> </ul>
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<p>When directed by lead evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG2      MS20A</b>, GLAND SEAL EXHAUST                         : FAN TRIP, FV=TRUE</p> <p><i>Steam Packing Exhaust Blower Fan 1A trips on motor electrical fault</i></p> <p><i>Steam seal exhaust vacuum begins to degrade as read on 2TME-PI108</i></p> <p><i>The following annunciators alarm:</i></p> <ul style="list-style-type: none"> <li>• 851211, Gland Seal Exhaust Fan 1A/1B/2A/2B Mot Temp High</li> <li>• 851201, Gland Seal Exhaust Fan 1A/1B/2A/2B Mot Overload</li> <li>• 851231, Gland Seal Exhaust Fan 1A/1B/2A/2B Auto TRIP/FTS</li> </ul> <p><i>The following annunciator alarms approximately 2 minutes after event initiation:</i></p> <ul style="list-style-type: none"> <li>• 851203, Gland Seal Exhaust Fan 1A/1B/2A/2B Vacuum Low</li> </ul>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports TRIP OF Gland Seal Exhaust Fan 1A.</li> </ul>

	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of the trip of Gland Seal Exhaust Fan 1A.</li> <li>• Directs BOP to respond per the ARPs</li> </ul>
	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to respond per the ARPs.</li> <li>• References ARP 851201 and 861203 and performs the following: <ul style="list-style-type: none"> <li>○ Determines that no steam packing exhausters are running</li> <li>○ Closes TME-MOV22A, steam packing exhaust fan 1A inlet valve</li> <li>○ Determines that ARP 851201 requires the standby TME fan be started using N2-OP-25.</li> </ul> </li> </ul>
<p><b>Note:</b>  The BOP may choose to start FN1B, 2A, or 2B.</p> <p><b><u>Role Play</u></b>  If dispatched as PO to investigate the trip of TME-FN1A, wait 2 minutes and then report that the power supply breaker is tripped with no visible indications why and that TME-FN1A looks O.K. no visible signs of damage</p>	<ul style="list-style-type: none"> <li>• References N2-OP-25 and performs the following: <ul style="list-style-type: none"> <li>○ Throttles open 2TME-MOV22B(23A, 23B), steam packing exhaust fan 1B(2A, 2B) inlet valve</li> <li>○ Starts TME-FN1B(2A, 2B)</li> </ul> </li> <li>• Throttles 2TME-MOV22B(23A, 23B) to achieve 10 - 14 inches vacuum on the TME System</li> <li>• Dispatches a PO to investigate the trip of TME-FN1A</li> </ul>
	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>• Monitors RPV parameters and Main Condenser Vacuum</li> </ul>

**Note:**

The SRO may choose to enter N2-SOP-09 to establish extra monitoring of condenser vacuum. This is not necessary but it is an acceptable action, however no actions should be taken in SOP-09, only monitoring.

**Role Play**

As SM, acknowledge the report for trip of the exhaust fan and inform the SRO that you will take action to inform the WWM and maintenance groups.

**SRO**

- May enter N2-SOP-09, Loss of Condenser Vacuum.
- Contacts SM and reports that Gland Seal Exhaust Fan 1A tripped on motor electric fault.

**Event  
Termination  
Criteria**

- Gland Seal Exhaust Fan 1B(2A, 2B) is running and Gland Seal Exhaust Pressure is being controlled between 10 to 14 inches of vacuum

## Event #4: Trip of RPS B MG Set

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• A trip will occur of RPS B MG Set.</li> <li>• The crew will respond per N2-SOP-97 to transfer power to the alternate power supply and reset the EPA's.</li> </ul>
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<p><b>Note:</b>  At the lead evaluator's discretion, this event may be initiated prior to the end of the previous event.</p> <p>When directed by lead instructor/evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG3      RP06B</b>, LOSS OF MOTOR GENERATOR MG01B, FV=TRUE</p> <p><i>The four white RPS power lights for RPS B go out.</i></p>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports the loss of RPS MG Set B.</li> </ul>
<p><b>Note:</b>  The SRO may assign N2-SOP-97 to either the BOP or RO, however some actions of N2-SOP-97 are in the back panels so if the RO is taking actions per N2-SOP-97, he must either turn over the OATC position to the BOP, or transfer action of N2-SOP-97 to the BOP.</p>	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report for trip of MG Set B</li> <li>• Directs RO to enter N2-SOP-97</li> </ul>

<p><b><u>Role Play</u></b>  As PO directed to check the EPAs and MG set, wait one minute and inform the control room that the RPS B RPM-EPAs are tripped, the B RPM-MG set is not running and the B RPS MG set supply breaker is closed</p> <p><b><u>Role Play</u></b>  As PO directed to adjust the MG set, wait one minute and inform the control room that the B MG set output switch is OFF and the MOTOR OFF pushbutton was depressed until the green light was lit.</p>	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to enter N2-SOP-97</li> <li>• Performs the following actions per N2-SOP-97: <ul style="list-style-type: none"> <li>○ Makes an announcement to stop any half scram or isolation testing</li> <li>○ Determines cause of entry into N2-SOP-97 is due to loss of scram solenoid power</li> <li>○ Determines all lights are out on the B trip system</li> <li>○ Determines the power source selector switch is in NORM</li> <li>○ Contacts PO and directs him to check: <ul style="list-style-type: none"> <li>▪ RPM-EPAs</li> <li>▪ RPM-MG set</li> <li>▪ MG set supply breakers</li> </ul> </li> <li>○ Determines the MG set is not running</li> <li>○ Directs PO to place output switch for B MG set to OFF and hold MOTOR OFF pushbutton until green light is lit</li> <li>○ Determines the ALT B FEED AVAILABLE light is illuminated at PNL610</li> <li>○ Places the power source selector switch for MG set B in ALT B</li> </ul> </li> </ul>
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<p><b><u>Role Play</u></b>  As PO directed to reset the A RPM-EPAs, wait one minute and <b>insert</b> the following <b>remote function</b>:</p> <p><b>TRG4      RP02</b>, RPS MG2 EPA, FV=RESET</p> <p>Inform the control room that the B RPM-EPAs have been reset, however the UNDERVOLTAGE RELAY on ACB1B could not initially be reset and you had to bypass the relay using the red knife switch before it would reset.</p>	<p><b><u>RO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>○ Contacts PO and directs them to attempt to reset the RPS B EPAs per N2-SOP-97, Detail B</li> <li>○ Acknowledges report from PO that the UNDERVOLTAGE RELAY on ACB1A had to be bypassed prior to resetting the EPA.</li> <li>○ Determines the 4 white RPS solenoid lights are on at P603.</li> <li>○ Informs SRO that the RPS A solenoids have been reenergized and the UNDERVOLTAGE RELAY on ACB1A had to be bypassed.</li> </ul>
<p><b><u>Role Play</u></b>  As SM, acknowledge the report for trip of the MG Set and inform the SRO that you will take action to inform the WWM and maintenance groups.</p>	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report that the UNDERVOLTAGE RELAY on ACB1B had to be bypassed.</li> <li>• Declares ACB1B inoperable</li> <li>• References TS 3.3.8.3 and enters Condition A, based on one EPA breaker being inoperable.</li> <li>• Contacts the SM and informs him of the loss of MG set and inoperable EPA</li> </ul>

<p><b>Event Termination Criteria</b></p>	<ul style="list-style-type: none"> <li>• RPS B Scram Solenoids energized from their alternate power supply</li> <li>• TS 3.3.8.3 referenced.</li> </ul>
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## Event #5: Clogging of Service Water Traveling Screens

### Event Information

- A clogging of service water traveling screens will cause Service Water Intake Bay level to lower.
- Operators will take action to monitor and ultimately open the traveling screen bypass valves to restore intake bay level.

### Note:

This event takes several minutes before an annunciator alerts the crew to a problem with the service water system. At the discretion of the lead evaluator, this malfunction may be inserted prior to completing the previous event.

Verify **inserted** the following **remote function**:

**CW26**, 2SWP\*MOV77A/B FAIL TO  
AUTO OPEN, FV=TRUE

When directed by lead evaluator, **insert** the following **malfunction**:

**TRG5** **CW09**, SW INTAKE CLOGGING,  
FV=50, RT=4:00

*Expected Annunciators:*

601124 TRAVELING SCREEN WASH SYSTEM  
TROUBLE (first alarm)

After a period of time:

601115 SWP PUMP 1A/C/E SUCTION  
PRESSURE LOW

601127 SWP INTAKE BAY WATER LEVEL LOW

601218 SWP PUMP 1B/D/F SUCTION  
PRESSURE LOW

<p><b>Note:</b>  When Service Water Intake Bay Level reaches 238 feet (~6 min.), <b>modify</b> the following <b>malfunction</b>:</p> <p><b>CW09, SW INTAKE CLOGGING, FV=30</b></p>	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• May identify that SW intake bay level is lowering prior to any annunciator</li> <li>• Recognizes and reports Annunciator 601124</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report</li> <li>• Directs actions per appropriate ARPs</li> </ul>
<p><b><u>Role Play</u></b>  As PO dispatched to investigate the trash rakes and travelling screens, wait two minutes and report that the travelling screens are clogged with debris but no additional debris is coming in. As necessary, respond to the control room that you are attempting to clean the travelling screens</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Contacts PO and dispatches them to inspect and report the status of the trash rakes and traveling screens</li> <li>• Recognizes and reports SW intake bay level lowering</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of lowering intake bay level</li> <li>• Directs BOP to enter N2-SOP-11</li> </ul>
<p><b><u>Role Play</u></b>  As PO dispatched to verify proper operation of the traveling screens and trash rakes per N2-OP-12, acknowledge report.</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to enter N2-SOP-11</li> <li>• Contacts PO and dispatches them to verify proper operation of traveling screens and trash racks per N2-OP-12</li> <li>• Trips the Jet Motive Pump (SWP-P3)</li> <li>• When intake bay level lowers to 238 feet, verifies 2SWP*MOV30A/B are open</li> </ul>

<b>CT-1.0</b> Given service water intake bay level less than 234 ft and a failure of 2SWP*MOV77A & 77B to automatically open, the crew will take action to manually open 2SWP*MOV77A & 77B per N2-SOP-11	<ul style="list-style-type: none"><li>• When intake bay level lowers to 234 feet, determines 2SWP*MOV77A &amp; 77B failed to open automatically and manually opens them.</li><li>• Determines intake bay level is rising and informs the SRO.</li></ul>
<b>Note:</b> The crew may choose to place the mode switch in shutdown during the course of the event based on operator judgment. This is an acceptable action and will not prevent evaluation of the critical task nor interfere with the remaining events in this scenario.	<b><u>SRO</u></b> <ul style="list-style-type: none"><li>• Acknowledges report of rising intake bay level.</li></ul>

<b>Event Termination Criteria</b>	<ul style="list-style-type: none"><li>• 2SWP*MOV77A and 77B open</li><li>• Service Water Intake Bay level rising</li></ul>
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## Events #6 and #7: Loss of Feed Pumps and Level Control Issues

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• A Loss of feed pumps will occur.</li> <li>• The crew will use alternate level control systems to maintain RPV water level</li> </ul>
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**Note:**

If the crew placed the mode switch in shutdown in the previous event, the below **malfunctions** were **inserted**:

**RR20**, DBA LOCA, FV=1.5,

RT=15:00

**FW03A**, FEED PUMP TRIP (P1A)

FV=TRUE

**FW03B**, FEED PUMP TRIP (P1B)

FV=TRUE, DT=3

When directed by lead evaluator, **insert** the following **malfunction**:

**TRG6** **RR20**, DBA LOCA, FV=1.5,

RT=15:00

**FW03A**, FEED PUMP TRIP (P1A)

FV=TRUE

**FW03B**, FEED PUMP TRIP (P1B)

FV=TRUE, DT=3

*Feed Pumps A and B trip*

*DW pressure starts to rise slowly*

*RPV water level starts to lower*

<p><i>The following annunciators alarm:</i></p> <ul style="list-style-type: none"> <li>• 603139, REACTOR WATER LEVEL HIGH/LOW</li> <li>• 851509, REACTOR FEED PUMP 1A/1B/1C AUTO TRIP</li> <li>• 851519, REAC FEED PMP 1A/1B/1C MOTOR ELEC FAULT</li> <li>• 851523, CNST BSTR PMP 2A/2B/2C SUCTION FLOW LOW</li> <li>• 851546, CNST PUMP DISCH HEADER FLOW LOW</li> <li>• 851254, PROCESS AIRBORNE RADN MON ACTIVATED</li> </ul>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports loss of feed pumps and rising drywell pressure</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of loss of feed pumps and rising drywell pressure.</li> <li>• Directs the RO to place the mode switch in shutdown.</li> </ul>
	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to place the mode switch to shutdown.</li> <li>• Places mode switch to shutdown.</li> <li>• Provides scram report to SRO</li> </ul>

	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges scram report</li> <li>• Enters N2-EOP-RPV on low RPV water level</li> <li>• Directs RO to perform actions of N2-SOP-101C</li> <li>• Directs RO to maintain RPV water level 160 to 200 inches using any one or a combination of the following injection sources: <ul style="list-style-type: none"> <li>○ Feed Pump by starting Feed Pump C</li> <li>○ Maximize RDS Flow per N2-OP-30, H.3.0</li> <li>○ RCIC</li> <li>○ HPCS</li> <li>○ Condensate Booster Pumps (requires a pressure reduction)</li> </ul> </li> <li>• Directs BOP to maintain RPV Pressure 800 to 1000 psig with the EHC system or to coordinate with RO to maintain 500 to 600 psig with EHC to facilitate booster pump injection.</li> </ul>
	<p><b><u>RO (N2-SOP-101C)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to take actions per N2-SOP-101C</li> <li>• Acknowledges direction to maintain RPV water level 160 to 200 inches using <ul style="list-style-type: none"> <li>○ Feed Pump by starting Feed Pump C</li> <li>○ RDS Flow per N2-OP-30, H.3.0</li> <li>○ RCIC</li> <li>○ HPCS</li> <li>○ Condensate Booster Pumps</li> </ul> </li> <li>• Performs initial actions of N2-SOP-101C: <ul style="list-style-type: none"> <li>○ Verifies turbine has tripped and TSV/TCVs are shut</li> </ul> </li> </ul>

	<p><b><u>RO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>○ Verifies generator has tripped and house loads have transferred</li> <li>○ Verifies SDV vent and drain valves have closed</li> <li>○ Verifies RCS pumps have downshifted</li> <li>○ As necessary inserts SRMs and IRMs</li> <li>○ Determines scram cannot be reset due to high drywell pressure</li> <li>○ Places all FWLC Valves to MANUAL and verifies all FWLC Valves are fully shut</li> </ul>
<p><b><u>Role Play</u></b></p> <p>As PO directed to energize 2WCS-MOV107, acknowledge the report.</p>	<ul style="list-style-type: none"> <li>○ May direct energizing 2WCS-MOV107</li> <li>○ May shutdown HWC</li> </ul>
<p><b><u>Note:</u></b></p> <p>The starting of Feed Pump C may or may not be performed based on the level control strategy selected by the SRO.</p>	<p><b><u>RO (N2-SOP-101C – Start Feed Pump C)</u></b></p> <ul style="list-style-type: none"> <li>• Attempts to start Feed Pump C per N2-SOP-101C as follows: <ul style="list-style-type: none"> <li>○ Determines at least one condensate pump is available</li> <li>○ Places Feed Pump A and B control switches in Pull To Lock</li> <li>○ Determines at least two condensate pumps and two condensate booster pumps are already running.</li> <li>○ Places the FWLC Master and individual controllers in MANUAL and shuts all FWLC valves.</li> <li>○ Determines that it is not required to reset the Level 8 trips.</li> <li>○ Confirms Feed Pump C suction is &gt;500 psig</li> <li>○ Verifies Feed Pump C Aux Oil Pump is running.</li> </ul> </li> </ul>



<p>When the RO places the Feed Pump C switch to start, verify <b>inserted</b> the following <b>malfunction</b>:</p> <p><b>TRG7      FW03C</b>, FEED PUMP TRIP (P1C)  FV=TRUE, DT=15</p> <p><i>After 15 seconds, Feed Pump C trips</i></p>	<ul style="list-style-type: none"> <li>○ Places Feed Pump C control switch to START</li> <li>○ Confirms Feed Pump C starts when the minimum flow valve is ~19% open.</li> <li>○ Opens Feed Pump C FWLC Valve and injects to maintain RPV Level 160 to 200 inches.</li> <li>○ Recognizes and reports that Feed Pump C has tripped on motor electric fault and that Feed Pump C is not available.</li> </ul>
<p><b>Note:</b></p> <p>The maximizing of RDS Flow may or may not be performed based on the level control strategy selected by the SRO.</p>	<p><b><u>RO (N2-OP-30 – Maximize RDS flow)</u></b></p> <ul style="list-style-type: none"> <li>• Attempts to maximize RDS Flow as follows: <ul style="list-style-type: none"> <li>○ Determines that both RPS A and B are tripped.</li> <li>○ Verifies RDS Pump 1A is already running.</li> </ul> </li> </ul>
<p>When the RO places the RDS Pump 1B switch to start, verify <b>inserted</b> the following <b>malfunctions</b>:</p> <p><b>TRG8      RD12A</b>, CRD FEED PUMP TRIP (P1A) FV=TRUE  <b>RD12B</b>, CRD FEED PUMP TRIP (P1B) FV=TRUE, DT=3</p> <p><i>RDS Pumps P1A and P1B trip.</i></p>	<ul style="list-style-type: none"> <li>○ Places RDS Pump 1B control switch in START</li> <li>○ Recognizes and reports that both RDS Pumps have tripped on motor electric fault and are not available</li> </ul>
<p><b>Note:</b></p> <p>Use of HPCS may or may not be performed based on the level control strategy selected by the SRO.</p>	<p><b><u>RO (Starting HPCS - N2-OP-33)</u></b></p> <ul style="list-style-type: none"> <li>• Starts HPCS as follows: <ul style="list-style-type: none"> <li>○ If not already initiated due to Level 2 or high drywell pressure, ARM's and DEPRESSES the HPCS MANUAL INITIATION PUSHBUTTON.</li> <li>○ Verifies HPCS Pump starts</li> <li>○ Verifies HPCS Injection Valve opens</li> <li>○ Verifies HPCS Minimum Flow Valve closes on rising HPCS flow</li> </ul> </li> </ul>

<p><b><u>Role Play</u></b></p> <p>If contacted as PO to perform running checks on the Division 3 EDG, wait two minutes and inform the control room that running checks have been completed satisfactorily</p>	<ul style="list-style-type: none"> <li>○ Verifies Division 3 EDG starts.</li> <li>○ At 2CEC*PNL851, verifies open 2CNS-AOV123, CONDENSATE STORAGE TKS MAKE UP VLV</li> <li>○ OPENS and SHUTS HPCS Injection Valve as necessary to maintain RPV Water Level 160 to 200 inches.</li> </ul>
	<p><b><u>RO (Starting RCIC – N2-EOP-HC)</u></b></p> <ul style="list-style-type: none"> <li>• Initiates RCIC as follows:             <ul style="list-style-type: none"> <li>○ If RCIC is not already running, arms AND depresses RCIC MANUAL INITIATION pushbutton</li> <li>○ Verifies the following:                 <ul style="list-style-type: none"> <li>▪ GLAND SEAL SYSTEM AIR COMPRESSOR starts</li> <li>▪ ICS*MOV116 opens</li> <li>▪ ICS*MOV120 opens</li> <li>▪ ICS*MOV126 opens</li> <li>▪ WHEN RCIC flow &gt;220 gpm, ICS*MOV143 closes</li> <li>▪ WHEN RCIC discharge pressure &gt; Reactor pressure, ICS*V156 AND ICS*V157 open</li> <li>▪ RCIC injection to Reactor controlled at 600 gpm</li> <li>▪ ICS*AOV109 closes</li> <li>▪ ICS*AOV110 closes</li> <li>▪ ICS*AOV130 closes</li> <li>▪ ICS*AOV131 closes</li> </ul> </li> <li>○ Controls RCIC as follows:                 <ul style="list-style-type: none"> <li>▪ If maintained in Automatic Control, maintains Turbine Speed &gt;1500 rpm and Injection Flow between 400 to 600 gpm.</li> </ul> </li> </ul> </li> </ul>

	<p><b><u>RO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>▪ If maintained in manual Control, maintains Turbine Speed &gt;1500 rpm and Injection Flow &lt;600 gpm.</li> <li>○ If it is desired to reject RCIC to the CST (i.e. tank to tank mode), performs the following: <ul style="list-style-type: none"> <li>▪ Opens 2ICS*MOV124, TEST BYPASS TO CON. STORAGE TANK</li> <li>▪ Throttles 2ICS*FV108 TEST BYPASS TO CON. STORAGE TANK as necessary to control RPV Level.</li> </ul> </li> </ul>
<p><b>Note:</b>  Use of Condensate Booster Pumps for injection may or may not be performed based on the level control strategy selected by the SRO. If this strategy is selected, then an RPV pressure reduction will be required to allow booster pumps to inject.</p>	<p><b><u>BOP (Lowering RPV Pressure for Inject.)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to maintain RPV pressure 500 to 600 psig using EHC.</li> <li>• Coordinates with RO and lowers RPV pressure as follows: <ul style="list-style-type: none"> <li>○ DEPRESSES the INCREASE pushbutton for the BYPASS OPENING JACK until 5 bypass valves indicate full open</li> <li>○ Adjusts the bypass valves as necessary to control RPV Pressure 500 to 600 psig.</li> </ul> </li> </ul>
	<p><b><u>RO (Injecting with Cond. Booster Pumps)</u></b></p> <ul style="list-style-type: none"> <li>• Coordinates with BOP to lower RPV pressure and injects with Condensate Booster Pumps as follows: <ul style="list-style-type: none"> <li>○ As RPV pressure lowers, opens LV10A, B, or C as required to maintain RPV level 160 to 200 inches.</li> <li>○ May place FWLC back into automatic.</li> </ul> </li> </ul>

	<p><b><u>BOP (N2-SOP-101C – Pressure Control)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to maintain RPV pressure 800 to 1000 psig using EHC.</li> <li>• As necessary to control pressure, performs the following: <ul style="list-style-type: none"> <li>○ Closes 2MSS-AOV87A/B/C/D and AOV88A/B</li> <li>○ Closes 2ASS-MOV152</li> <li>○ Starts 2ARC-P1A or B as follows: <ul style="list-style-type: none"> <li>▪ Confirms there is no fuel damage</li> <li>▪ Closes 2ARC-AOV104</li> <li>▪ Places in AUTO 2ARC-AOV105</li> <li>▪ Opens SWP-HV98A(B)</li> <li>▪ Starts 2ARC-P1A(B)</li> <li>▪ Verifies proper operation</li> </ul> </li> <li>○ Closes 2ASS-MOV148</li> <li>○ As necessary to prevent excessive cooldown, closes the MSIV's.</li> </ul> </li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• As required, acknowledges report of trip of Feed Pump C and RDS Pumps.</li> <li>• Adjusts level control and pressure control strategies as appropriate based on equipment malfunctions.</li> </ul>

<p><b>Event Termination Criteria</b></p>	<ul style="list-style-type: none"> <li>• RPV Level Control has been established.</li> <li>• RPV Pressure Control has been established.</li> </ul>
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## Event #8 and #9: LOCA with failure of PC Spray Systems

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• A LOCA will occur causing drywell pressure to rise.</li> <li>• The crew will respond and attempt to mitigate Primary Containment parameters, however due to failure of the spray systems, a blowdown will eventually be required due to PSP.</li> </ul>
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<p><b>Note:</b>  The following <b>malfunction</b> was <b>inserted</b> in the previous event:</p> <p style="text-align: center;"><b>RR20</b>, DBA LOCA, FV=1.5,  RT=15:00</p> <p>Based on the level and pressure control strategies chosen by the crew, the rate of drywell pressure rise may rise or lower. As determined by the lead evaluator, the severity value on the above malfunction may be modified as necessary to raise or lower the rate of drywell pressure rise.</p> <p><i>A few minutes after the initiation of the previous event, the following additional annunciators alarm:</i></p> <ul style="list-style-type: none"> <li>• 603140, DRYWELL PRESSURE HIGH/LOW</li> <li>• 603101, RPS A DRYWELL PRESSURE HIGH TRIP</li> <li>• 603401, RPS B DRYWELL PRESSURE HIGH TRIP</li> </ul>	<p><b><u>Crew</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports rising drywell pressure.</li> </ul>
	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports that Division 1 ECCS Systems failed to automatically initiate</li> <li>• ARMs and DEPRESSES the Division 1 ECCS Manual Initiation Pushbutton.</li> </ul>

	<p><b><u>BOP (cont.)</u></b></p> <ul style="list-style-type: none"> <li>• Determines that the initiation pushbutton failed to operate.</li> <li>• Manually starts the LPCS pump by placing the control switch to START</li> </ul>
<p><b>Note:</b>  A malfunction will prevent manually starting of RHS Pump 1A.</p>	<ul style="list-style-type: none"> <li>• Attempts to manually start RHS Pump 1A</li> <li>• Determines RHS Pump 1A will not start from the control room.</li> </ul>
<p><b><u>Role Play</u></b>  If directed to investigate the cause of why RHS Pump 1A would not start and/or directed to locally shut the RHS Pump 1A breaker, wait two minutes and inform the control room that there is nothing visibly wrong with the pump and breaker but you were not able to get the breaker to shut locally.</p>	<ul style="list-style-type: none"> <li>• May dispatch an operator to investigate cause and/or locally shut the RHS Pump 1A breaker.</li> <li>• Reports to the SRO that RHS Pump 1A failed to start.</li> </ul>
	<p><b><u>SRO (N2-EOP-PC)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of rising drywell pressure and that RHS Pump 1A failed to start.</li> <li>• Enters N2-EOP-PC and reenters N2-EOP-RPV when drywell pressure reaches 1.68 psig.</li> <li>• Determines drywell pressure cannot be maintained below 1.68 psig.</li> <li>• Determines Suppression Pool water level is below 217 feet.</li> <li>• Directs BOP to spray the suppression chamber using RHS B per N2-EOP-6.22</li> <li>• As necessary, directs RO/BOP to start a 5<sup>th</sup> Service Water Pump</li> <li>• As necessary, directs RO/BOP to restore pneumatics to the Drywell.</li> </ul>

	<p><b><u>RO/BOP (N2-EOP-HC – 5<sup>th</sup> SW Pump)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to start a 5<sup>th</sup> Service Water Pump</li> <li>• Starts a Service Water Pump as follows: <ul style="list-style-type: none"> <li>○ Selects either SWP E or F to start</li> <li>○ Verifies 2SWP*MOV74 shut for the associated pump.</li> <li>○ Starts SWP Pump 1E or 1F by placing its associated control switch to START</li> <li>○ Verifies the associated MOV47 opens.</li> </ul> </li> <li>• Reports to the SRO that a 5<sup>th</sup> Service Water Pump has been started.</li> </ul>
	<p><b><u>RO/BOP (N2-EOP-HC Restore Pneum.)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to restore pneumatics to the Drywell</li> <li>• Restores pneumatics to the Drywell as follows: <ul style="list-style-type: none"> <li>○ At 2CEC*PNL851: <ul style="list-style-type: none"> <li>▪ Places LOCA OVERRIDE VLV IAS*SOV166 to OVERRIDE</li> <li>▪ Opens IAS*SOV166</li> </ul> </li> <li>○ At 2CEC*PNL851: <ul style="list-style-type: none"> <li>▪ Places LOCA OVERRIDE VLV IAS*SOV184 to OVERRIDE</li> <li>▪ Opens IAS*SOV184</li> </ul> </li> <li>○ At 2CEC*PNL601: <ul style="list-style-type: none"> <li>▪ Places LOCA OVERRIDE VLV IAS*SOV164 to OVERRIDE</li> <li>▪ Opens IAS*SOV164</li> </ul> </li> <li>○ At 2CEC*PNL601: <ul style="list-style-type: none"> <li>▪ Places LOCA OVERRIDE VLV IAS*SOV165 to OVERRIDE</li> <li>▪ Opens IAS*SOV165</li> </ul> </li> </ul> </li> <li>• Informs the SRO that pneumatics have been restored to the drywell.</li> </ul>

	<p><b><u>BOP (N2-EOP-6.22)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to spray the suppression chamber using RHS B</li> <li>• Sprays the suppression chamber using RHS B as follows: <ul style="list-style-type: none"> <li>○ Determines a LOCA Signal is present and drywell pressure is &gt;1.68 psig.</li> <li>○ Opens 2SWP*MOV90B</li> <li>○ Verifies closed and overridden 2RHS*MOV24B</li> <li>○ Verifies running RHS*P1B</li> <li>○ Sprays the suppression chamber by opening 2RHS*MOV33B</li> <li>○ Verifies &gt;450 gpm on the suppression chamber spray flow meter.</li> <li>○ Throttles 2SWP*MOV33B as necessary to supply Service Water Flow of ~7400 gpm to the RHS B Heat Exchanger.</li> </ul> </li> </ul>
<p><b><u>Role Play</u></b></p> <p>As RP contacted to place RE-23B in service, wait two minutes and <b>insert</b> the following <b>remote function</b> :</p> <p><b>TRG9      RM02-041</b>, SWP 23B RAD MONITOR ONLINE, FV=ON</p> <p><b>RM03-041</b>, SWP 23B RAD MONITOR SAMPLE PUMP POWER, FV=ON</p> <p>Report back to control room that RE-23B is in service</p>	<ul style="list-style-type: none"> <li>○ Contacts RP and directs them to start 2SWP*RE23B</li> <li>• Informs the SRO that RHS Pump 1B is spraying the suppression chamber</li> </ul>
	<p><b><u>SRO (N2-EOP-PC)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of RHS Pump 1B spraying the suppression chamber</li> <li>• Waits until suppression chamber pressure reaches 10 psig</li> <li>•</li> </ul>



	<p><b><u>SRO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>• Determines suppression pool water level is still below 217 feet</li> <li>• Determines parameters or within the Drywell Spray Initiation Limit</li> <li>• Directs the RO/BOP to trip both recirculation pumps</li> <li>• Directs the RO/BOP to trip all drywell unit coolers.</li> <li>• Directs BOP to spray the drywell with RHS Pump 1B.</li> </ul>
	<p><b><u>RO/BOP (Trip Recirculation Pumps)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to trip the Recirculation Pumps</li> <li>• If not already completed, trips the Recirculation Pumps as follows: <ul style="list-style-type: none"> <li>○ Places Control Switch(s) for Recirculation Pumps A and B to STOP</li> </ul> </li> <li>• Informs the SRO that Recirculation Pumps A and B are tripped.</li> </ul>
<p><b>Note:</b></p> <p>Unless Drywell Unit Coolers have been restored per N2-EOP-6.24, the coolers should already be tripped.</p>	<p><b><u>RO/BOP (Drywell Unit Coolers)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to verify tripped all Drywell Unit Coolers</li> <li>• Verify tripped all Drywell Unit Coolers as follows: <ul style="list-style-type: none"> <li>○ At 2CEC*PNL873, observes that all red running lights for all drywell coolers are off.</li> </ul> </li> <li>• Informs SRO that all drywell coolers are verified tripped.</li> </ul>
	<p><b><u>BOP (N2-EOP-6.22)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to spray the drywell using RHS B</li> <li>• Sprays the drywell using RHS B as follows:</li> </ul>

	<p><b><u>BOP (cont.)</u></b></p> <ul style="list-style-type: none"> <li>○ Determines drywell spray interlocks are met</li> <li>○ Verifies open 2SWP*MOV90B</li> <li>○ Verifies closed 2RHS*FV38B</li> <li>○ Verifies running RHS Pump 1B</li> <li>○ Verifies 2RHS*MOV33B is open</li> <li>○ Verifies &gt;450 gpm on the suppression chamber spray flow meter.</li> </ul>
<p><b>Note:</b> When attempting to spray the drywell, MOV25B will fail to open due to it being stuck shut.</p>	<ul style="list-style-type: none"> <li>○ Attempts to spray the drywell by opening 2RHS*MOV15B and 2RHS*MOV25B</li> <li>○ Recognizes that 2RHS*MOV25B will not open.</li> </ul>
<p><b><u>Role Play</u></b> As PO directed to attempt to open 2RHS&amp;MOV25B, wait 3 minutes and inform the control room that it is stuck shut and you are getting additional operators to help you open the valve.</p>	<ul style="list-style-type: none"> <li>○ Dispatches a PO to attempt to manually open 2RHS*MOV25B</li> <li>○ Informs the SRO that the he cannot spray the drywell using RHS Pump 1B.</li> </ul>
	<p><b><u>SRO (N2-EOP-PC)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of the inability to spray the drywell using RHS Pump 1B</li> <li>• Directs the BOP to spray the drywell using Fire Water through RHS A per N2-EOP-6.6</li> <li>• Analyzes the Pressure Suppression Pressure curve.</li> <li>• Determines he cannot restore and maintain suppression chamber pressure and suppression pool water level within the Pressure Suppression Pressure limits.</li> <li>• Enters N2-EOP-C2, RPV Blowdown</li> </ul>

	<p><b><u>BOP (N2-EOP-6.6)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to spray the drywell using Firewater through RHS A</li> <li>• Sprays the drywell using Firewater through RHS A as follows: <ul style="list-style-type: none"> <li>○ Starts Firewater Pump 1 or 2</li> <li>○ Determines RHS A is not in operation</li> <li>○ Places RHS Pump 1A in Pull To Lock</li> <li>○ Verifies closed the following valves: <ul style="list-style-type: none"> <li>▪ RHS*MOV15A, OUTLET TO DRYWELL SPRAY</li> <li>▪ RHS*MOV25A, OUTLET TO DRYWELL SPRAY</li> <li>▪ RHS*MOV33A, OUTLET TO SUPPR POOL SPRAY</li> <li>▪ RHS*FV38A, RETURN TO SUPPR POOL COOLING</li> <li>▪ RHS*MOV24A, LPCI A Injection VLV</li> <li>▪ RHS*MOV40A, SDC A Return</li> <li>▪ RHS*MOV12A, HEAT EXCHANGER 1A OUTLET VLV</li> </ul> </li> <li>○ If possible, verifies closed RHS*MOV8A, HEAT EXCHANGER 1A INLET BYPASS VLV</li> </ul> </li> </ul>
<p><b><u>Role Play</u></b></p> <p>As PO directed to lineup Firewater to RHS A, acknowledge report. Note; this action will not be completed prior to the end of the scenario. If contacted for updates, acknowledge the request and inform the control room that you are still working on getting the lineup completed.</p>	<ul style="list-style-type: none"> <li>○ Directs a PO to lineup Firewater to RHS A per N2-EOP-6.6, Starting on Step 6.1.6</li> </ul>
	<p><b><u>SRO (N2-EOP-C2)</u></b></p> <ul style="list-style-type: none"> <li>• Enters N2-EOP-C2, RPV Blowdown: <ul style="list-style-type: none"> <li>○ Determines Reactor will stay shutdown without boron</li> <li>○ Determines drywell pressure is above 1.68 psig</li> </ul> </li> </ul>

<p><b>Note:</b></p> <p>Based on the chosen level control strategy, the SRO may choose to prevent injection with some or all low pressure ECCS Pumps.</p>	<p><b><u>SRO (cont.)</u></b></p> <ul style="list-style-type: none"> <li>○ As necessary based on Level Control strategy, directs RO/BOP to prevent LPCS and LPCI injection.</li> <li>○ Determines suppression pool level is &gt;192 feet</li> </ul>
<p><b>CT-2.0: Given Suppression Chamber Pressure unable to be restored and maintained within the Pressure Suppression Limit, the crew will open 7 SRV's IAW N2-EOP-C2</b></p>	<ul style="list-style-type: none"> <li>○ <b>Directs BOP to open 7 ADS valves.</b></li> </ul>
	<p><b><u>RO/BOP (Prevent LPCS/LPCI Injection)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to prevent LPCS and LPCI Injection</li> <li>• As required, prevents LPCS and LPCI Injection as follows: <ul style="list-style-type: none"> <li>○ If necessary, places LPCS in PTL.</li> <li>○ Verifies shut and overridden the following valves: <ul style="list-style-type: none"> <li>▪ RHS*MOV24B, LPCI B Injection VLV</li> <li>▪ RHS*MOV24C, LPCI C INJECTION VLV</li> </ul> </li> </ul> </li> <li>• Informs the SRO that LPCS and LPCI Injection has been prevented</li> </ul>
<p><b>CT-2.0: Given Suppression Chamber Pressure unable to be restored and maintained within the Pressure Suppression Limit, the crew will open 7 SRV's IAW N2-EOP-C2</b></p>	<p><b><u>BOP (N2-EOP-HC - Blowdown)</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to open 7 ADS valves and performs the following: <ul style="list-style-type: none"> <li>○ Determines no SRVs are stuck open and an ECCS pump is running</li> </ul> </li> <li>○ <b>Arms and depresses both ADS pushbuttons for each division</b></li> <li>○ <b>Informs the SRO that 7 ADS valves are open</b></li> </ul>

	<b><u>SRO (N2-EOP-RPV)</u></b> <ul style="list-style-type: none"> <li>Acknowledges report from BOP that 7 ADS valves are open</li> </ul>
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<b>Event Termination Criteria</b>	<ul style="list-style-type: none"> <li>7 SRVs are open</li> <li>RPV Pressure is lowering</li> </ul>
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Copy \_\_\_\_ of \_\_\_\_

Training Id: **NRC 2013 Scenario 4**Revision: **0.0**Title: **SC1- Secondary containment leak. Blowdown Required.**Signature / Printed NameDate

Developed By



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12/18/2013

Validated By

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1/3/2014

## References

1. N2-OP-101A, Reactor Startup
2. N2-OP-30, Control Rod Drive System
3. N2-SOP-60, Loss of Drywell Cooling
4. N2-SOP-19, Loss of Instrument Air
5. N2-OP-31, Residual Heat Removal System
6. N2-SOP-90, Natural Events
7. N2-EOP-RPV, RPV Control
8. N2-EOP-SC, Secondary Containment Control
9. N2-EOP-C2, RPV Blowdown
10. Unit 2 Technical Specifications

## Instructor Information

### A. Scenario Description

The crew will take the shift at ~3% power. The RO will raise power using rods. While withdrawing rods, a control rod will stick. The crew will take action to raise drive water pressure per N2-OP-30. Raising drive water pressure will free the stuck rod and allow the startup to continue. After power has been sufficiently raised, an instrument failure will cause one pair of Suppression Chamber to Drywell Vacuum Breakers to fail open. There are no operator actions; however the CRS will evaluate TS 3.6.1.7.

Once TS 3.6.1.7 has been evaluated, an electrical fault will cause a loss of all drywell cooling. The crew will respond per N2-SOP-60 and restart the drywell cooling fans in "Fan Only" mode. After Drywell Cooling has been restored, an electrical fault will occur on Instrument Air Compressor A.

Compressors B and C will fail to auto start. The crew will take action per N2-SOP-19 and manually start either Compressor B or C (**CRITICAL TASK**) to restore air header pressure.

After the loss of instrument air, a failure will cause a spurious initiation of Division 1 ECCS systems. Additionally, the minimum flow valve for RHS Pump A will fail to open leaving RHS Pump A without minimum flow protection. The crew will take action to shutdown the Division 1 ECCS systems. The CRS will evaluate TS 3.5.1 and 3.8.1. Following the inadvertent initiation of Division 1 ECCS systems, a seismic event occurs. The event will cause an unisolable RCIC steam leak and a FWLC failure. The crew will take action per N2-EOP-SC and enter N2-EOP-RPV to manually scram the reactor (**CRITICAL TASK**). RPV level control will be complicated by the FWLC failure. Due to the RCIC steam leak, Secondary Containment conditions will continue to degrade requiring the



crew to either anticipate RPV blowdown per N2-EOP-RPV, or perform a blowdown per N2-EOP-C2 (**CRITICAL TASK**). The scenario may be terminated when the RPV is being depressurized.

1. Termination Criteria
  - a. RPV is being depressurized.
2. Critical Tasks

*CT-1.0 Justification: This task is identified as critical because without operator action to start the lag or backup air compressor, instrument air header pressure will degrade until the reactor scrams due to low RPV level and/or loss of scram air header pressure.*

- a. CT-1.0, Given a trip of the running instrument air compressor and a failure of the lag and backup air compressors to automatically start, the crew will take action to manually start the lag or backup air compressor.

*CT-2.0 Justification: This task is identified as critical because without operator action to scram, the reactor will continue to provide energy to the RCIC steam line break and cause increased secondary containment temperatures and radiation levels.*

- b. CT-2.0, Given secondary containment temperatures approaching a maximum safe value in one area, the crew will initiate a manual reactor scram IAW N2-EOP-RPV

*CT-3.0A Justification: This task is identified as critical because without operator action to depressurize the reactor, secondary containment integrity, the integrity of equipment located in the secondary containment, and continued safe operation of the plant cannot be assured. Note: The crew may choose to wait until two or more areas are above maximum safe values before depressurizing the reactor. If the crew chooses to depressurize the reactor via the SRVs, then CT-3.0A does not have to be evaluated.*

- c. CT-3.0A, Given secondary containment temperatures approaching or above maximum safe values in one area, the crew will open 5 main turbine bypass valves IAW N2-EOP-RPV

*CT-3.0B Justification: This task is identified as critical because without operator action to depressurize the reactor, secondary containment integrity, the integrity of equipment located in the secondary containment, and continued safe operation of the plant cannot be assured. Note: The crew may choose to "anticipate blowdown" and depressurize the reactor to the main condenser. If the crew chooses to depressurize the reactor to the main condenser and are successful in preventing two areas from exceeding the maximum safe temperatures, then CT-3.0B does not have to be evaluated.*

- d. CT-3.0B, Given secondary containment temperatures above maximum safe values in two areas, the crew will open 7 ADS valves IAW N2-EOP-C2

### 3. Length

- a. ~70 minutes

### 4. Mitigation Strategy Code

- a. SC1- Secondary containment leak. Blowdown Required

### 5. Technical Specifications

- a. TS 3.6.1.7
- b. TS 3.5.1
- c. TS 3.8.1

### 6. EAL Classification

- a. Site Area Emergency, FS1.1, Loss or potential loss of ANY two fission product barriers.

- b. Table F-1, RCS Barrier Loss C3 and C4, Potential Loss C1
- c. Table F-1, Containment Barrier Loss C3.
- 7. Special Orders
  - a. None
- B. Initial Conditions**
- 1. IC Number
  - a. IC-153
- 2. Presets / With Triggers
  - a. Malfunctions
    - 1) **IA04A**, LAG COMPRESSOR AUTO START FAILURE, FV=TRUE
    - 2) **IA04B**, B/U COMPRESSOR AUTO START FAILURE, FV=TRUE
    - 3) **RC11**, RCIC ISOLATION FAILURE, FV=TRUE
    - 4) **PC10A**, DRYWELL VACUUM BKR PAIR FAIL OPEN (2ISC\*RV33A/B), FV=TRUE
    - 5) **PC01**, LOSS OF DRYWELL COOLING, FV=TRUE
    - 6) **IA02A**, 2IAS-C3A THERMAL OVERLOAD TRIP, FV=TRUE
    - 7) **RH13A**, ECCS INADVERTENTLY INITIATES (DIV I), FV=TRUE
    - 8) **RH15**, RHS\*MOV4A VALVE FAILS SHUT, FV=TRUE
    - 9) **MT01**, SEISMIC ACCELERATION, FV=2
    - 10) **FW08B**, LV55B FAILURE - CLOSED, FV=TRUE
    - 11) **RC12**, RCIC STEAM LEAK IN RB, FV=35, RT=15:00

**INSERTED**

**INSERTED**

**INSERTED**

**TRG1**

**TRG2**

**TRG3**

**TRG4**

**TRG4**

**TRG5**

**TRG5**

**TRG5**

- 12) **RD07-26-43**, ROD 26-27 STUCK, FV=TRUE
- b. Remotes
- 1) None
- c. Overrides
- 1) **01A2S041DI0365**, ICS\*MOV121 SWITCH CLOSE, FV=OFF
- 2) **01A2S041DI0366**, ICS\*MOV121 SWITCH OPEN, FV=OFF
- 3) **01A2S042DI0564**, ICS\*MOV128 SWITCH CLOSE, FV=OFF
- 4) **01A2S042DI0418**, ICS\*MOV128 SWITCH OPEN, FV=OFF
- d. Annunciators
- 1) None
- e. Event Triggers

**TRG10**

**INSERTED**

**INSERTED**

**INSERTED**

**INSERTED**

Event #	Event Action	Command
<b>10</b>	<b>RDVPOSB(137)==160</b> (Rod 26-43 at position 10)	<b>Blank</b>
<b>11</b>	<b>hzardr602&gt;0.863</b> (Drive Water DP greater than 300 psid)	<b>dmf RD07-26-43</b>

- f. Equipment Out of Service
- 1) None
- g. Support Documentation
- 1) Turnover Sheet and RMI
- 2) N2-OP-101A marked up to step E.3.4
- 3) A2 Startup Rod Sequence marked up to RWM Step 15, Rod 14-35

## h. Other

- 1) Ensure that when IC-153 is loaded, the RWM latches on to RWM step 15, Rod 14-35 and there are no RWM rod blocks
- 2) Ensure the rod position plaque is posted with position 12 on it.

### SHIFT TURNOVER INFORMATION

ON COMING SHIFT: ☐ N ☒ D

DATE: Today

**PART I: To be performed by the oncoming Operator before assuming the shift.**

- Control Panel Walkdown (all panels) (SRO, ROs)

**PART II: To be reviewed by the oncoming Operator before assuming the shift.**

- LCO Status (SRO)
- Shift Turnover Information Sheet

Evolutions/General Information/Equipment Status:

- Reactor Power is 3%
- A Reactor Startup is in progress
- RPV Pressure is 925 psig with 1 bypass valve partially open
- Feed Pump B is running with level control on LV55B
- A reactor startup in progress per N2-OP-101A. Currently on step E.3.4. The Clean Steam Reboiler is still on the Aux Boilers per SM direction. The SM wants to complete an inspection on an aux steam component prior to transferring the Reboiler to aux steam. Once the inspection is complete, the SM will inform the control room.
- Currently on A2 Up startup sequence, RWM Step 15, rod 14-35 withdrawing control rods from position 8 to position 12
- All LCOs are met

**PART III: Remarks/Planned Evolutions:**

- Raise reactor power using rods per the startup rod sequence and provided RMI to 8% in preparation for transferring the mode switch to run. RE and STA are available in the control room.



## Shift Turnover

Instructor Actions / Plant Response	Operator Actions
<p>Take the Simulator out of freeze before the crew enters for the pre-shift walkdown.</p> <ul style="list-style-type: none"> <li>• Verify annunciator sound turned on</li> <li>• If recording scenario, start the recording device during the pre-shift walkdown</li> </ul>	
<p>Allow no more than 5 minutes to walkdown the panels.</p>	<p><b><u>Crew</u></b></p> <ul style="list-style-type: none"> <li>• Walkdown panels</li> <li>• Conduct shift turnover brief</li> <li>• Assume the shift</li> </ul>



Events #1 and 2, Withdraw rods to raise power and one rod sticks.

<b>Event Information</b>	<ul style="list-style-type: none"> <li>Initial reactor power is 3%.</li> <li>The crew will withdraw rods to raise power</li> <li>One control rod will stick. The crew will raise drive water pressure to free the stuck control rod.</li> </ul>
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	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>Directs RO to raise reactor power to 8% using the A2 startup rod sequence and provided RMI</li> </ul>
	<p><b><u>RO</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges direction to raise power using control rods</li> <li>Monitors RPV, CRD and Nuclear Instruments</li> <li>Withdraws control rods IAW rod sequence using single notch withdrawal.</li> </ul>
<p><b>Note:</b>  When rod 26-43 is moved from position 8 to position 10, verify the following <b>malfunction</b> is inserted:</p> <p><b>TRG10 RD07-26-43, ROD 26-43 STUCK, FV=TRUE</b></p>	<ul style="list-style-type: none"> <li>Determines and reports rod 26-43 is stuck at position 10</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges report that rod 26-43 is stuck at position 10</li> </ul>
<p><b><u>Role Play</u></b>  If contacted as the SM/RE for direction, inform them to follow the appropriate procedures for a rod which fails to withdraw.</p>	<ul style="list-style-type: none"> <li>May contact SM/RE for direction</li> <li>Directs RO to respond to the stuck rod per N2-OP-30.</li> </ul>

	<p><b>RO</b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to respond to the stuck control rod per N2-OP-30</li> <li>• References section H.1.2, Failure to Withdraw Using Single Notch Withdrawal.</li> <li>• Attempts to withdraw rod 26-43 again while monitoring drive water flow</li> </ul>
<p><b>Note:</b> Do to variations in drive water flow indications, the crew may determine that the insert portion of the DCV sequence is operating correctly and continue on H.1.2. If the crew determines the insert portion of the DCV sequence is operating correctly, then they will refer to section H.1.1 to continue trying to free the stuck rod. The actions are relatively the same, so either action is acceptable.</p>	<ul style="list-style-type: none"> <li>• Determines one of the following: <ul style="list-style-type: none"> <li>○ Drive water flow was not approximately 4 GPM during the insert portion of the rod withdrawal.</li> </ul> </li> <li>-OR-</li> <li>○ Drive water flow was approximately 4 GPM during the insert portion of the rod withdrawal.</li> <li>• May refers to section H.1.1, Failure to Insert</li> </ul>
<p><b>Note:</b> When drive water pressure is raised above 300 psid, verify deleted the following malfunction:</p> <p><b>RD07-26-43, ROD 26-27 STUCK</b></p>	<ul style="list-style-type: none"> <li>• Raises drive water pressure 50 psid by throttling shut on 2RDS-PV101</li> <li>• Attempts to INSERT/WITHDRAW rod 26-43 one notch</li> <li>• Determines rod 26-43 inserted/withdrew one notch</li> <li>• Lowers drive water pressure back to 260 psid</li> <li>• Withdraws rod 26-43 to position 12 if necessary.</li> </ul>
<p><b>Note:</b> Once rod 26-43 has been withdrawn to position 12, the Lead Evaluator may choose to either continue the startup to 8%, or may move on to the next event.</p>	

**Event  
Termination  
Criteria**

- Control Rod 26-43 has been freed
- Reactor power has been raised sufficiently as determined by the Lead Evaluator.

## Event #3: One Pair of Drywell Vacuum Breakers Fail Open

<b>Event Information</b>	<ul style="list-style-type: none"> <li>One pair of Drywell to Suppression Chamber Vacuum Breakers will fail open. No operator action is required. The SRO will evaluate per TS 3.6.1.7</li> </ul>
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<p><b>Note:</b>  At the lead evaluator's discretion, this event may be initiated concurrently with the next event.</p> <p>When directed by the lead evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG1      PC10A</b>, DRYWELL VACUUM BKR PAIR FAIL OPEN (2ISC*RV33A/B), FV=TRUE</p> <p><i>2ISC*RV33A and B fail open  Drywell and Suppression Chamber pressure equalize.</i></p> <p><i>The following annunciator alarms:</i></p> <ul style="list-style-type: none"> <li>601556, DRYWELL VACUUM BRKR INBOARD DISC OPEN</li> <li>601557, DRYWELL VACUUM BRKR OUTBOARD DISC OPEN</li> </ul>	
	<p><b><u>Crew</u></b></p> <ul style="list-style-type: none"> <li>Recognizes and reports AN601556 and AN 601557</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges report of annunciators</li> <li>Directs BOP to respond per the ARPs</li> </ul>

	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to respond per the ARPs.</li> <li>• References ARP 601556 and 601557.</li> <li>• Determines that both 2ISC*RV33A and B indicate open on 2CEC*PNL628.</li> <li>• Informs the SRO that there are no additional actions which can be taken per the ARPs and that both 2ISC*RV33A and B are open.</li> </ul>
<p><b><u>Role Play</u></b></p> <p>As the SM, acknowledge the report of the failure of the vacuum breakers and inform the SRO that you will contact maintenance and the work week manager.</p>	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of 2ISC*RV33A and B being open.</li> <li>• References TS 3.6.1.7, Conditions B and C and determines he has two hours to close at least one of the open vacuum breakers and 72 hours to close the remaining one.</li> <li>• Contacts SM and informs him of the vacuum breaker failures.</li> </ul>

<p><b>Event Termination Criteria</b></p>	<ul style="list-style-type: none"> <li>• TS 3.6.1.7 referenced.</li> </ul>
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## Event #4: Loss of Drywell Cooling

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• An instrumentation fault will cause a loss of drywell cooling.</li> <li>• The crew will respond per N2-SOP-60 and restart Drywell Cooling Fans in "Fans Only" mode.</li> </ul>
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<p><b>Note:</b>          At the discretion of the lead evaluator, this event may be imitated concurrent with the previous event.</p> <p>When directed by lead evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG2      PC01, LOSS OF DRYWELL COOLING, FV=TRUE</b></p> <p><i>All drywell unit coolers trip off          Drywell temperature slowly starts to rise</i></p> <p><i>The following annunciators alarms:</i></p> <ul style="list-style-type: none"> <li>• 873201 DRYWELL UNIT COOLING GROUP 1 SYS TROUBLE</li> <li>• 873202 DRYWELL UNIT COOLING GROUP 2 SYS TROUBLE</li> <li>• 873304 DIVISION I DRYWELL TEMPERATURE HIGH</li> </ul>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports loss drywell cooling.</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of the loss of drywell cooling</li> <li>• Directs BOP to enter N2-SOP-60</li> </ul>

**Note:**

The amber light for DIVISION I DRYWELL UNIT COOLER COOLING WATER manual isolation will be lit on 2CEC\*PNL602. If the crew recognizes this, they will be able to make the determination immediately that the drywell cooling valves will not be able to be reopened. If this is the case, they may continue only in the fan leg of N2-SOP-60.

**BOP (N2-SOP-60)**

- Acknowledges direction to enter N2-SOP-60
- Informs SRO that N2-SOP-60 directs monitoring of drywell temperature and pressure
- Determines Division I drywell cooling valves are closed
- Attempts to restore drywell cooling using the cooling leg of N2-SOP-60
- May determine that drywell cooling valves cannot be opened based on 2CEC\*PNL602 DIVISION I DRYWELL UNIT COOLER COOLING WATER manual isolation amber light being lit and continue in the Fan leg of N2-SOP-60
- Attempts to re-open Drywell Cooling Isolation valves as follows:
  - Places DRYWELL UNIT COOLER WTR DIV I LOCA OVERRIDE switch in OVERRIDE
  - Closes the CCP inlet isolation valves for all drywell unit coolers
  - Attempts to re-open 2CCP\*MOV265 AND MOV124
  - Determines and reports that valves will not reopen
- Continues in the fan only leg of N2-SOP-60
- Restores drywell fans as follows:
  - Places the following switches in OVERRIDE:
    - UNIT COOLER FANS GR1 LOCA OVERRIDE
    - UNIT COOLER FANS GR2 LOCA OVERRIDE

	<p><b><u>BOP (cont.)</u></b></p> <ul style="list-style-type: none"> <li>○ Starts the following DRS Unit Cooler Fans:                         <ul style="list-style-type: none"> <li>▪ 2DRS-UC1A</li> <li>▪ 2DRS-UC1B</li> <li>▪ 2DRS-UC1C</li> <li>▪ 2DRS-UC1D</li> <li>▪ 2DRS-UC2A</li> <li>▪ 2DRS-UC2B</li> <li>▪ 2DRS-UC2C</li> <li>▪ 2DRS-UC2D</li> <li>▪ 2DRS-UC3A</li> </ul> </li> <li>• Reports drywell fans are restored</li> </ul>
<p><b><u>Role Play</u></b></p> <p>As the SM, acknowledge the report of the loss of drywell cooling and inform the SRO that you will contact maintenance and the work week manager:</p>	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of drywell fans restored.</li> <li>• Contacts SM and informs him of the loss of Drywell Cooling</li> </ul>

<p><b>Event Termination Criteria</b></p>	<ul style="list-style-type: none"> <li>• Drywell cooling fans restored in the "Fan's Only" Mode.</li> </ul>
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## Event #5: Loss of Instrument Air

<b>Event Information</b>	<ul style="list-style-type: none"> <li>• The running instrument air compressor trips and the lag and backup compressors fail to auto start.</li> <li>• The crew will respond per N2-SOP-19 and start either the lag or backup air compressors.</li> </ul>
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<p>Verify <b>inserted</b> the following <b>malfunctions</b>:</p> <p><b>IA04A</b>, LAG COMPRESSOR AUTO START FAILURE, FV=TRUE  <b>IA04B</b>, B/U COMPRESSOR AUTO START FAILURE, FV=TRUE</p> <p>When directed by lead evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG3</b>     <b>IA02A</b>, 2IAS-C3A THERMAL OVERLOAD TRIP, FV=TRUE</p> <p><i>IAS-C3A trips on thermal overload</i>  <i>Standby CCP Mini-Loop Pump Auto Starts</i>  <i>IAS Header Pressure begins to lower</i></p> <p><i>The following annunciators alarm:</i></p> <ul style="list-style-type: none"> <li>• <i>INSTR AIR CPSR 3A/3B/3C AUTO TRIP/FAIL TO START</i></li> <li>• <i>INST AIR COMPRESSOR CLG WTR FLOW LOW</i></li> <li>• <i>851260, INST AIR COMPRESSOR COOLING SYS TROUBLE</i></li> </ul>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>• Recognizes and reports trip of 2IAS-C3A</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges trip of IAS-C3A</li> <li>• Directs BOP to enter N2-SOP-19</li> </ul>

	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges direction to enter N2-SOP-19</li> </ul>
<p><b><u>Role Play</u></b></p> <p>If dispatched as a PO to monitor IAS pressures, use Simulator Computer Screen IA01 to monitor and report pressures as required by the control room.</p>	<ul style="list-style-type: none"> <li>May dispatch POs to monitor the following IAS pressures:                             <ul style="list-style-type: none"> <li>2IAS-PI194, (RB 261')</li> <li>2RDS-PI133, (RB 261')</li> </ul> </li> <li>Determines an air compressor has tripped.</li> <li>Determines the loss of air compressor was not due to a slow transfer or loss of control power</li> </ul>
<p><b><u>Note:</u></b></p> <p>The BOP may wait until IAS pressure lowers to 100 psig and observing IAS-C3B did not auto start before taking manual action to start a backup air compressor –or- the BOP may choose to manually start a backup air compressor before the failure of the backup air compressor to auto start is apparent. Either action is acceptable.</p>	<ul style="list-style-type: none"> <li>Manually starts IAS-C3B or C as follows:</li> </ul>
<p><b>CT-1.0, Given a trip of the running instrument air compressor and a failure of the lag and backup air compressors to automatically start, the crew will take action to manually start the lag or backup air compressor.</b></p> <p><i>IAS Air Header Pressure begins to rise.</i></p>	<ul style="list-style-type: none"> <li>Places <b>IAS Compressor Selector Switch</b> to either <b>BCA</b> or <b>CAB</b></li> <li>Places <b>IAS-C3B or 3C control switch</b> in <b>START</b></li> <li>Verifies IAS-C3B or 3C starts and IAS Air Header pressure is rising.</li> <li>Informs the SRO that IAS-C3B or 3C is running and that IAS Air Header Pressure is rising.</li> <li>Refers to Attachment 1 of N2-SOP-19</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges report from BOP that IAS Air Header Pressure has been restored.</li> </ul>

**Role Play**

As the SM, acknowledge the report of the loss of instrument air and inform the SRO that you will contact maintenance and the work week manager.

**SRO (cont.)**

- Contacts SM and informs him of the loss of Instrument Air

**Event  
Termination  
Criteria**

- IAS-C3B or 3C is running
- Instrument Air Header pressure is rising

## Event #6: Spurious Initiation of Division 1 ECCS Systems

<b>Event Information</b>	<ul style="list-style-type: none"> <li>A spurious initiation of Division 1 ECCS Systems will occur with a failure of RHS A Pump Minimum Flow Valve to Open.</li> <li>The crew will take action to secure the Division 1 ECCS Systems.</li> </ul>
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<p>When directed by lead instructor/evaluator, <b>insert</b> the following <b>malfunction</b>:</p> <p><b>TRG4 RH13A</b>, ECCS INADVERTENTLY INITIATES (DIV I), FV=TRUE  <b>RH15</b>, RHS*MOV4A VALVE FAILS SHUT, FV=TRUE</p> <p><i>Division 1 ECCS Systems and diesel automatically start</i></p> <p><i>The following annunciators alarm:</i></p> <ul style="list-style-type: none"> <li>601413, LPCS PUMP 1 AUTO START</li> <li>601426, LPCS SYSTEM ACTUATED</li> <li>601442, RHR PUMP 1A AUTO START</li> <li>601451, RHR A SYSTEM ACTUATED</li> <li>601539, ADS A LPCS / RHR A PERMISSIVE</li> <li>852109, DIVISION I EDG 1 START SYSTEM TROUBLE</li> <li>852117, EDG 1 RUNNING</li> </ul>	
	<p><b><u>CREW</u></b></p> <ul style="list-style-type: none"> <li>Recognizes and reports inadvertent initiation of Division 1 ECCS Systems</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>Acknowledges report of Division 1 ECCS Systems running.</li> <li>Directs the BOP to respond per the ARPs</li> </ul>

<p><b>Role Play:</b>  If requested to provide RHR and CSL trip unit indications (2CEC*PNL629), report that no trip units are in alarm and that no gross failures are present.</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges direction to respond per the ARPs.</li> <li>• References ARP for 601413 and 601442</li> <li>• Determines by looking at multiple indications that RPV Level is not below Level 1 and Drywell Pressure is not above 1.68 psig.</li> <li>• Informs the SRO that there are no valid initiation signals for Division 1 ECCS Systems.</li> <li>• Reviews the automatic response of Division 1 ECCS systems and determines and reports 2RHS*MOV4A did not open</li> <li>• Attempts to manually open 2RHS*MOV4A</li> <li>• Determines 2RHS*MOV4A did not open and informs the SRO</li> </ul>
<p><b>Note:</b>  At this time, there is no requirement to attempt to shutdown the remaining Division 1 ECCS Systems. The SRO may choose to wait to shutdown the systems until after he has had a chance to talk with the SM. This is an acceptable action. If the SRO waits until after he contacts the SM, a role play from the SM will direct the SRO to shutdown the remaining Division 1 ECCS Systems per the appropriate OP's.</p>	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of no valid Division 1 ECCS Initiation signal and 2RHS*MOV4A failing to open</li> <li>• Directs BOP to place RHS Pump 1A in Pull to Lock.</li> <li>• May direct BOP to also attempt to shutdown the remaining Division 1 ECCS Systems</li> </ul>

<p><b><u>Role Play</u></b>                  As directed to perform running checks on Division 1 EDG, wait 2 minutes and inform the control room that running checks have been completed satisfactorily.</p> <p><b><u>Role Play</u></b>                  As the booth, if contacted for any trip units, inform the operator that there are no trip units tripped.</p>	<p><b><u>BOP</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report to place RHS Pump 1A in Pull To Lock</li> <li>• Places RHS Pump 1A control switch in Pull To Lock</li> <li>• As required, acknowledges direction to shutdown the remaining Division 1 ECCS Systems.</li> <li>• Dispatches PO to perform running checks on Division 1 EDG.</li> <li>• May contact the booth and ask for any trip units which may have actuated.</li> <li>• As required, performs a shutdown of the LPCS system per N2-OP-32 as follows:                         <ul style="list-style-type: none"> <li>○ Depresses LPCI A/LPCS RESET pushbutton.</li> <li>○ Determines white reset seal-in light did not extinguish</li> <li>○ Places LPCS pump control switch in Pull to Lock</li> </ul> </li> <li>• As required, performs a shutdown of the Division 1 EDG per N2-OP-100A, Section H.16.0 as follows:                         <ul style="list-style-type: none"> <li>○ Places EMERGENCY DSL GEN 1 LOCA SIGNAL BYPASS switch to ON</li> <li>○ Places DIVISION 1 2EGS*EG1 START switch in PULL-TO-LOCK</li> </ul> </li> <li>• Informs the SRO that the Division 1 ECCS Systems are shutdown.</li> </ul>
	<p><b><u>SRO</u></b></p> <ul style="list-style-type: none"> <li>• Acknowledges report of RHS Pump 1A control switch in Pull to Lock.</li> <li>• As required, acknowledges report of Division 1 ECCS Systems</li> </ul>

### **Role Play**

As the SM, acknowledge the report of the Division 1 ECCS System Failure and inform the SRO that you will contact maintenance and the work week manager. If the SRO has not already shutdown the Division 1 ECCS Systems, direct the SRO to attempt to shutdown or place the systems in PTL per the appropriate OPs.

### **Note:**

Because the Division 1 ECCS systems are inoperable, the SRO cannot use the extended 14 day completion time allowed per Condition B. He is required to use the 72 hour completion time as references in the TS 3.8.1 Bases.

### **SRO (cont.)**

- Contacts SM and informs him of the Division 1 ECCS System Failure
- If necessary, acknowledges direction to shutdown the remaining Division 1 ECCS Systems.
- Refers to TS 3.5.1 and determines that with both LPCS and RHS A inoperable that Condition A and C applies and he has 72 hours to restore one of the pumps to operable status and 7 days to restore the remaining pump.
- Refers to TS 3.6.1.6 and determines that Condition A applies and he has 7 days to restore RHS A drywell spray system to operable status.
- Refers to TS 3.6.2.3 and determines Condition A applies and he has 7 days to restore RHS A suppression pool cooling to operable status
- Refers to TS 3.8.1 and determines Condition B applies and that he must perform SR 3.8.1.1 within 1 hour and restore the Division 1 EDG to operable status within 72 hours.

### **Event Termination Criteria**

- Division 1 ECCS Systems are shutdown
- SRO has referenced Technical Specifications, (At the Lead Evaluator's discretion, the referencing of all Tech Specs may be deferred until after the end of the scenario as long as appropriate follow up questions are used at the completion of the scenario).