

**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

<u>RO</u> APPL. TO	<u>16-1 NRC RO EC</u> JPM NUMBER	TASK TITLE: Determine Tagout Isolation Boundary For CRD Pump
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REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 2.2.13 (4.1)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 30 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

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CANDIDATE NAME: \_\_\_\_\_ LOGIN ID: \_\_\_\_\_

JPM Completion Perform

Location: Classroom

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ☐ Satisfactory ☐ Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_  
SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_  
PROGRAM ADMINISTER



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

RO  
APPL. TO

16-1 NRC RO EC  
JPM NUMBER

TASK TITLE: Determine Tagout Isolation Boundary For CRD  
Pump

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Outstanding Items

- ☐ Technical Review
- ☐ Questions and Answers
- ☐ Procedural Change Required

- ☐ Additional Information
- ☐ Validation
- ☒ None

Comments:

Current Update \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Previous Revision Date:



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

RO  
APPL. TO

16-1 NRC RO EC  
JPM NUMBER

TASK TITLE: Determine Tagout Isolation Boundary For CRD Pump

**I. SAFETY CONSIDERATIONS**

A. None

**II. REFERENCES**

- A. EN-OP-102, Protective and Caution Tagging
- B. FM-27A and FM-27B
- C. OP-25

**III. TOOLS AND EQUIPMENT**

- None

**IV. SET UP REQUIREMENTS**

- A. Ensure copies of the following references are available:
  - EN-OP-102
  - FM-27A and FM-27B (full size)
  - OP-25

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, placekeeping and three-point communication.

**VI. TASK CONDITIONS**

- A. The plant is operating at 100% power.
- B. Maintenance is required on CRD pump A.
- C. The maintenance activity will be intrusive to the impeller casing for impeller replacement.
- D. eSOMS is unavailable.



TASK TITLE: Determine Tagout Isolation Boundary For CRD Pump

**\* - CRITICAL STEP****VII. INITIATING CUE**

Inform the candidate, "Generate a tagout isolation boundary for CRD pump A maintenance. Record the devices to be tagged and their required positions on the worksheet provided. Record additional amplifying instructions that are required, if any, in the space below."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain required references.	<p>Obtains and utilizes required references, which may include:</p> <ul style="list-style-type: none"> <li>• EN-OP-102</li> <li>• FM-27A and/or FM-27B</li> <li>• OP-25</li> </ul> <p><b>EVALUATOR NOTE:</b> Component names and Required Position terminology may vary slightly from what is written below due to unavailability of eSOMS.</p>	SAT / UNSAT
2.	Determine CRD pump A control switch tagged position.	<p>Identifies CRD pump A control switch should be tagged in the green flag after stop position.</p> <p><b>EVALUATOR NOTE:</b> The CRD pump A control switch does not have a pull-to-lock position.</p>	SAT / UNSAT
*3.	Determine CRD pump A breaker tagged position.	Identifies CRD pump A breaker (71-11516) should be tagged in the racked out or removed position.	<b>CRITICAL STEP</b> SAT / UNSAT
*4.	Determine CRD pump A discharge isolation valve tagged position.	Identifies CRD pump A discharge isolation valve (03CRD-176A) should be tagged in the closed position.	<b>CRITICAL STEP</b> SAT / UNSAT



## TASK TITLE: Determine Tagout Isolation Boundary For CRD Pump

	STEP	STANDARD	EVALUATION / COMMENT
*5.	Determine CRD pump A suction isolation valve tagged position.	Identifies CRD pump A suction isolation valve (03CRD-153A) should be tagged in the closed position.	<b>CRITICAL STEP</b> SAT / UNSAT
*6.	Determine CRD pump A minimum flow isolation valves tagged position.	Identifies CRD pump A minimum flow isolation valves (03CRD-177A and 03CRD-154A) should be tagged in the closed position.	<b>CRITICAL STEP</b> SAT / UNSAT
*7.	Determine CRD pump positive pressure seal isolation valve tagged position.	Identifies CRD pump positive pressure seal isolation valve (03CRD-39) should be tagged in the closed position.	<b>CRITICAL STEP</b> SAT / UNSAT
*8.	Determine CRD pump A venting path tagged position.	<p>Identifies tagging one or more of the following paths for venting CRD pump A casing:</p> <ul style="list-style-type: none"> <li>• CRD pump A suction pressure indicator root valve (03CRD-163) open with the pressure indicator removed/uninstalled.</li> <li>• CRD pump A suction pressure relief valve (03CRD-RV14A) gagged open.</li> <li>• CRD pump A suction from SLC system isolation valve (03CRD-88A) open (with cap removed).</li> <li>• May also list casing vents 03CRD-416A1 or A2.</li> </ul> <p><b>EVALUATOR NOTE:</b> Only one vent or drain path is required by procedure.</p>	<b>CRITICAL STEP</b> SAT / UNSAT



## TASK TITLE: Determine Tagout Isolation Boundary For CRD Pump

	STEP	STANDARD	EVALUATION / COMMENT
9.	Determine this tagout includes high energy.	Determines that with CRD pump B running, the discharge isolations for CRD pump A are exposed to high energy (>500 psig) (may reference EN-OP-102 Section 3.0[15]).	SAT / UNSAT
10.	Determine need for double valve protection.	Determines the discharge of CRD pump A should have double valve protection due to CRD pump B providing high energy (may reference EN-OP-102 Attachment 9.2 Section 5.1).	SAT / UNSAT
11.	Determine availability of double valve protection and compensatory actions.	<p>Determines double valve protection can only be provided by taking credit for check valves (03CRD-36A and 03CRD-37A).</p> <p>Indicates that to use check valves as isolation boundary (may reference EN-OP-102 Attachment 9.2 Section 2.8):</p> <ul style="list-style-type: none"> <li>• Shift Manager concurrence must be obtained.</li> <li>• All individuals working under the tagout shall be informed of the risk.</li> <li>• The risk needs to be listed in the hazards section of the tagout.</li> </ul>	SAT / UNSAT
<b>EVALUATOR:</b> Terminate the task at this point.			

**Task Standard:** Tagout isolation boundary for CRD pump A developed including components and required positions.



# HANDOUT

## Initial Conditions:

- The plant is operating at 100% power.
- Maintenance is required on CRD pump A.
- The maintenance activity will be intrusive to the impeller casing for impeller replacement.
- eSOMS is unavailable.

## Initiating Cue:

Generate a tagout isolation boundary for CRD pump A maintenance.

Record the devices to be tagged and their required positions on the worksheet provided.

Record additional amplifying instructions that are required, if any, in the space below.



# WORKSHEET

Component	Required Position



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

S/RO

NRC 16-1 S/RO  
COO1

TASK TITLE: Manually Compute Average Drywell Air  
Temperature

APPL. TO

JPM NUMBER

REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 2.1.20 (4.6/4.6)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~  
CANDIDATE NAME: \_\_\_\_\_

JPM Completion Perform

Location: Classroom

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ☐ Satisfactory ☐ Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_  
SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_  
PROGRAM ADMINISTER



**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

S/RO	NRC 16-1	TASK TITLE:	Manually Compute Average Drywell Air
	S/RO COO1		Temperature
APPL. TO	JPM NUMBER		

Current Update:	By:
<div></div>	<div></div>
Date	Int

Outstanding Items

- |   |   |
|---|---|
| <input type="checkbox"/> Technical Review           | <input type="checkbox"/> Additional Information |
| <input type="checkbox"/> Questions and Answers      | <input type="checkbox"/> Validation             |
| <input type="checkbox"/> Procedural Change Required | <input checked="" type="checkbox"/> None        |

Comments:

Current Update:	By:
<div></div>	<div></div>
Date	Int.

Previous Revision Date:



**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO

NRC 16-1  
S/RO COO1

TASK TITLE: Manually Compute Average Drywell Air  
Temperature

APPL. TO

JPM NUMBER

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. ST-40C, Computer Out Of Service Surveillance

**III. TOOLS AND EQUIPMENT**

- A. Calculator

**IV. SET UP REQUIREMENTS**

- A. Prepare a copy of ST-40C completed up to step 8.3.4.
- B. Provide Drywell temperature readings on ST-40C Attachment 3 to match selected portions of the Evaluator Key provided in this JPM pre-filled in.
- C. Student handout only has RTD used "x'd" and the READING column filled in.
- D. Student handout does NOT include SUM OF WEIGHTING FACTORS, CORRECTED VALUES, SUM OF CORRECTED VALUES and AVERAGE DRYWELL TEMPERATURE calculation.

**V. EVALUATOR NOTES**

- A. None

**VI. TASK CONDITIONS**

- A. EPIC is out of service.
- B. ST-40C, Computer Out Of Service Surveillance, is complete up to step 8.3.4.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you to complete ST-40C section 8.3, Drywell Temperature Check, and record your results in the space below."

**EVALUATOR:** Provide the candidate with the in-progress copy of ST-40C.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Determine average drywell temperature by performing the following using Attachment 3:  Multiply the recorded READING by the WEIGHTING FACTOR and record the result under CORRECTED VALUE.	Calculates and records CORRECTED VALUES on Attachment 3 (see provided key).	SAT / UNSAT
2.	IF the READING for any DRYWELL AREA was recorded as "none" on Attachment 3, THEN perform the following:  Record the sum of all the used WEIGHTING FACTORS in the SUM OF USED WEIGHTING FACTORS block.	Calculates and records sum of all used WEIGHTING FACTORS on Attachment 3 (see provided key).	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
3.	Record the sum of all the CORRECTED VALUES in the SUM OF CORRECTED VALUES block.	Calculates and records sum of all CORRECTED VALUES on Attachment 3 (see provided key).	SAT / UNSAT
4.	IF no DRYWELL AREAS had a READING recorded as "none", THEN perform the following...	Determines one Drywell Area reading was "none" and determines this step is n/a.	SAT / UNSAT
*5.	Determine average drywell temperature by dividing the SUM OF CORRECTED VALUES by the SUM OF USED WEIGHTING FACTORS and record the result as the AVERAGE DRYWELL TEMPERATURE on Attachment 3.	Calculates and records average Drywell temperature on Attachment 3 (see provided key).	<b>CRITICAL STEP</b> SAT / UNSAT
*6.	Determine average drywell temperature is above the allowable value of 135°F.	Reports average drywell temperature is above the allowable value of 135°F.	<b>CRITICAL STEP</b> SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
<p><b><u>EVALUATOR:</u></b> For RO candidates, terminate the task at this point.</p> <p><b><u>EVALUATOR:</u></b> For SRO candidates, provides the following additional conditions and cue (and associated handout):</p> <p>Initial Conditions:  The plant is operating at 100% power.  You are the CRS.</p> <p>Initiating Cue:  Assess the results of ST-40C Step 8.3.  Determine any required actions.  Report your findings in the space below.</p>			
*6.	<b>SRO Only</b> Assesses Acceptance Criteria 10.1.4.	Determines Acceptance Criteria 10.1.4 is NOT met.	<b>CRITICAL STEP</b> SAT / UNSAT
*7	<b>SRO Only</b> Determines required actions.	Determines surveillance is unsatisfactory.  Determines need to notify Operations Manager (or alternate).  Determines CR must be written.  * Determines EOP-4, Primary Containment Control, must be entered.	<b>CRITICAL STEP</b> SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
*7. (cont.)		<p>* Determines Technical Specification 3.6.1.5 Condition A must be entered (requires restoring to within limit within 8 hours).</p> <p><b>EVALUATOR NOTE:</b> Only the portions of this step marked with an (*) are deemed critical for grading.</p>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>
<p><b><u>EVALUATOR:</u></b> Terminate the task at this point.</p>			

**Task Standard:** Drywell Temperature check performed in accordance with ST-40C Section 8.3 with calculation revealing Drywell temperature is high out of allowable value.



# EVALUATOR'S KEY

COMPUTER OUT OF SERVICE SURVEILLANCE

ST-400

## ATTACHMENT 3

### DRYWELL TEMPERATURE CALCULATION

Page 1 of 1

DRYWELL AREA	RTD 16-1RTD-	READING	WEIGHTING FACTOR	CORRECTED VALUE
0	( ) 101 ( ) 120	None	<del>0.1133</del>	0
1	( ) 102 (x) 119	135	0.1652	22.302
2	( ) 103 (x) 104	137	0.3560	48.772
3	( ) 105 (x) 106	136	0.1313	17.8568
4	( ) 107 (x) 108	133	0.0470	6.251
5	( ) 109 (x) 117	133	0.0534	7.1022
6	( ) 110 (x) 111	134	0.0715	9.581
7	( ) 112 (x) 113	135	0.0621	8.3835
SUM OF USED WEIGHTING FACTORS:			0.8865	
SUM OF CORRECTED VALUES:				120.2485
AVERAGE DRYWELL TEMPERATURE:				135.6441
				<u>&lt;135°F</u>

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**EVALUATOR NOTE:** The candidate may round the CORRECTED VALUE entries. An acceptable range for the SUM OF CORRECTED VALUES is 119.9-120.4°F. An acceptable range for the AVERAGE DRYWELL TEMPERATURE is 135.2-135.8°F.

# EVALUATOR'S KEY



# HANDOUT

## Initial Conditions:

- EPIC is out of service.
- ST-40C, Computer Out Of Service Surveillance, is complete up to step 8.3.4.

## Initiating Cue:

The CRS directs you to complete ST-40C section 8.3, Drywell Temperature Check, and record your results in the space below.



## ATTACHMENT 3

DRYWELL TEMPERATURE CALCULATION

Page 1 of 1

DRYWELL AREA	RTD 16-1RTD-	READING	WEIGHTING FACTOR	CORRECTED VALUE
0	( ) 101 ( ) 120	None	<del>0.1133</del>	0
1	( ) 102 (x) 119	135	0.1652	
2	( ) 103 (x) 104	137	0.3560	
3	( ) 105 (x) 106	136	0.1313	
4	( ) 107 (x) 108	133	0.0470	
5	( ) 109 (x) 117	133	0.0534	
6	( ) 110 (x) 111	134	0.0715	
7	( ) 112 (x) 118	135	0.0621	
SUM OF USED WEIGHTING FACTORS:				
SUM OF CORRECTED VALUES:				
AVERAGE DRYWELL TEMPERATURE:				<u>≤135°F</u>



# **ADDITIONAL SRO ONLY HANDOUT**

## **Initial Conditions:**

- The plant is operating at 100% power.
- You are the CRS.

## **Initiating Cue:**

- Assess the results of ST-40C Step 8.3.
- Determine any required actions.
- Report your findings in the space below.



ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE

S/RO	16-1 NRC	TASK TITLE: Determine Work Hour Limitations
APPL. TO	S/RO COO2	
	JPM NUMBER	

REV: _____	DATE: _____	NRC K/A SYSTEM NUMBER: <u>2.1.5 (2.9/3.9)</u>
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JAF TASK NUMBER: _____	JAF QUAL STANDARD NUMBER: _____
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ESTIMATED COMPLETION TIME: <u>20/25</u> Minutes
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SUBMITTED: _____	OPERATIONS REVIEW: _____
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APPROVED: _____
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CANDIDATE NAME: _____	LOGIN ID: _____
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JPM Completion	Perform
Location:	Classroom

DATE PERFORMED: _____	TIME TO COMPLETE: _____ Minutes
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PERFORMANCE EVALUATION:	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Unsatisfactory
~~~~~		

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)
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EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

REVIEWED BY: _____	DOC. COMPLETE: _____
PROGRAM ADMINISTER	



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

S/RO

16-1 NRC

TASK TITLE: Determine Work Hour Limitations

S/RO COO2

APPL. TO

JPM NUMBER

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Outstanding Items

- ☐ Technical Review
- ☐ Questions and Answers
- ☐ Procedural Change Required

- ☐ Additional Information
- ☐ Validation
- ☒ None

Comments:

Current Update \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Previous Revision Date:



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

S/RO

16-1 NRC

TASK TITLE: Determine Work Hour Limitations

S/RO COO2

APPL. TO

JPM NUMBER

**I. SAFETY CONSIDERATIONS**

A. None

**II. REFERENCES**

A. EN-OM-123, Fatigue Management Program

**III. TOOLS AND EQUIPMENT**

A. Calculator

**IV. SET UP REQUIREMENTS**

A. Ensure sufficient copies of EN-OM-123, Fatigue Management Program, are available for the number of candidates.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, placekeeping and three-point communication.

**VI. TASK CONDITIONS**

A Reactor Operator has called out sick for Friday, August 31, Day Shift.

The following is the recent work hour history and upcoming schedule for three Reactor Operators. Their hours worked were and are in the Main Control Room during Mode 1, except for the training week.

Dayshift	6:00 am – 6:00 pm
Nightshift	6:00 pm – 6:00 am
Training	6:30 am – 2:30 pm

The schedules show the day that each work shift begins.



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

S/RO

16-1 NRC

TASK TITLE: Determine Work Hour Limitations

S/RO COO2

APPL. TO

JPM NUMBER

<b>RO – Dave Jones</b>	M	T	W	Th	F	Sa	Su
Week of August 20	D	D	D	D		N	N
Week of August 27	N	N			D?	D	D
Week of September 3	D					D	D
Week of September 10	T	T	T	T			
Week of September 17	N	N	N				

<b>RO – Bob Smith</b>	M	T	W	Th	F	Sa	Su
Week of August 20	N	N	N	N			
Week of August 27	T	T	T	T	D?	N	N
Week of September 3	N	N					D
Week of September 10	D	D	D	D			
Week of September 17		N	N	N	N		

<b>RO – Jim Doe</b>	M	T	W	Th	F	Sa	Su
Week of August 20	T	T	T	T			
Week of August 27	D	D	D	D	D?		N
Week of September 3	N	N	N	N			D
Week of September 10	D	D	D				
Week of September 17	T	T	T	T			



TASK TITLE: Determine Work Hour Limitations

**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate of the following:

"Evaluate the work hour history for each of the three Reactor Operators. Determine which operators can take the scheduled watch for a full dayshift of 12 hours today, Friday, August 31 (and still be eligible for future scheduled shifts).

If applicable, describe the conditions that would make any operator(s) ineligible to work.

Consider all days after August 31 as scheduled shifts. Consider all days before August 31 as actual worked shifts."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of EN-OM-123.	Obtains a controlled copy of EN-OM-123.  <b>EVALUATOR:</b> Provide working copy.	SAT / UNSAT



## TASK TITLE: Determine Work Hour Limitations

	STEP	STANDARD	EVALUATION / COMMENT
2.	<p>[1] Work hour limits for individuals performing Covered Work consist of three concurrent components: maximum ceilings, minimum breaks, and minimum days off (MDO).</p> <p>[2] The maximum ceilings which apply at all times are a maximum of:</p> <ul style="list-style-type: none"> <li>(a) 16 work hours in any 24-hour period,</li> <li>(b) 26 work hours in any 48-hour period, and</li> <li>(c) 72 work hours in any 7-day period.</li> </ul> <p>[3] The minimum break times which apply at all times are a minimum of:</p> <ul style="list-style-type: none"> <li>(a) 10-hour break between successive work periods, except that an 8-hour break is allowed when necessary to accommodate a crew's scheduled transition between work schedules or shifts, and</li> <li>(b) 34-hour break in any 9-day period.</li> </ul> <p>[4] The MDO that applies when the plant is on-line:</p> <ul style="list-style-type: none"> <li>• 54-hour rolling average</li> </ul>	Reviews limitations of EN-OM-123.	SAT / UNSAT



## TASK TITLE: Determine Work Hour Limitations

	STEP	STANDARD	EVALUATION / COMMENT
*3.	Evaluate Dave Jones for overtime.	<p>Determines Dave Jones <b>can</b> work the shift.</p> <p><b>NOTE:</b> The candidate must indicate that Dave Jones is eligible, but does not need to provide an explanation. See attached key for example.</p>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>
*4.	Evaluate Bob Smith for overtime.	<p>Determines Bob Smith can <b>NOT</b> take the shift because he would exceed the 72 hours in a 7 day period and/or <b>NOT</b> having a 34 hr break in any 9 day period.</p> <p><b>NOTE:</b> The candidate must indicate why Bob Smith is not eligible, but does not have to match the above description exactly. See attached key for example.</p>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>
*5.	Evaluate Jim Doe for overtime.	<p>Determines Jim Doe <b>can</b> work the shift.</p> <p><b>NOTE:</b> The candidate must indicate that Jim Doe is eligible, but does not need to provide an explanation. See attached key for example.</p>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>
<p align="center"><b>EVALUATOR:</b> Terminate the task at this point for RO Candidates.  <i>Provide SRO Candidates with the additional SRO Only Handout once they have completed the above section.</i></p>			



TASK TITLE: Determine Work Hour Limitations

	STEP	STANDARD	EVALUATION / COMMENT
<b><u>Additional SRO Only Information:</u></b> <ul style="list-style-type: none"> <li>Disregard the previous JPM results.</li> <li>An operator <b>is currently at their</b> Work Hour Limitation.</li> <li>This operator is needed to cover Shift.</li> <li><b>This</b> additional Shift would result in that operator to exceed Work Hour Limits.</li> </ul> <b><u>Additional SRO Only Cue:</u></b> <ul style="list-style-type: none"> <li>Inform the Candidate, "Determine the required actions to <b>allow</b> this individual to cover the Shift to meet Technical Specification staffing requirements.</li> <li>Document your findings in the space below."</li> </ul>			
*6.	<b>SRO Only</b> Determine the required actions to allow an Operator to cover the shift.  <b>EVALUATOR NOTE:</b> The Candidate may list individual requirements vice listing Attachment numbers. Reference the EVALUATOR ATTACHMENT at the end of this JPM to see the requirements of EN-OM-123 Attachments 9.7 and 9.8.	<b>SRO Only</b> Determines EN-OM-123 requires the following actions to allow an Operator to cover the shift: <ul style="list-style-type: none"> <li>Must complete EN-OM-123 Attachment 9.7, Waiver Basis and Approval</li> <li>Must complete EN-OM-123 Attachment 9.8, Covered Worker Capability Assessment</li> </ul> <b>EVALUATOR NOTE:</b> The Candidate may also specify that a Condition Report must be generated. This is part of completing Attachment 9.7.  <b>EVALUATOR NOTE:</b> The Candidate may also specify that a face-to-face fatigue assessment must be performed. This is part of completing Attachment 9.8.	<b>CRITICAL STEP</b> SAT / UNSAT
<b>EVALUATOR:</b> Terminate the task at this point for SRO Candidates.			

**Task Standard:** Attachment 9.7 and 9.8 of EN-OM-123 are identified to allow the operator to cover shift.



## EVALUATOR'S KEY

Reactor Operator	Eligible for Day Shift on August 31? (circle Yes or No)	If not eligible, describe reason:
Dave Jones	Yes / No	
Jim Doe	Yes / No	
Bob Smith	Yes / No	Exceeds 72 hours in a 7 day period and/or not having a 34 hr break in any 9 day period. (or similar)

## EVALUATOR'S KEY



# EVALUATOR'S ATTACHMENT

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<b>Fatigue Management Program</b>				

ATTACHMENT B.7

WAIVER BASIS AND APPROVAL

Sheet 1 of 2

## REFER TO PROCEDURE SECTION 5.9

### A. ADVERSE CONDITION REQUIRING A WAIVER:

(Check applicable box and describe circumstances that necessitate use of a waiver (5.9(2)))

- ☐ Necessary to mitigate or prevent a condition adverse to safety [Definition 3.0.8]
- ☐ Public or station personnel health or safety is jeopardized.
- ☐ Recovery from a challenge to the safety function of a system or component is delayed.
- ☐ Compliance with another NRC regulatory requirement is impaired or prevented.
- ☐ Mitigation of a Technical Specification required reactor shutdown or power reduction is impaired or prevented.
- ☐ Unplanned increase in the plant status risk color assignment.
- ☐ Compliance with site environmental permits is impaired or prevented.
- ☐ External events (weather, fire, flooding) pose a risk to station personnel.

Describe circumstances and basis for approval: \_\_\_\_\_

Manager, Shift Operations: \_\_\_\_\_ Date / Time: \_\_\_\_\_

- ☐ Necessary for site security [Definition 3.0.8]
- ☐ Compliance with the site security plan is impaired or prevented.
- ☐ Failure to implement a compensatory measure creates a condition adverse to safety.

Describe circumstances and basis for approval: \_\_\_\_\_

Supervisor, Security Shift Operations: \_\_\_\_\_ Date / Time: \_\_\_\_\_

### B. SCOPE OF WORK (brief description of work to be performed under this waiver)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_


Completed by: \_\_\_\_\_

### C. AUTHORIZATION

Use of waiver is approved for the following time period: (not to exceed 14 calendar days)

Effective Date / time: \_\_\_\_\_ Expiration Date / time: \_\_\_\_\_

Approved: \_\_\_\_\_  
(SVP or GMPO)

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ATTACHMENT B.7

WAIVER BASIS AND APPROVAL

Sheet 2 of 2

### D. CONDITION REPORTING

- Initiate a Condition Report for use of a waiver.
- Attach this approved Form in the Condition Description.
- Proceed to Attachment 9.8 for assessment(s) of individual(s) working under this waiver.

The purpose of this CR is to document corrective actions that may be needed to address why there was insufficient margin in staffing or work schedules to address the unexpected situation without the use of waivers. The evaluation of the condition adverse to safety or security, described in Section A, would be the subject of a separate CR, if required, based on other applicable procedures.

# EVALUATOR'S ATTACHMENT



# EVALUATOR'S ATTACHMENT

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ATTACHMENT 9.8

COVERED WORKER CAPABILITY ASSESSMENT

Sheet 1 of 3

## REFER TO PROCEDURE SECTION 5.9

A. CR Number: \_\_\_\_\_ (from Step 5.9 (7)(f))

### NOTE

A separate Face-to-Face assessment and Attachment 9.8 is required for each individual and for each work period (shift) during which that individual will exceed the work hour limits under the approved waiver. Use the same CR reference numbers on all Attachments 9.8 associated with the approved Attachment 9.7.

B. Covered Worker being assessed (print Name): \_\_\_\_\_ (Dept): \_\_\_\_\_  
Supervisor performing assessment (print Name): \_\_\_\_\_ (Dept): \_\_\_\_\_

Limit(s) that will be exceeded for this work period (check all that apply):

- ☐ > 16 work hours in any 24-hour period
- ☐ > 26 work hours in any 48-hour period
- ☐ > 72 work hours in any 7-day period
- ☐ < 10-hour (consecutive hours) break between successive work periods
- ☐ < 34-hour (consecutive hours) break in any 9-day period
- ☐ 54-hour Rolling Average
- ☐ Minimum Day Off – Outage

Date / time that limit will be exceeded: (Date): \_\_\_\_\_ (Time): \_\_\_\_\_

(Determined manually if not in a PQ&S Report)

(If more than one limit will be exceeded in the current work period, record the earliest time)

### NOTE

A Face-to-Face assessment of the Covered Worker must be performed during the 4-hour window before the Covered Worker will begin performing covered work under the waiver.

Task to be performed by Covered Worker: \_\_\_\_\_

C. **Face-to-Face Capability Assessment** (Supervisor record information based on discussion with Covered Worker)

C1. 14-day work history for the Covered Worker: (In the following Table DAY 1 means today, DAY 2 means yesterday, etc. Data may also be provided by attaching a printout from PQ&S in lieu of completing the Table)

DAY	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Shift schedule <sup>(a)</sup>														
Hours worked <sup>(b)</sup>														


(a) Indicate 'D' for a day-shift schedule and 'N' for a night shift schedule

(b) Approximate work hours each day

# EVALUATOR'S ATTACHMENT



# EVALUATOR'S ATTACHMENT

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ATTACHMENT 9.8

COVERED WORKER CAPABILITY ASSESSMENT

Sheet 2 of 3

- C2. Have you had a break of at least 10 hours between successive work periods for each of the past 14 days?  
☐ Yes ☐ No
- C3. Has your schedule exceed work hour limits during another work period / shift in the past 14 days?  
☐ Yes ☐ No
- C4. Approximately how many hours have you been awake? \_\_\_\_\_
- C5. Approximately how many hours of sleep have you had in the last 24 hours? \_\_\_\_\_
- C6. Approximately how many hours of sleep have you averaged in the past 5 days? \_\_\_\_\_
- C7. Is your current shift schedule affecting your normal sleep routine? ☐ Yes ☐ No
- C8. Are you aware of any medical conditions or other non-work circumstances affecting your level of alertness at work? ☐ Yes ☐ No (If yes, discuss with Supervisor performing assessment)
- C9. Do you feel capable of performing the assigned task during the work period that exceeds work hour limits without impairment due to fatigue? ☐ Yes ☐ No

## D. Supervisor Conclusions

- D1. Covered Worker participated in the Capability Assessment? ☐ Yes ☐ No
- D2. Covered Worker exhibited symptoms of fatigue? ☐ Yes ☐ No
- ☐ Excessive yawning    ☐ Frequent blinking    ☐ Red eyes  
☐ Difficulty concentrating    ☐ Irritability    ☐ Other \_\_\_\_\_

D3. Based on this face-to-face meeting, is there evidence of:


	NO	YES
Acute Fatigue? (potential for inadequate rest in the past 24 – 48 hours)		
Cumulative Fatigue? (potential for inadequate rest over the past 1 – 2 weeks)		
Circadian Rhythm disruptions? (work schedule or non-work activities that may impact the normal daily rhythm for periods of sleep and wakefulness)		
Medical factors that may contribute to fatigue?		
Home or Lifestyle factors that may contribute to fatigue		

D4. There is reasonable assurance that the subject Covered Worker is capable of safely and competently performing the described task during the period that work hour limits will be exceeded: ☐ Yes ☐ No

# EVALUATOR'S ATTACHMENT



# EVALUATOR'S ATTACHMENT

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ATTACHMENT B.8

COVERED WORKER CAPABILITY ASSESSMENT

Sheet 3 of 3

D5. Are there any fatigue-related controls, conditions, or counter-measures required for this conclusion:

☐ Yes ☐ No If Yes, describe: \_\_\_\_\_

\_\_\_\_\_

Supervisor (signature): \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Covered Worker (signature): \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Covered Worker signature indicates that you have participated in the Capability Assessment and that you have provided information to the best of your knowledge. Signature does not indicate agreement with the Supervisor observations or conclusions.

## E. DISTRIBUTION

- Attach the completed Form to the PQ&S Fatigue Tracking Record (FTR) created for the affected Covered Worker and Work Period. If the Covered Worker will exceed more than one work hour limit during this work period (see Step B), a separate FTR is required for each work hour limit to assure accurate reporting of waiver statistics. However, it is acceptable to attach the completed Form to only one of these FTRs.

## AND

- Email the completed Form to the "Fatigue Rule Forms" address in Outlook. Please include site identifier (e.g., 'ANO') in the subject line.

# EVALUATOR'S ATTACHMENT



# HANDOUT

A Reactor Operator has called out sick for Friday, August 31, Day Shift.

The following is the recent work hour history and upcoming schedule for three Reactor Operators. Their hours worked and scheduled were/ are in the Main Control Room during Mode 1, except for the training week.

Dayshift 6:00 am – 6:00 pm  
Nightshift 6:00 pm – 6:00 am  
Training 6:30 am – 2:30 pm

The schedules show the day that each shift begins:

<b>RO – Dave Jones</b>	M	T	W	Th	F	Sa	Su
Week of August 20	D	D	D	D		N	N
Week of August 27	N	N			D?	D	D
Week of September 3	D					D	D
Week of September 10	T	T	T	T			
Week of September 17	N	N	N				

<b>RO – Bob Smith</b>	M	T	W	Th	F	Sa	Su
Week of August 20	N	N	N	N			
Week of August 27	T	T	T	T	D?	N	N
Week of September 3	N	N					D
Week of September 10	D	D	D	D			
Week of September 17		N	N	N	N		

<b>RO – Jim Doe</b>	M	T	W	Th	F	Sa	Su
Week of August 20	T	T	T	T			
Week of August 27	D	D	D	D	D?		N
Week of September 3	N	N	N	N			D
Week of September 10	D	D	D				
Week of September 17	T	T	T	T			

Evaluate the work hour history for each of the three Reactor Operators. Determine which operators can take the scheduled watch for a full dayshift of 12 hours, Friday, August 31 (and still be eligible for future scheduled shifts).

If applicable, describe the conditions that would make any operator(s) ineligible to work.

Consider all days before August 31 as actual worked shifts.

Consider all days after August 31 as scheduled shifts.

Record your response on the worksheet provided.



# HANDOUT

Reactor Operator	Eligible for Day Shift on August 31? (circle Yes or No)	If not eligible, describe reason:
Dave Jones	Yes / No	
Bob Smith	Yes / No	
Jim Doe	Yes / No	



# SRO ONLY HANDOUT

## Initial Conditions:

- Disregard the previous JPM results.
- An operator **is currently at their** Work Hour Limitation.
- This operator is needed to cover Shift.
- **This** additional Shift would result in that operator to exceed Work Hour Limits.

## Additional SRO Only Cue:

Inform the Candidate, "Determine the required actions to **allow** this individual to cover the Shift to meet Technical Specification staffing requirements.

Document your findings in the space below."



ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE

S/RO                      16-1 NRC                      TASK TITLE: Determine Worker Exposure for Emergent Work  
APPL. TO                      S/RO RC  
JPM NUMBER

REV:                      DATE:                      NRC K/A SYSTEM NUMBER: 2.3.4 (3.2/3.7)

JAF TASK NUMBER:                      JAF QUAL STANDARD NUMBER:                     

ESTIMATED COMPLETION TIME: 20 Minutes

SUBMITTED:                      OPERATIONS REVIEW:                     

APPROVED:                     

CANDIDATE NAME:                      LOGIN ID:                     

JPM Completion                      Perform

Location:                      Classroom

DATE PERFORMED:                      TIME TO COMPLETE:                      Minutes

PERFORMANCE EVALUATION:                      ☐ Satisfactory                      ☐ Unsatisfactory

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR:                     

CANDIDATE REVIEW:                     

REVIEWED BY:                      DOC. COMPLETE:                     

PROGRAM ADMINISTER



ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE

S/RO  
APPL. TO

16-1 NRC  
S/RO RC  
JPM NUMBER

TASK TITLE: Determine Worker Exposure for Emergent Work

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Outstanding Items

- ☐ Technical Review  
☐ Questions and Answers  
☐ Procedural Change Required

- ☐ Additional Information  
☐ Validation  
☒ None

Comments:

Current Update \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Previous Revision Date:



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

S/RO

16-1 NRC  
S/RO RC

TASK TITLE: Determine Worker Exposure for Emergent Work

APPL. TO

JPM NUMBER

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. EN-RP-201, Dosimetry Administration

**III. TOOLS AND EQUIPMENT**

- A. Calculator

**IV. SET UP REQUIREMENTS**

- A. Ensure adequate copies of the procedures referenced above are available.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, placekeeping and three-point communication.

**VI. TASK CONDITIONS**

- A. The plant is operating at 100% power.
- B. Two operators are required to enter a locked high radiation area to support an emergent job.
- C. The job is expected to take 45 minutes.
- D. The job site dose rate is 1500 mRem/hr.
- E. Operator #1 has received 1147 mRem of dose so far this year.
- F. Operator #2 has received 450 mRem of dose so far this year.
- G. Neither operator has received any dose extensions so far this year.
- H. Neither operator has any undocumented quarters for this year.
- I. No other Operators are available to perform this job.
- J. No means of reducing area dose rates are available.



TASK TITLE: Determine Worker Exposure for Emergent Work

**\* - CRITICAL STEP****VII. INITIATING CUE**

Inform the candidate, "Determine the expected dose that each operator will receive while performing this job. Determine if each operator will need a dose extension in order to receive this dose. Report your results on the provided worksheet."

**EXAMINER:** Provide the candidate with the first handout and worksheet.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain required references.	Obtains and utilizes required references, which may include: <ul style="list-style-type: none"> <li>• EN-RP-201</li> </ul> <b>EXAMINER NOTE:</b> See provided key for remaining steps.	SAT / UNSAT
*2.	Determine the expected dose that each operator will receive while performing this job	Calculates that each operator will receive 1125 mRem while performing this job.  $(45 \text{ minutes}/60 \text{ minutes per hour}) \times (1500 \text{ mRem/hour}) = 1125 \text{ mRem}$	<b>CRITICAL STEP</b> SAT / UNSAT
*3.	Determine if Operator #1 will need a dose extension in order to receive this dose.	Determines that Operator #1 will need dose extension in order to receive this dose.  $1147 \text{ mRem} + 1125 \text{ mRem} = 2272 \text{ mRem} > 2000 \text{ mRem normal dose limit}$	<b>CRITICAL STEP</b> SAT / UNSAT
*4.	Determine if Operator #2 will need a dose extension in order to receive this dose.	Determines that Operator #2 will NOT need dose extension in order to receive this dose.  $450 \text{ mRem} + 1125 \text{ mRem} = 1575 \text{ mRem} < 2000 \text{ mRem normal dose limit}$	<b>CRITICAL STEP</b> SAT / UNSAT



## TASK TITLE: Determine Worker Exposure for Emergent Work

**EXAMINER:** If the candidate correctly complete JPM steps 2-4, provide them with the extra handout, with the following information:

“Operator #1 has been granted a dose extension to 2500 mRem. Operator #2 has NOT been granted a dose extension.

Determine the maximum stay time allowed for both Operator #1 and for Operator #2, such that they do NOT exceed their dose limits. Document your results in the worksheet below.”

*5.	Determine the maximum stay time allowed for Operator #1 such that dose limit is NOT exceeded.	<p>Calculates the maximum stay time for Operator #1 is approximately 54 minutes.</p> <p><math>(2500 \text{ mRem} - 1147 \text{ mRem}) / 1500 \text{ mRem/hr} = 0.902 \text{ hours} \times (60 \text{ minutes per hour}) = 54.12 \text{ minutes}</math></p>	<b>CRITICAL STEP</b> SAT / UNSAT
*6.	Determine the maximum stay time allowed for Operator #2 such that dose limit is NOT exceeded.	<p>Calculates the maximum stay time for Operator #2 is approximately 62 minutes.</p> <p><math>(2000 \text{ mRem} - 450 \text{ mRem}) / 1500 \text{ mRem/hr} = 1.033 \text{ hours} (60 \text{ minutes per hour}) = 62 \text{ minutes}</math></p>	<b>CRITICAL STEP</b> SAT / UNSAT

**EVALUATOR:** Terminate the task at this point for RO candidates.

**EXAMINER:** For SRO candidates, continue JPM by providing **SRO Only** cue sheet:

**INITIATING CUE for SRO Candidates Only:**

Inform the candidate, “Determine the required actions necessary for Operator #1 to be allowed to receive a dose of 2500 mRem. Report your results below.”



## TASK TITLE: Determine Worker Exposure for Emergent Work

	STEP	STANDARD	EVALUATION / COMMENT
7.	<p>Prior to dose extension, requesting supervisor should:</p> <ul style="list-style-type: none"> <li>a) Evaluate dose equalization in the department</li> <li>b) Check other personnel qualifications to perform tasks</li> <li>c) Check other means to reduce dose</li> </ul>	<p>Per initiating cue, no other operators are available to do this job and no other means of reducing dose are available. Therefore a), b), and c) are not applicable.</p>	SAT / UNSAT
*8	<p>Obtain verification of the worker's current year exposure prior to allowing a worker to exceed 2000 mrem TEDE for the year. Any of the following may be used for verification:</p> <ul style="list-style-type: none"> <li>a) NRC Form 5 or equivalent</li> <li>b) NRC Form 4 or equivalent</li> <li>c) Electronic, telephone or fax transfer of exposure data provided by the licensees(s) providing the monitoring.</li> </ul>	<p>Candidate indicates any one of the following is required:</p> <ul style="list-style-type: none"> <li>a) NRC Form 5 or equivalent</li> <li>b) NRC Form 4 or equivalent</li> <li>c) Electronic, telephone or fax transfer of exposure data provided by the licensees(s) providing the monitoring.</li> </ul>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>
*9	<p>Extend a Radiation Worker's administrative TEDE ADG to the guidelines described in the following table, after obtaining the indicated approvals.</p> <p>Greater than 2000 mrem and less than or equal to 3000 mrem per year.</p>	<p>Candidate indicates that the Individual's supervisor recommends the extension AND RP Manager approves the extension.</p>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>
*10	<p>Document the authorization of the increased in the worker's ADG on Attachment 9.1 "Radiation Exposure Guideline Extension Authorization"</p>	<p>Candidate indicates that Attachment 9.1 of EN-RP-201 must be filled out.</p>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>

**EVALUATOR:** Terminate the task at this point for SRO candidates.

**Task Standard:** Expected dose, stay time and dose extension determined based on given radiological conditions.



## EVALUATOR'S KEY

1. Expected dose that each operator will receive while performing this job:

1125 mRem

2. Will Operator #1 need a dose extension in order to receive the dose calculated above? (circle one)

☒ Yes

☐ No

3. Will Operator #2 need a dose extension in order to receive the dose calculated above? (circle one)

☐ Yes

☒ No

## EVALUATOR'S KEY



## EVALUATOR'S KEY

**1. Maximum stay time allowed for Operator #1 (record final answer in minutes):**

**54 minutes**

**2. Maximum stay time allowed for Operator #2 (record final answer in minutes):**

**62 minutes**

## EVALUATOR'S KEY



# HANDOUT

## Initial Conditions:

- The plant is operating at 100% power.
- Two operators are required to enter a locked high radiation area to support an emergent job.
- The job is expected to take 45 minutes.
- The job site dose rate is 1500 mRem/hr.
- Operator #1 has received 1147 mRem of dose so far this year.
- Operator #2 has received 450 mRem of dose so far this year.
- Neither operator has received any dose extensions so far this year.
- Neither operator has any undocumented quarters for this year.
- No other Operators are available to perform this job.
- No means of reducing area dose rates are available.

## Initiating Cue:

Determine the expected dose that each operator will receive while performing this job.

Determine if each operator will need a dose extension in order to receive this dose.

Report your results on the provided worksheet.



# WORKSHEET

**1. Expected dose that each operator will receive while performing this job:**

**2. Will Operator #1 need a dose extension in order to receive the dose calculated above? (circle one)**

**Yes**

**No**

**3. Will Operator #2 need a dose extension in order to receive the dose calculated above? (circle one)**

**Yes**

**No**



## EXTRA HANDOUT

Operator #1 has been granted a dose extension to 2500 mRem.

Operator #2 has NOT been granted a dose extension.

Determine the maximum stay time allowed for both Operator #1 and for Operator #2, such that they do NOT exceed their dose limits. Document your results in the worksheet below.

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## EXTRA WORKSHEET

**1. Maximum stay time allowed for Operator #1 (record final answer in minutes):**

**2. Maximum stay time allowed for Operator #2 (record final answer in minutes):**



## **SRO Candidates Only:**

“Determine the required actions necessary for Operator #1 to be allowed to receive a dose of 2500 mRem. Report your results below.”



ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE

SRO      16-1 NRC SRO EC      TASK TITLE:    Review Tagout Isolation Boundary For CRD Pump  
APPL. TO      JPM NUMBER

REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 2.2.13 (4.3)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 30 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~

CANDIDATE NAME: \_\_\_\_\_ LOGIN ID: \_\_\_\_\_

JPM Completion      Perform

Location:      Classroom

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:      ☐ Satisfactory      ☐ Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_

\_\_\_\_\_  
SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_

\_\_\_\_\_  
SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_

\_\_\_\_\_  
PROGRAM ADMINISTER



## ENTERGY NUCLEAR NORTHEAST JOB PERFORMANCE MEASURE

<u>SRO</u> APPL. TO	<u>16-1 NRC SRO EC</u> JPM NUMBER	TASK TITLE: Review Tagout Isolation Boundary For CRD Pump
------------------------	--------------------------------------	---

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

## Outstanding Items

- ☐ Technical Review
  - ☐ Questions and Answers
  - ☐ Procedural Change Required

- ☐ Additional Information
  - ☐ Validation
  - ☒ None

Comments:

Current Update \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Previous Revision Date:



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

SRO  
APPL. TO

16-1 NRC SRO EC  
JPM NUMBER

TASK TITLE: Review Tagout Isolation Boundary For CRD Pump

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. EN-OP-102, Protective and Caution Tagging  
B. FM-27A and FM-27B  
C. OP-25

**III. TOOLS AND EQUIPMENT**

- None

**IV. SET UP REQUIREMENTS**

- A. Ensure copies of the following references are available:
- EN-OP-102
  - FM-27A and FM-27B (full size)
  - OP-25

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, placekeeping and three-point communication.

**VI. TASK CONDITIONS**

- A. The plant is operating at 100% power.
- B. Maintenance is required on CRD pump A.
- C. The maintenance activity will be intrusive to the impeller casing for impeller replacement.
- D. eSOMS is unavailable.



TASK TITLE: Review Tagout Isolation Boundary For CRD Pump

**\* - CRITICAL STEP****VII. INITIATING CUE**

Inform the candidate, "Review the given isolation boundary for CRD pump A maintenance. Document your findings below or on the isolation boundary sheet."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain required references.	<p>Obtains and utilizes required references, which may include:</p> <ul style="list-style-type: none"> <li>• EN-OP-102</li> <li>• FM-27A and/or FM-27B</li> <li>• OP-25</li> </ul> <p><b>EVALUATOR NOTE:</b> Component names and Required Position terminology may vary slightly from what is written below due to unavailability of eSOMS.</p>	SAT / UNSAT
2.	Review isolation boundary for adequacy.	Reviews isolation boundary.	SAT / UNSAT
*3.	Determine CRD pump A breaker should be added to the isolation boundary.	Identifies CRD pump A breaker (71-11516) should be tagged in the racked out or removed position.	<b>CRITICAL STEP</b> SAT / UNSAT



## TASK TITLE: Review Tagout Isolation Boundary For CRD Pump

	STEP	STANDARD	EVALUATION / COMMENT
*4.	Determine isolation is incomplete for CRD pump A discharge.	<p>Identifies CRD pump A discharge isolation valve (03CRD-176A) should be tagged in the closed position.</p> <p><b>EVALUATOR NOTE:</b> The Candidate may also mention that 03CRD-36A does not need to be tagged because it is a check valve. This is not critical, and is further discussed in JPM Step #9.</p>	<b>CRITICAL STEP</b> SAT / UNSAT
*5.	Determine incorrect isolation is identified for CRD pump B minimum flow line.	<p>Identifies CRD pump B minimum flow isolation valve (03CRD-177B) should NOT be tagged in the closed position.</p> <p><b>EVALUATOR NOTE:</b> The Candidate may also mention that no tag should be placed on 03CRD-154B, but this is not critical because this is a normally closed valve that will not affect CRD pump B performance.</p>	<b>CRITICAL STEP</b> SAT / UNSAT



## TASK TITLE: Review Tagout Isolation Boundary For CRD Pump

	STEP	STANDARD	EVALUATION / COMMENT
*6.	Determine need for CRD pump A venting path.	<p>Identifies tagging one or more of the following paths for venting CRD pump A casing:</p> <ul style="list-style-type: none"> <li>• CRD pump A suction pressure indicator root valve (03CRD-163) open with the pressure indicator removed/uninstalled.</li> <li>• CRD pump A suction pressure relief valve (03CRD-RV14A) gagged open.</li> <li>• CRD pump A suction from SLC system isolation valve (03CRD-88A) open (with cap removed).</li> <li>• May also list casing vents 03CRD-416A1 or A2.</li> </ul> <p><b>EVALUATOR NOTE:</b> Only one vent or drain path is required by procedure.</p>	<b>CRITICAL STEP</b> SAT / UNSAT
7.	Determine this tagout includes high energy.	Determines that with CRD pump B running, the discharge isolations for CRD pump A are exposed to high energy (>500 psig) (may reference EN-OP-102 Section 3.0[15]).	SAT / UNSAT
8.	Determine need for double valve protection.	Determines the discharge of CRD pump A should have double valve protection due to CRD pump B providing high energy (may reference EN-OP-102 Attachment 9.2 Step 5.1).	SAT / UNSAT



## TASK TITLE: Review Tagout Isolation Boundary For CRD Pump

	STEP	STANDARD	EVALUATION / COMMENT
9.	Determine availability of double valve protection and compensatory actions.	<p>Determines double valve protection can only be provided by taking credit for check valves (03CRD-36A and 03CRD-37A).</p> <p>Indicates that to use check valves as isolation boundary (may reference EN-OP-102 Attachment 9.2 Section 2.8):</p> <ul style="list-style-type: none"> <li>• Shift Manager concurrence must be obtained.</li> <li>• All individuals working under the tagout shall be informed of the risk.</li> <li>• The risk needs to be listed in the hazards section of the tagout.</li> </ul>	SAT / UNSAT
<b>EVALUATOR:</b> Terminate the task at this point.			

**Task Standard:** Tagout isolation boundary for CRD pump A reviewed with discrepancies noted.



# HANDOUT

## Initial Conditions:

- The plant is operating at 100% power.
- Maintenance is required on CRD pump A.
- The maintenance activity will be intrusive to the impeller casing for impeller replacement.
- eSOMS is unavailable.

## Initiating Cue:

As a Tag Reviewer, review the given isolation boundary for CRD pump A maintenance.

If any components are incorrect \ inadequate or missing, state the discrepancy.

Document your findings below or on the isolation boundary sheet.



# Handout

Component	Required Position
CRD pump A control switch	Pull-to-Lock
03CRD-153A, CRD Water Pump A Suct Isol Valve	Closed
03CRD-36A, CRD Water Pump A Disch Check Valve	Closed
03CRD-177A, CRD Water Pump A Min Flow Isol Valve	Closed
03CRD-154A, CRD Water Pump A Min Flow Isol Valve CRD-177A Bypass Valve	Closed
03CRD-177B, CRD Water Pump B Min Flow Isol Valve	Closed
03CRD-154B, CRD Water Pump B Min Flow Isol Valve CRD-177B Bypass Valve	Closed
03CRD-39, CRD Water Pump A & B Positive Press Seal Isol Valve	Closed



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

SRO      16-1 NRC SRO EP      TASK TITLE: Determine Emergency Classification and Initiate  
APPL. TO      JPM NUMBER      Event Notification (Time Critical)

REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 2.4.40 (4.5)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 30 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~

CANDIDATE NAME: \_\_\_\_\_ LOGIN ID: \_\_\_\_\_

JPM Completion      Perform

Location:      Classroom

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:      ☐ Satisfactory      ☐ Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_

SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_

SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_

PROGRAM ADMINISTER



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

SRO  
APPL. TO

16-1 NRC SRO EP  
JPM NUMBER

TASK TITLE: Determine Emergency Classification and Initiate  
Event Notification (Time Critical)

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Outstanding Items

- ☐ Technical Review
- ☐ Questions and Answers
- ☐ Procedural Change Required

- ☐ Additional Information
- ☐ Validation
- ☒ None

Comments:

Current Update \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Previous Revision Date:



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

SRO  
APPL. TO

16-1 NRC SRO EP  
JPM NUMBER

TASK TITLE: Determine Emergency Classification and Initiate  
Event Notification (Time Critical)

**I. SAFETY CONSIDERATIONS**

A. None

**II. REFERENCES**

- A. IAP-1
- B. IAP-2
- C. EAP-1.1

**III. TOOLS AND EQUIPMENT**

A. None

**IV. SET UP REQUIREMENTS**

- A. Ensure sufficient copies of the referenced documents are available, including extra copies of the Part 1 notification form.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, placekeeping and three-point communication.



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

<u>SRO</u>	<u>16-1 NRC SRO EP</u>	TASK TITLE:	Determine Emergency Classification and Initiate
APPL. TO	JPM NUMBER		Event Notification (Time Critical)

**VI. TASK CONDITIONS**

- A. The plant was initially operating at 100% power with no equipment out of service.
- B. An earthquake was felt in the Control Room and confirmed with both JAF and Nine Mile Point Unit 2 seismic instrumentation.
- C. JAF seismic instrumentation indicates >0.1g for both horizontal and vertical acceleration.
- D. The earthquake resulted in a loss of DC power system A.
- E. The earthquake also caused a coolant leak in the Drywell.
- F. The Reactor was manually scrammed five minutes ago.
- G. The following conditions exist now:
  - All Control Rods full in
  - Reactor pressure is 200 psig and lowering.
  - Reactor water level is 0 inches and rising.
  - Drywell pressure is 15 psig and slowly rising.
  - Torus pressure is 12 psig and slowly rising.
  - Torus water temperature is 105°F and slowly rising.
  - Reactor Building differential pressure is negative (-) 0.25" H<sub>2</sub>O.
  - Stack and Reactor Building ventilation radiation monitors are stable at the pre-transient values.
  - Chemistry reports that Reactor coolant activity is 400 µCi/gm I-131 dose equivalent.
  - 200' elevation wind speed is 10 mph from 190°.
  - 30' elevation wind speed is 5 mph from 190°.
  - Stability class is E.



**TASK TITLE: Determine Emergency Classification and Initiate Event Notification (Time Critical)****VII. INITIATING CUE**

Inform the candidate of the following:

“Classify the event and complete the Part 1 Notification per EAP-1.1, Offsite Notifications. This is a time critical JPM. Your time clock starts once you acknowledge this task.”

**\* - CRITICAL STEP**

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain applicable reference documents	<p>Obtains a copy of applicable reference documents, as needed:</p> <ul style="list-style-type: none"> <li>• IAP-1</li> <li>• IAP-2</li> <li>• EAP-1.1</li> </ul> <p><b>EVALUATOR:</b> Ensure sufficient copies of these documents are available.</p>	SAT / UNSAT
*2.	Classify the event	<p>Classifies the event as Site Area Emergency FS1.1 based on loss of Fuel Clad and RCS barriers within 15 minutes of JPM start time.</p> <p>JPM start time: _____</p> <p>Time of classification: _____</p> <p>Time difference: _____</p>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>



**TASK TITLE: Determine Emergency Classification and Initiate Event Notification (Time Critical)**

	STEP	STANDARD	EVALUATION / COMMENT
*3.	Implement EAP-1.1, Offsite Notifications, in order to notify offsite agencies	<p>Completes EAP-1.1 Attachment 1, Part 1 notification form per attached key within 15 minutes of classification time</p> <p>Time of classification: _____</p> <p>Time of offsite notification: _____</p> <p>Time difference: _____</p> <p><b>EVALUATOR NOTE:</b> Only item 3, 4, 5, 6, and 7 of EAP-1.1 Attachment 1 are deemed critical for this JPM. These items are individually graded in the JPM steps below. All other items are non-critical. See attached key.</p>	<b>CRITICAL STEP</b> SAT / UNSAT
*4.	Completes Part 1 Notification step 3	Indicates "SITE AREA EMERGENCY" in Part 1 Notification step 3 (see attached key)	<b>CRITICAL STEP</b> SAT / UNSAT
*5.	Completes Part 1 Notification step 4	Records today's date and time of declaration in Part 1 Notification step 4 (see attached key)	<b>CRITICAL STEP</b> SAT / UNSAT
*6.	Completes Part 1 Notification step 5	Indicates "No Release" in Part 1 Notification step 5 (see attached key)	<b>CRITICAL STEP</b> SAT / UNSAT



**TASK TITLE: Determine Emergency Classification and Initiate Event Notification (Time Critical)**

	STEP	STANDARD	EVALUATION / COMMENT
*6.	Completes Part 1 Notification step 6	Indicates "NO NEED for PROTECTIVE ACTIONS outside the site boundary" in Part 1 Notification step 6 (see attached key)	<b>CRITICAL STEP</b> SAT / UNSAT
*7.	Completes Part 1 Notification step 7	Indicates EAL # "FS1.1" in Part 1 Notification step 7 (see attached key)	<b>CRITICAL STEP</b> SAT / UNSAT
<b>EVALUATOR:</b> Terminate the task at this point.			

**Task Standard:** The emergency event is classified and the Part 1 Notification form is filled out.



## Page 1 of 1

"(Name of Agency), Do you have any questions?"

☐ New York State    ☐ Oswego County    ☐ Nine Mile Point Unit #1    ☐ Nine Mile Point Unit #2

"James A. FitzPatrick Nuclear Power Plant out at (date, time)"

-8 of 9-



# HANDOUT

## Initial Conditions:

- The plant was initially operating at 100% power with no equipment out of service.
- An earthquake was felt in the Control Room and confirmed with both JAF and Nine Mile Point Unit 2 seismic instrumentation.
- JAF seismic instrumentation indicates >0.1g for both horizontal and vertical acceleration.
- The earthquake resulted in a loss of DC power system A.
- The earthquake also caused a coolant leak in the Drywell.
- The Reactor was manually scrammed five minutes ago.
- The following conditions exist now:
  - All Control Rods full in
  - Reactor pressure is 200 psig and lowering.
  - Reactor water level is 0 inches and rising.
  - Drywell pressure is 15 psig and slowly rising.
  - Torus pressure is 12 psig and slowly rising.
  - Torus water temperature is 105°F and slowly rising.
  - Reactor Building differential pressure is negative (-) 0.25" H<sub>2</sub>O.
  - Stack and Reactor Building ventilation radiation monitors are stable at the pre-transient values.
  - Chemistry reports that Reactor coolant activity is 400 µCi/gm I-131 dose equivalent.
  - 200' elevation wind speed is 10 mph from 190°.
  - 30' elevation wind speed is 5 mph from 190°.
  - Stability class is E.

## Initiating Cue:

Classify the event and complete the Part 1 Notification per EAP-1.1, Offsite Notifications.

This is a time critical JPM.

Your time clock starts once you acknowledge this task.



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

<u>S/RO</u>	<u>NRC 16-1 A</u>	TASK TITLE: <u>Transfer Bus 10100 from Reserve to Normal</u>
APPL. TO	JPM NUMBER	(Alt Path)

REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 262001 A4.04 (3.6/3.7)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~  
CANDIDATE NAME: \_\_\_\_\_

JPM Completion      ☐ Simulated      ☒ Performed

Location:            ☐ Plant            ☒ Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:      ☐ Satisfactory      ☐ Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_  
SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_  
PROGRAM ADMINISTER



**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

<u>S/RO</u>	<u>NRC 16-1 A</u>	
APPL. TO	JPM NUMBER	TASK TITLE: Transfer Bus 10100 from Reserve to Normal (Alt Path)

Current Update: _____	By: _____
Date	Int

Outstanding Items

- |   |   |
|---|---|
| <input type="checkbox"/> Technical Review           | <input type="checkbox"/> Additional Information |
| <input type="checkbox"/> Questions and Answers      | <input type="checkbox"/> Validation             |
| <input type="checkbox"/> Procedural Change Required | <input checked="" type="checkbox"/> None        |

Comments:

Current Update: _____	By: _____
Date	Int.

Previous Revision Date:



**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO	NRC 16-1 A	TASK TITLE:	Transfer Bus 10100 from Reserve to Normal
APPL. TO	JPM NUMBER		(Alt Path)

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. OP-46A, 4160 V and 600 V Normal AC Power Distribution

**III. TOOLS AND EQUIPMENT**

- A. Synch Key

**IV. SET UP REQUIREMENTS**

- A. Plant in a startup/shutdown situation with Main Generator load ~75 MWe (IC-126).
- B. Ensure Buses 10300 and 10400 are aligned to Reserve.
- C. Ensure Buses 10100 and 10200 are aligned to Reserve.
- D. Ensure T-4 position is adjusted such that 10100 will need to be adjusted to facilitate transfer.
- E. Ensure the following simulator programming:
- Override meter ED ZAO098SYNC17A, 0%, Delay Time = 1 second, Trigger 1 (fails RUNNING voltage meter downscale)
  - Event Trigger 1, event = ZDI251HONA03(2)==1, command = none (activates when 10100 sync key is taken to NORM)

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, place keeping and three-point communication.

**VI. TASK CONDITIONS**

- A. A plant startup is in progress.
- B. Another operator is stationed to adjust 71T-4 load tap changer, if required.
- C. Nine Mile Point Unit 1 Control Room and Power Control have been notified of all impending bus transfers and tap changer operations.
- D. All prerequisites have been met for the bus transfer.
- E. Both RPS buses are powered from their respective MG sets.
- F. Main Generator load is approximately 77 MWe.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you to transfer Bus 10100 from Reserve to Normal per OP-46A Section D.20."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of OP-46A.	Obtains a controlled copy of OP-46A.	SAT / UNSAT
2.	Select the correct section to perform the task.	Selects section D.20.	SAT / UNSAT
3.	WHILE performing the remainder of this subsection maintain 4KV and 600V bus voltage per Section E.	Acknowledges step.	SAT / UNSAT
4.	IF a degraded or undervoltage condition occurs while transferring bus, THEN immediately establish GREATER THAN 3.9 KV using T-4 LTC CONTROL.	Acknowledges step.	SAT / UNSAT
5.	IF Main Generator is synchronized to 345 KV System, THEN verify Main Generator has a stable load of at least 70 MWe.	Observes Main Generator load is greater than 70 MWe and stable.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
6.	Ensure Nine Mile Point 1 Control Room (due to effect on 115 KV line loading) has been notified that 10100 Bus will be transferred from reserve to normal service.	Determines Nine Mile Point 1 has been notified per initial conditions.	SAT / UNSAT
7.	Perform the following: <ul style="list-style-type: none"> <li>Notify Syracuse Power Control that 71T-3 tap changer will be taken to manual.</li> </ul>	Determines Power Control has been notified per initial conditions.	SAT / UNSAT
8.	<ul style="list-style-type: none"> <li>Ensure AUTO MANUAL T-3 LTC CONTROL switch is in MAN.</li> </ul>	Rotates AUTO MANUAL T-3 LTC CONTROL switch to MAN.	SAT / UNSAT
9.	Station operators as follows: <ul style="list-style-type: none"> <li>One to adjust bus voltage at T-4 LTC CONTROL</li> <li>One to operate breaker control switches</li> </ul>	Determines another operator has been stationed for T-4 load tap changer operation per initial conditions.	SAT / UNSAT
*10.	Place BUS 10100 FDR SYNCH SW switch in NORM.	Inserts synch key and rotates clockwise to NORM for Bus 10100.	<b>CRITICAL STEP</b> SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
11.	IF voltages on NON-EMERG BKRS INCOMING and RUNNING volt meters cannot be matched in following step, THEN perform Subsection G.14, Single Meter Voltage Match Method.	<p>Acknowledges step.</p> <p><b>EVALUATOR NOTE:</b> This step forms the basis of the alternate path in this JPM. In the next steps, the candidate will determine volt meters cannot be adequately matched and will transition to OP-46A section G.14 to complete the task using an alternate method of matching voltages.</p>	SAT / UNSAT
12.	Match voltages on NON-EMERG BKRS INCOMING and RUNNING volt meters using T-4 LTC CONTROL switch.	<p>Observes that the RUNNING volt meter fails downscale.</p> <p>Determines that INCOMING and RUNNING volt meters CANNOT be matched within 1.5 meter increments.</p> <p>Transitions to OP-46A section G.14.</p> <p><b>EVALUATOR CUE:</b> If the candidate reports the malfunction and asks for direction, direct the candidate to make a recommendation and then carry out that recommendation. If the candidate states the volt meter mismatch exceeds that normally allowed for use of single meter match method, then give the Design Engineering cue in JPM step 13.</p> <p><b>EVALUATOR NOTE:</b> The steps below are from OP-46A section G.14.</p>	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
13.	IF voltage mismatch is GREATER THAN 6 meter increments, THEN obtain guidance for performing bus transfer from Design Engineering.	<p>Determines that voltage mismatch is greater than 6 meter increments.</p> <p>Notifies CRS and/or contacts Design Engineering for guidance.</p> <p><b>EVALUATOR CUE:</b> Inform the candidate that Design Engineering has determined that OP-46A section G.14.2 should be used to match voltages and transfer the 10100 bus.</p>	SAT / UNSAT
*14.	<p>IF transferring 4.16 KV bus from reserve to normal, THEN perform the following:</p> <p>Place 4.16 KV bus FDR SYNCH SW switch in RES.</p>	Rotates synch key counterclockwise to RES for Bus 10100.	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>
15.	Note voltage on incoming meter.	<p>Observes voltage on incoming volt meter.</p> <p><b>EVALUATOR NOTE:</b> The candidate may either write down this value or remember it for use in subsequent steps.</p>	SAT / UNSAT
*16.	Place 4.16 KV FDR SYNCH SW switch in NORM.	Rotates synch key clockwise to NORM for Bus 10100.	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
*17.	Match voltage on NON-EMERG BRKS INCOMING volt meter with voltage taken in Step b using T-4 LTC CONTROL switch.	<p>Rotates T-4 LTC CONTROL switch as required to set voltage on INCOMING volt meter within 1.5 meter increments of voltage observed in JPM step 15.</p> <p><b>EVALUATOR CUE:</b> If the candidate asks for another operator to adjust T-4 LTC, direct the candidate to perform the T-4 LTC manipulation for the other operator.</p> <p><b>EVALUATOR NOTE:</b> The candidate will now transition back to OP-46A section D.20 at step D.20.10.</p>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>
18.	IF phase angle is GREATER THAN 17 degrees on NON-EMERG BKRS SYNCHROSCOPE, THEN perform the following...	Observes phase angle on NON-EMERG BKRS SYNCHROSCOPE is less than 17 degrees.	SAT / UNSAT
*19.	<p>WHEN incoming and running voltages are matched, AND synchroscope is at approximately 12 o'clock, perform the following bus transfer using the same hand, without unnecessary delay, to perform each breaker operation:</p> <ul style="list-style-type: none"> <li>• Close NSS TO BUS 10100 BKR 10102.</li> </ul>	Closes breaker 10102 by rotating control switch clockwise.	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
*20.	<ul style="list-style-type: none"> <li>Open RSS TO BUS 10100 BKR 10112.</li> </ul>	Opens breaker 10112 by rotating control switch counterclockwise.	<b>CRITICAL STEP</b> SAT / UNSAT
21.	Place BUS 10100 FDR SYNCH SW switch in OFF and remove handle.	Rotates synch key clockwise to OFF and removes.	SAT / UNSAT
22.	Verify all white lights for RPS A and RPS B power source selectors are on at panel 09-16.	<p>Observes all RPS A and B white lights are lit.</p> <p><b>EVALUATOR CUE:</b> If asked about further bus transfers involving T-3, report no further bus transfers are immediately planned involving T-3.</p>	SAT / UNSAT
23.	<p>Perform the following:</p> <ul style="list-style-type: none"> <li>Notify Syracuse Power Control that 71T-3 tap changer will be taken to auto.</li> </ul>	<p>Determines Power Control has been notified per initial conditions.</p> <p><b>EVALUATOR NOTE:</b> The candidate may make a notification for this step. If so, acknowledge notification.</p>	SAT / UNSAT
24.	<ul style="list-style-type: none"> <li>Place AUTO MANUAL T-3 LTC CONTROL switch in AUTO.</li> </ul>	Rotates AUTO MANUAL T-3 LTC CONTROL switch to AUTO.	SAT / UNSAT
<b><u>EVALUATOR:</u></b> Terminate the task at this point.			

**Task Standard:** Bus 10100 is transferred from Reserve to Normal using the Single Meter Voltage Match Method.



# HANDOUT

## Initial Conditions:

- A plant startup is in progress.
- Another operator is stationed to adjust 71T-4 load tap changer, if required.
- Nine Mile Point Unit 1 Control Room and Power Control have been notified of all impending bus transfers and tap changer operations.
- All prerequisites have been met for the bus transfer.
- Both RPS buses are powered from their respective MG sets.
- Main Generator load is approximately 77 MWe.

## Initiating Cue:

The CRS directs you to transfer Bus 10100 from Reserve to Normal per OP-46A Section D.20.



ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE

      S/RO                  NRC 16-1 B            TASK TITLE:    Perform Actions For Fire In Plant (Alt Path)  
      APPL. TO                  JPM NUMBER      

REV:             DATE:             NRC K/A SYSTEM NUMBER:       600000 AA2.17 3.1/3.6      

JAF TASK NUMBER:             JAF QUAL STANDARD NUMBER:       

ESTIMATED COMPLETION TIME:       10       Minutes

SUBMITTED:             OPERATIONS REVIEW:       

APPROVED:       

~~~~~

CANDIDATE NAME:             LOGIN ID:       

JPM Completion      ☐ Simulated      ☒ Performed  
Location:      ☐ Plant      ☒ Simulator

DATE PERFORMED:             TIME TO COMPLETE:        Minutes

PERFORMANCE EVALUATION:      ☐ Satisfactory      ☐ Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR:       

        
SIGNATURE/PRINTED

CANDIDATE REVIEW:       

        
SIGNATURE

REVIEWED BY:             DOC. COMPLETE:         
PROGRAM ADMINISTER



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

        S/RO          
APPL. TO

        NRC 16-1 B          
JPM NUMBER

TASK TITLE:   Perform Actions For Fire In Plant (Alt Path)

Current Update:                             
                                Date

By:                             
                                Int

Outstanding Items

- ☐ Technical Review
- ☐ Questions and Answers
- ☐ Procedural Change Required

- ☐ Additional Information
- ☐ Validation
- ☒ None

Comments:

Current Update                             
                                Date

By:                             
                                Int

Previous Revision Date:



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

S/RO  
APPL. TO

NRC 16-1 B  
JPM NUMBER

TASK TITLE: Perform Actions For Fire In Plant (Alt Path)

**I. SAFETY CONSIDERATIONS**

A. None

**II. REFERENCES**

A. AOP-28, Operation During Plant Fires

**III. TOOLS AND EQUIPMENT**

A. None

**IV. SET UP REQUIREMENTS**

- A. Reset the simulator to a power-operating IC. (IC-127)
- B. Insert malfunction FP02:Z01, Smoke – Zone 1 – RB 227 West Crescent
- C. Insert malfunction HP06, HPCI Steam Line Break, to bring in HPCI high temperature isolation, then delete malfunction.
- D. Insert annunciator 09-3-3-38, HPCI Aux Oil Pmp Overload Or Control Pwr Loss.
- E. Override RWR pump B control switch trip and pull to lock contacts OFF (RR ZDI2AS1B in NASTR)

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, placekeeping and three-point communication.

**VI. TASK CONDITIONS**

- A. A serious fire is in progress in the West Crescent area.
- B. The fire has caused a spurious isolation of HPCI and loss of control power to the HPCI Aux Oil pump.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you to perform the immediate actions for Attachment 2 of AOP-28, Operation During Plant Fires."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of AOP-28	Obtains a controlled copy of AOP-28 and selects Attachment 2.  <b>EVALUATOR:</b> Provide working copy.	SAT / UNSAT
2.	IF RPV isolation is desired, THEN ensure closed the following valves to isolate the RPV...	Determines RPV isolation is NOT desired.  <b>EVALUATOR:</b> If candidate asks about need for RPV isolation, report that RPV isolation is <b>NOT</b> currently desired.	SAT / UNSAT
*3.	Manually scram reactor and execute AOP-1 concurrently.	At panel 09-05: <ul style="list-style-type: none"> <li>Depresses MANUAL SCRAM A and MANUAL SCRAM B pushbuttons.</li> <li>Places RX MODE switch in SHUTDOWN.</li> </ul> <b>EVALUATOR CUE:</b> Tell candidate that another operator will complete the rest of AOP-1.	<b>CRITICAL STEP</b> SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
4.	<p>Ensure RWR Pumps 02-2P-1A and 02-2P-1B are shut down as follows:</p> <p>a. Ensure both RWR pumps are at LESS THAN OR EQUAL TO minimum speed.</p>	<p>Runs RWR pump A to minimum speed by rotating RWR MG A SPEED CNTRL knob counterclockwise.</p> <p>Runs RWR pump B to minimum speed by rotating RWR MG B SPEED CNTRL knob counterclockwise.</p>	SAT / UNSAT
*5.	<p>b. Ensure both RWR pumps are tripped at Panel 09-4.</p>	<p>Trips RWR pump A by rotating control switch counterclockwise to TRIP and Pull-to-Lock.</p> <p>Attempts to trip RWR pump B by rotating control switch counterclockwise to TRIP and Pull-to-Lock.</p> <p><b>NOTE:</b> The failure of RWR pump B to trip initiates the JPM alternate path.</p>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
*6.	<p>c. IF an RWR pump fails to trip from Panel 09-4, THEN trip AND place in Pull-To-Lock the following 4 KV bus feeder breakers at Panel 09-8:</p> <ul style="list-style-type: none"> <li>• 02-2P-1A NSS TO BUS 10100 BKR 10102 AND RSS TO BUS 10100 BKR 10112</li> <li>• 02-2P-1B NSS TO BUS 10200 BKR 10202 AND RSS TO BUS 10200 BKR 10212</li> </ul>	<p>Determines RWR pump B failed to trip.</p> <p>Rotates NSS TO BUS 10200 BKR 10202 control switch counterclockwise and places in Pull-to-Lock.</p> <p><b>* Rotates RSS TO BUS 10200 BKR 10212 control switch counterclockwise and places in Pull-to-Lock.</b></p>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p> <p><b>NOTE:</b> Only tripping of the one breaker is critical. Placing the control switch in Pull-to-Lock is NOT critical. The 10100 bus breakers are also likely to be opened based on procedure wording.</p>
7.	<p>IF an RWR pump fails to trip from Panels 09-4 and 09-8, THEN depress mechanical TRIP pushbutton on the following 4 KV breakers...</p>	<p>Determines both RWR pumps have tripped.</p>	<p>SAT / UNSAT</p>
*8.	<p><b>NOTE:</b> JPM steps *8 &amp; *9 may be completed in either order or concurrently.</p> <p>Attempt to isolate RWR Pump 02-2P-1A as follows:</p> <ul style="list-style-type: none"> <li>a. Close RWR PMP A DISCH 02MOV-53A.</li> <li>b. Close 02-2RWR-39A (RWR pump A seal purge upstr isol valve).</li> <li>c. Close RWR PMP A SUCT 02MOV-43A.</li> </ul>	<p>Closes RWR PMP A DISCH 02MOV-53A by rotating control switch counterclockwise to CLOSE.</p> <p>Dispatches operator to close 02-2RWR-39A (RWR pump A seal purge upstr isol valve).</p> <p><b>EVALUATOR ROLE PLAY:</b> When requested, report that 02-2RWR-39A is closed.</p> <p>Closes RWR PMP A SUCT 02MOV-43A by rotating control switch counterclockwise to CLOSE.</p>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
*9.	<p>Attempt to isolate RWR Pump 02-2P-1B as follows:</p> <ol style="list-style-type: none"> <li>Close RWR PMP B DISCH 02MOV-53B.</li> <li>Close 02-2RWR-39B (RWR pump B seal purge upstr isol valve).</li> <li>Close RWR PMP B SUCT 02MOV-43B.</li> </ol>	<p>Closes RWR PMP B DISCH 02MOV-53B by rotating control switch counterclockwise to CLOSE.</p> <p>Dispatches operator to close 02-2RWR-39B (RWR pump B seal purge upstr isol valve).</p> <p><b>EVALUATOR ROLE PLAY:</b> When requested, report that 02-2RWR-39B is closed.</p> <p>Closes RWR PMP B SUCT 02MOV-43B by rotating control switch counterclockwise to CLOSE.</p>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>
*10.	<p>Place the following keylock switches in BYPASS at panel 09-3:</p> <ul style="list-style-type: none"> <li>10MOV-16B AUTO CONTROL BYPASS 10A-S21B</li> <li>10MOV-25B AUTO CONTROL BYPASS 10A-S22B</li> <li>10MOV-27B AUTO CONTROL BYPASS 10A-S23B</li> </ul>	<p>Rotates 10MOV-16B AUTO CONTROL BYPASS 10A-S21B keylock switch clockwise to BYPASS.</p> <p>Rotates 10MOV-25B AUTO CONTROL BYPASS 10A-S22B keylock switch clockwise to BYPASS.</p> <p>Rotates 10MOV-27B AUTO CONTROL BYPASS 10A-S23B keylock switch clockwise to BYPASS.</p>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>
11.	Ensure open MIN FLOW VLV 10MOV-16B.	Observes MIN FLOW VLV 10MOV-16B green light off, red light on.	SAT / UNSAT
12.	Refer to Section 2.0 for guidance on instrument and component usage.	Refers to Section 2.0	SAT / UNSAT
<b>EVALUATOR:</b> Terminate the task at this point.			

**Task Standard:** The Rx is scrambled, both RWR pumps are tripped and isolated, and RHR keylock switches are in BYPASS.



# **HANDOUT**

## **Initial Conditions:**

- **A serious fire is in progress in the West Crescent area.**
- **The fire has caused a spurious isolation of HPCI and loss of control power to the HPCI Aux Oil pump.**

## **Initiating Cue**

**The CRS directs you to perform the immediate actions of Attachment 2 of AOP-28, Operation During Plant Fires.**



ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE

S/RO      NRC 16-1 C      TASK TITLE: Perform HPCI Full Flow Test (Alt Path)  
APPL. TO      JPM NUMBER

REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 206000 A4.03 (3.1/3.0)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

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CANDIDATE NAME: \_\_\_\_\_ LOGIN ID: \_\_\_\_\_

JPM Completion    ☐ Simulated    ☒ Performed

Location:    ☐ Plant    ☒ Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:    ☐ Satisfactory    ☐ Unsatisfactory

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COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_  
SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_  
PROGRAM ADMINISTER



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

S/RO  
APPL. TO

NRC 16-1 C  
JPM NUMBER

TASK TITLE: Perform HPCI Full Flow Test (Alt Path)

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Outstanding Items

- ☐ Technical Review
- ☐ Questions and Answers
- ☐ Procedural Change Required

- ☐ Additional Information
- ☐ Validation
- ☒ None

Comments:

Current Update \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Previous Revision Date:



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

<u>S/RO</u>	<u>NRC 16-1 C</u>	TASK TITLE: Perform HPCI Full Flow Test (Alt Path)
APPL. TO	JPM NUMBER	

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. ST-4N, HPCI Quick-Start, Inservice, and Transient Monitoring Test

**III. TOOLS AND EQUIPMENT**

- A. Stopwatches

**IV. SET UP REQUIREMENTS**

- A. Reset the simulator to approx. 99% power (IC-120).
- B. Place one loop of RHR in torus cooling mode per OP-13B section D.
- C. Start GLAND SEAL CNDSR BLOWER 23P-140.
- D. Open HPCI & RCIC TEST VLV TO CST 23MOV-24.
- E. Throttle open TEST VALVE TO CST 23MOV-21 for 5 seconds.
- F. Ensure Trigger 1 HP06, HPCI Steam Line Break, Final: 10. (Event Trigger 1 = hpfd>100)
- G. Malfunction HP10, HPCI System Auto Isolation Fail.
- H. Markup copy of ST-4N, HPCI Quick-Start, Inservice, and Transient Monitoring Test, completed up to step 8.4.9.
- I. Initiate EPIC four-parameter plot TRHPCI.
- J. Place 23VM-100 toggle switch to up position.
- K. Start SGT Train B with vent on Torus via 27MOV-117, 123, 121.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, placekeeping and three-point communication.

**VI. TASK CONDITIONS**

- A. The plant is operating at power.
- B. Field personnel are briefed and stationed to support performance of ST-4N.
- C. One loop of RHR is in Torus Cooling Mode.
- D. Another operator is monitoring and controlling Torus level and temperature.
- E. Another operator is standing by with a stop watch to perform timing.
- F. Torus venting is in progress per OP-37 section E.



**\* - CRITICAL STEP**

**• INITIATING CUE:**

Inform the candidate, "The CRS directs you to continue performance of ST-4N, HPCI Quick-Start, Inservice, and Transient Monitoring Test at Step 8.4.9."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of procedure ST-4N	The candidate obtains a controlled copy of ST-4N. <b>EVALUATOR:</b> Provide working copy of ST-4N.	SAT / UNSAT
*2.	IF RPV pressure is GREATER THAN OR EQUAL TO 165 psig, THEN open and time OUTBD STM SUPP VLV 23MOV-16.  Opening time _____ secs (IST: 5.0 to 8.3)	Opens 23MOV-16 by rotating control switch clockwise and determines stroke time to be within limits.  <b>EVALUATOR CUE:</b> Role Play as stopwatch Operator and report opening time was 7 seconds.	<b>CRITICAL STEP</b> SAT / UNSAT
3.	Ensure open OUTBD STM SUPP VLV 23MOV-16.	Observes 23MOV-16 red light on, green light off.	SAT / UNSAT
4.	Verify the following:  <ul style="list-style-type: none"> <li>• EPIC-D-457 HPCI STM OUTB ISO-C indicates OPEN</li> <li>• EPIC-D-458 HPCI STM OUTB ISO-0 indicates NFC</li> </ul>	Utilizes computer and observes EPIC-D-457 indicates OPEN and EPIC-D-458 indicates NFC.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
5.	<p><b>NOTE:</b> Loss of inventory to torus will cause hotwell level will trend down.</p> <p>Automatic or manual compensation may be required to maintain hotwell level.</p>	Reviews procedure NOTE.	SAT / UNSAT
6.	<p>Perform the following in any order, just before turbine startup:</p> <p>A. Initiate EPIC manual transient data capture per CDSO-3.600.</p> <p>B. IF RPV pressure is GREATER THAN OR EQUAL TO 165 psig, AND this test is being performed for Cold Quick-Start Once per Cycle purposes...THEN direct I&amp;C to start all installed transient recorder(s) at desired speed (normally 25 mm/sec).</p>	<p>Acknowledges cue.</p> <p><b>EVALUATOR CUE:</b> Another operator has initiated EPIC manual transient data capture.</p> <p><b>EVALUATOR CUE:</b> If candidate asks about reason for test, report that the test is being performed for Cold Quick-Start Once per Cycle purposes.</p> <p>I&amp;C has started all installed transient recorders at the desired speed.</p>	SAT / UNSAT
7.	<p>IF test is being performed to satisfy SR 3.5.1.9, THEN RPV pressure must be &gt;150 psig but &lt;165 psig and HPCI steam supply pressure must be ≥135 psig.</p>	<p>Determines test is not being performed to satisfy SR 3.5.1.9.</p> <p><b>EVALUATOR CUE:</b> If candidate asks about reason for test, report that the test is <b>NOT</b> being performed to satisfy SR 3.5.1.9.</p>	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
8.	Ensure RX power $\leq$ 2530 MWT.	Observes Rx power is less than 2530 MWT.	SAT / UNSAT
*9.	<p>Simultaneously perform the following:</p> <ul style="list-style-type: none"> <li>• Open TURB STM SUPP VLV 23MOV-14.</li> <li>• Start AUX OIL PMP 23P-150.</li> <li>• IF RPV pressure is GREATER THAN OR EQUAL TO 165 psig, THEN Start stopwatches.</li> </ul>	<p>Performs the following simultaneously:</p> <ul style="list-style-type: none"> <li>• Opens 23MOV-14 by rotating control switch clockwise.</li> <li>• Starts HPCI Aux Oil Pump by rotating control switch clockwise.</li> </ul> <p><b>EVALUATOR CUE:</b> Other operators are standing by and will control stop watches. If asked, times are in spec.</p> <p><b>EVALUATOR NOTE:</b> When HPCI flow rises, Trigger 1 is automatically inserted. This will cause annunciator 09-3-3-12 and 2 to alarm in approximately 10 seconds. Subsequent verification steps will likely NOT be fully completed before the candidate addresses the alarm and isolates HPCI.</p> <p>Candidate may proceed directly to JPM Step 13.</p>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
10.	<p>IF test is being performed to satisfy Step Transient Monitoring, THEN perform the following:</p> <p>A. Direct I&amp;C to commence null voltage trace for approximately 1 to 2 minutes (cold condition).</p> <p>B. Obtain and record null voltage from I&amp;C Fluke or multi meter.</p>	<p>Determines test is not being performed to satisfy Step Transient Monitoring.</p> <p><b>EVALUATOR CUE:</b> If candidate asks about reason for test, report that the test is <b>NOT</b> being performed to satisfy Step Transient Monitoring.</p>	SAT / UNSAT / NA
11.	<p>When HPCI flow rate reaches GREATER THAN OR EQUAL TO 3400 gpm on 23FI-108-1, stop the response time stopwatch.</p> <p>TIME _____ Sec. ≤ 60.0 Sec.</p>	<p>Acknowledges cue and records response time.</p> <p><b>EVALUATOR CUE:</b> The stopwatch has been stopped and response time was 20 seconds.</p>	SAT / UNSAT / NA



	STEP	STANDARD	EVALUATION / COMMENT
12.	<p>Verify the following:</p> <ul style="list-style-type: none"> <li>Turbine speed stabilized after startup transient and remained LESS THAN 4200 rpm during the startup transient (23SPI-161 or EPIC TRHPCI speed trace)</li> <li>23HOV-1 opens smoothly by local observation</li> <li>Turbine vibration is LESS THAN OR EQUAL TO limits (0.385 IPS)</li> <li>Turbine accelerates smoothly (by observing TURB SPEED 23SPI-161 OR EPIC TRHPCI speed trace)</li> <li>HPCI pump discharge flow rate stabilizes at GREATER THAN OR EQUAL TO 3400 gpm on 23FI-108-1</li> <li>MIN FLOW VLV 23MOV-25 is closed</li> <li>STM LINE DRN TO RADW 23AOV-43 is closed</li> <li>STM LINE DRN TO RADW 23AOV-42 is closed</li> </ul>	<p>Observes proper HPCI turbine speed.</p> <p>Contacts field operator regarding operation of 23HOV-1.</p> <p><b>EVALUATOR CUE:</b> 23HOV-1 opened smoothly.</p> <p>Observes HPCI turbine vibration is less than limits.</p> <p>Observes HPCI turbine accelerated smoothly.</p> <p>Observes HPCI flow rate stabilized <math>\geq</math> 3400 gpm.</p> <p>Observes 23MOV-25 green light on, red light off.</p> <p>Observes 23AOV-43 green light on, red light off.</p> <p>Observes 23AOV-42 green light on, red light off.</p>	SAT / UNSAT / NA



	STEP	STANDARD	EVALUATION / COMMENT
13.	Respond to annunciator 09-3-3-02, 12 DIV 1 AMBIENT TEMP HIGH. DIV 2 AMBIENT TEMP HIGH	Refers to ARP 09-3-3-02/12 DIV 1/2 AMBIENT TEMP HIGH.  <b>EVALUATOR CUE:</b> If asked as NPO to investigate, immediately report that you see a large amount of steam at the Drywell entrance area.  Recognize HPCI failed to automatically isolate.	SAT / UNSAT / NA
14.	Depress TURB TRIP 23A-S19 pushbutton.	Secures HPCI by depressing TURBINE TRIP pushbutton.  <b>EVALUATOR NOTE:</b> Procedural guidance for isolation comes from ARP 09-3-3-02 (DIV 1 AMBIENT TEMP HIGH), OP-15 (HPCI) or EN-OP-115 (CONDUCT OF OPERATIONS) or OSD0-49 (STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION).  <b>EVALUATOR CUE:</b> If asked for guidance on how to respond to the alarm \ steam leak condition, direct the candidate to make a recommendation and then carry out that recommendation.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
*15.	<p>Isolate HPCI steam line by ensuring closed the following valves:</p> <ul style="list-style-type: none"> <li>• INBD STM SUPP VLV 23MOV-15</li> <li>• TURB STOP VLV 23HOV-1</li> <li>• OUTBD STM SUPP VLV 12MOV-16</li> <li>• MIN FLOW VLV 12MOV-25</li> <li>• INBD TORUS SUCT VLV 23MOV-58</li> <li>• OUTBD TORUS SUCT VLV 23MOV-57</li> <li>• STM LINE WARMING ISOL VLV 23MOV-60</li> <li>• INJ VLV 23MOV-19</li> </ul>	<p>Observes closed \ <b>*manually closes</b> the following valves:</p> <ul style="list-style-type: none"> <li>• <b>*INBD STM SUPP VLV 23MOV-15</b></li> <li>• TURB STOP VLV 23HOV-1</li> <li>• OUTBD STM SUPP VLV 12MOV-16</li> <li>• MIN FLOW VLV 12MOV-25</li> <li>• INBD TORUS SUCT VLV 23MOV-58</li> <li>• OUTBD TORUS SUCT VLV 23MOV-57</li> <li>• STM LINE WARMING ISOL VLV 23MOV-60</li> <li>• INJ VLV 23MOV-19</li> </ul>	<p>SAT / UNSAT</p> <p><b>CRITICAL STEP</b></p>
<p><b><u>EVALUATOR:</u></b> Terminate the task at this point.</p>			

**Task Standard:** HPCI is started for surveillance testing. Steam line break is detected and HPCI inboard steam supply valve is isolated.



# HANDOUT

## Initial Conditions:

- The Plant is operating at power.
- Field personnel are briefed and stationed to support performance of ST-4N.
- One loop of RHR is in Torus Cooling Mode.
- Another operator is monitoring and controlling Torus level and temperature.
- Another operator is standing by with a stop watch to perform timing.
- Torus venting is in progress per OP-37 section E.

## Initiating Cue:

**The CRS directs you to continue performance of ST-4N, HPCI Quick-Start, Inservice, and Transient Monitoring Test at Step 8.4.9.**



**ENTERGY NUCLEAR NORTHEAST**  
**JOB PERFORMANCE MEASURE**

<u>S/RO</u>	<u>NRC 16-1 D</u>	TASK TITLE: Reset ARI and Scram, Perform Post Scram Reset Control Rod Position Check
APPL. TO	JPM NUMBER	

REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 212000 A4.14 (3.8/3.8)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

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CANDIDATE NAME: \_\_\_\_\_

JPM Completion      ☐ Simulated      ☒ Performed

Location:              ☐ Plant              ☒ Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:      ☐ Satisfactory      ☐ Unsatisfactory

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COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_  
SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_  
PROGRAM ADMINISTER



## JOB PERFORMANCE MEASURE RECORD AND CHECKLIST

S/RO	NRC 16-1 D
APPL. TO	JPM NUMBER

**TASK TITLE:** Reset ARI and Scram, Perform Post Scram Reset Control Rod Position Check

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

## Outstanding Items

- ☐ Technical Review
- ☐ Questions and Answers
- ☐ Procedural Change Required

☐ Additional Information

☐ Validation

☒ None

Comments:

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int.

Previous Revision Date:



**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO

NRC 16-1 D

TASK TITLE:

Reset ARI and Scram, Perform Post Scram Reset  
Control Rod Position Check

APPL. TO

JPM NUMBER

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. AOP-1, Reactor Scram, Current Revision

**III. TOOLS AND EQUIPMENT**

- A. None

**IV. SET UP REQUIREMENTS**

- A. Initialize the simulator (IC-128).
- B. Ensure the Mode Switch to SHUTDOWN.
- C. Ensure ARI is NOT reset.
- D. Ensure all scram signals are clear EXCEPT SDIV Hi Level.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, place keeping and three-point communication.

**VI. TASK CONDITIONS**

- A. During a Reactor startup, the reactor was scrammed 1 hour ago due to a Feedwater malfunction.
- B. The scram condition has been identified and cleared.
- C. All Reactor scram signals are now clear with the exception of the scram discharge volume high level signal.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS has directed that you reset the scram per AOP-1."

**NOTE:** All actions performed at Panel 09-5

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of AOP-1, Reactor Scram.	The candidate determines where to obtain a controlled copy of AOP-1. (Control Room, Merlin)  <b>EVALUATOR:</b> Provide candidate a current copy of AOP-1	SAT / UNSAT
2.	Select the correct section to perform the task.	The candidate selects Section F.1 of AOP-1.  <b>EVALUATOR:</b> Provide candidate a copy of section F.1	SAT / UNSAT
3.	IF ARI actuated, THEN reset ARI as follows:  Verify following annunciator clear:  <ul style="list-style-type: none"> <li>09-4-2-16 (RWR MG A ATWS TRIP)</li> <li>09-4-3-14 (RWR MG B ATWS TRIP)</li> </ul>	Resets ARI as follows:  Observes annunciators are clear:  <ul style="list-style-type: none"> <li>09-4-2-16 (RWR MG A ATWS TRIP)</li> <li>09-4-3-14 (RWR MG B ATWS TRIP)</li> </ul>	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
*4	Depress pushbutton 1-PB-ARIR at panel 09-5.	Depresses pushbutton 1-PB-ARIR at panel 09-5.	<b>CRITICAL STEP</b> SAT / UNSAT
5.	Verify closed the following ARI valves: <ul style="list-style-type: none"> <li>• 03SOV-201</li> <li>• 03SOV-202</li> <li>• 03SOV-203</li> <li>• 03SOV-204</li> <li>• 03SOV-205</li> </ul>	Observes the following ARI valves closed: (green light on, red light off) <ul style="list-style-type: none"> <li>• 03SOV-201</li> <li>• 03SOV-202</li> <li>• 03SOV-203</li> <li>• 03SOV-204</li> <li>• 03SOV-205</li> </ul>	SAT / UNSAT
6.	Verify annunciator 09-5-1-35 ATWS ARI TRIP is clear.	Observes annunciator 09-5-1-35 ATWS ARI TRIP is clear.	SAT / UNSAT
7.	Verify annunciator 09-5-1-33 MODE SW IN SHUTDOWN TRIP BYPASSED is in alarm.	Observes that the annunciator window for annunciator 09-5-1-33 is in alarm.	SAT / UNSAT
*8.	Place the SDIV HI LVL TRIP keylock switch in BYPASS.	Places the SDIV HI LVL TRIP switch in BYPASS. (09-5-1-11 alarms)	<b>CRITICAL STEP</b> SAT / UNSAT
*9.	Place RX SCRAM RESET switch to Group 2 & 3, then to 1 & 4, spring return to NORM.	Places the REACTOR SCRAM RESET selector switch, (5A-S5), momentarily to the GP2 and GP3 position then back thru "NORM" to the GP1 and GP4 position then back to "NORM".	<b>CRITICAL STEP</b> SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
10.	Verify RPS A and B SCRAM GROUPS 1, 2, 3 and 4 lights are on.	Verifies the scram has been reset by ensuring that the following lights are lit:  A. RPS A Scram Groups 1, 2, 3 and 4 on Panel 09-5 B. RPS B Scram Groups 1, 2, 3 and 4 on Panel 09-5	SAT / UNSAT
11.	Verify closed all scram inlet and outlet valves using one or a combination of the following methods: <ul style="list-style-type: none"><li>• Blue scram lights or</li><li>• Local indication.</li></ul>	Observes closed all scram inlet and outlet valves using one or a combination of the following methods: NO Blue scram lights on.	SAT / UNSAT
12.	IF any scram inlet or outlet valve fails to close, then perform the following: A. Depress the following pushbuttons: <ul style="list-style-type: none"><li>• MANUAL SCRAM A</li><li>• MANUAL SCRAM B</li></ul>	Determines step N/A	SAT / UNSAT
<b><u>EVALUATOR:</u></b> Terminate the task at this point.			

**Task Standard:** The Reactor scram is reset.



# HANDOUT

## Initial Conditions:

- During a Reactor startup, the reactor was scrammed 1 hour ago due to a Feedwater malfunction.
- The scram condition has been identified and cleared.
- All Reactor scram signals are now clear with the exception of the scram discharge volume high level signal.

## Initiating Cue:

The CRS has directed that you reset the scram per AOP-1.



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

<u>S/RO</u>	<u>NRC 16-1 E</u>	TASK TITLE: <u>Place Shutdown Cooling in Service</u>
<u>APPL. TO</u>	<u>JPM NUMBER</u>	

REV: _____	DATE: _____	NRC K/A SYSTEM NUMBER: <u>205000 A4.01 (3.7/3.7)</u>
JAF TASK NUMBER: _____	JAF QUAL STANDARD NUMBER: _____	
ESTIMATED COMPLETION TIME: <u>15</u> Minutes		
SUBMITTED: _____		OPERATIONS REVIEW: _____
APPROVED: _____		
~~~~~		
CANDIDATE NAME: _____		
JPM Completion	<input type="checkbox"/> Simulated	<input checked="" type="checkbox"/> Performed
Location:	<input type="checkbox"/> Plant	<input checked="" type="checkbox"/> Simulator
DATE PERFORMED: _____		TIME TO COMPLETE: _____ Minutes
PERFORMANCE EVALUATION:		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
~~~~~		
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)		
EVALUATOR: _____		
SIGNATURE/PRINTED		
CANDIDATE REVIEW: _____		
SIGNATURE		
REVIEWED BY: _____		DOC. COMPLETE: _____
PROGRAM ADMINISTER		



**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

<u>S/RO</u>	<u>NRC 16-1 E</u>	
APPL. TO	JPM NUMBER	TASK TITLE: Place Shutdown Cooling in Service

Current Update:	_____	By:	_____
	Date		Int

Outstanding Items

- |   |   |
|---|---|
| <input type="checkbox"/> Technical Review           | <input type="checkbox"/> Additional Information |
| <input type="checkbox"/> Questions and Answers      | <input type="checkbox"/> Validation             |
| <input type="checkbox"/> Procedural Change Required | <input checked="" type="checkbox"/> None        |

Comments:

Current Update:	_____	By:	_____
	Date		Int.

Previous Revision Date:



**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO	NRC 16-1 E	TASK TITLE: Place Shutdown Cooling in Service
APPL. TO	JPM NUMBER	

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. AOP-30, Loss of Shutdown Cooling

**III. TOOLS AND EQUIPMENT**

- A. None

**IV. SET UP REQUIREMENTS**

- A. Reset to a low-power IC (IC-128).
- B. Ensure RHR B was initially in Shutdown Cooling lineup but is now isolated by closing valves 25B, 17, and 18.
- C. Ensure the following tags are hanging:
- RHR KEEP-FULL PMP 10P-2B control switch – in STOP with yellow tag
  - MIN FLOW VLV 10MOV-16B control switch – yellow tag
  - RHR TEST TORUS CLG & SPRAY 10MOV-39B – yellow tag
  - RWR isolation valves: 02RWR-43\53 (A\B) – yellow tags

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, place keeping and three-point communication.

**VI. TASK CONDITIONS**

- A. RHR B was in Shutdown Cooling.
- B. A spurious isolation signal caused Shutdown Cooling to isolate.
- C. The cause of the isolation signal has been determined and corrected.
- D. No LOCA has occurred.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you to restore Shutdown Cooling using RHR B per AOP-30 Attachment 1."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of AOP-30 Attachment 1.	Obtains a controlled copy of AOP-30 Attachment 1.	SAT / UNSAT
2.	Determine and correct cause.	Determines cause has been corrected per initial conditions.	SAT / UNSAT
3.	For conditions other than those listed in this subsection, restore either loop of SDC per Section D of OP-13D.	Acknowledges step and continues in AOP-30 Attachment 1.	SAT / UNSAT
4.	IF a SDC isolation has not occurred, AND loss of coolant is not indicated, THEN perform any of the following as appropriate...	Determines a SDC isolation has occurred per initial conditions.	SAT / UNSAT
5.	IF shutdown cooling was lost due to a shutdown cooling isolation caused by a loss of an RPS bus(s)...	Determines the SDC isolation was NOT due to loss of an RPS bus.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
6.	<p>IF a SDC isolation has occurred, AND loss of coolant is not indicated, THEN perform the following:</p> <p>Verify RPV pressure is LESS THAN 70 psig.</p>	Observes Reactor pressure is less than 70 psig.	SAT / UNSAT
*7.	Place control switch for DW FLOOR DRN 20AOV-83 in CLOSE.	Rotates DW FLOOR DRN 20AOV-83 control switch counterclockwise to CLOSE.	<b>CRITICAL STEP</b> SAT / UNSAT
*8.	Place control switch for DW EQUIP DRN 20AOV-95 to CLOSE, spring return to AUTO.	Rotates DW EQUIP DRN 20AOV-95 control switch counterclockwise to CLOSE, then releases back to AUTO.	<b>CRITICAL STEP</b> SAT / UNSAT
9.	<p>Verify the following relays indicate ON:</p> <ul style="list-style-type: none"> <li>• 16A-K28 in panel 09-41</li> <li>• 16A-K50 in panel 09-42</li> </ul>	<p>Dispatches operator to verify relays 16A-K28 and -K50 indicate ON.</p> <p><b>EVALUATOR CUE:</b> Relays 16A-K28 and -K50 indicate ON.</p>	SAT / UNSAT
*10.	<p>Simultaneously rotate the following PCIS VLV RESET switches to both RESET positions, spring return to NOR:</p> <ul style="list-style-type: none"> <li>• 16A-S32</li> <li>• 16A-S33</li> </ul>	Simultaneously rotates PCIS VLV RESET switches 16A-S32 and -S33 to both RESET position, then releases back to NOR.	<b>CRITICAL STEP</b> SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
11.	Verify the following relays indicate ON: <ul style="list-style-type: none"> <li>• 16A-K29 in panel 09-41</li> <li>• 16A-K53 in panel 09-41</li> <li>• 16A-K30 in panel 09-42</li> <li>• 16A-K54 in panel 09-42</li> </ul>	Dispatches operator to verify relays 16A-K29, -K53, -K30, and -K54 indicate ON.  <b>EVALUATOR CUE:</b> Relays 16A-K29, -K53, -K30, and -K54 indicate ON.	SAT / UNSAT
12.	IF white HI DW PRESS OR LO LVL CLOSE OF 10MOV-25A(B) IN SHUTDOWN CLG 10A-DS85A(B) light is on, THEN reset logic as follows:	Observes white HI DW PRESS OR LO LVL CLOSE OF 10MOV-25B IN SHUTDOWN CLG 10A-DS85A(B) light is not lit.	SAT / UNSAT
13.	Ensure open HX A(B) BYP VLV 10MOV-66A(B).	Observes 10MOV-66B green light off, red light on.	SAT / UNSAT
*14.	Open SHUTDOWN CLG SUCT 10MOV-18.	Opens 10MOV-18 by rotating control switch clockwise.	<b>CRITICAL STEP</b> SAT / UNSAT
*15.	Open SHUTDOWN CLG SUCT 10MOV-17.	Opens 10MOV-17 by rotating control switch clockwise.	<b>CRITICAL STEP</b> SAT / UNSAT
*16.	Ensure closed HX A(B) OUTLET VLV 10MOV-12A(B).	Closes 10MOV-12B by rotating control switch counterclockwise.	<b>CRITICAL STEP</b> SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
17.	Ensure RPV water level is GREATER THAN 215 inches.	Observes Reactor water level is above 215 inches.	SAT / UNSAT
*18.	Start RHR pump that was in service prior to isolation.	Starts RHR pump B by rotating control switch clockwise.	<b>CRITICAL STEP</b> SAT / UNSAT
*19	Open LPCI INBD INJ VLV 10MOV-25A(B).	Opens 10MOV-25B by rotating control switch clockwise.  <b>EVALUATOR CUE:</b> Direct the candidate to establish Reactor coolant temperature control in a band of 120-140°F.	<b>CRITICAL STEP</b> SAT / UNSAT
*20.	Establish normal temperature control per Section E of OP-13D.	Throttles open 10MOV-12B by rotating control switch clockwise.	<b>CRITICAL STEP</b> SAT / UNSAT
<b><u>EVALUATOR:</u></b> Terminate the task at this point.			

**Task Standard:** SDC system is restored to service with RHR pump B running.



# HANDOUT

## Initial Conditions:

- RHR B was in Shutdown Cooling.
- A spurious isolation signal caused Shutdown Cooling to isolate.
- The cause of the isolation signal has been determined and corrected.
- No LOCA has occurred.

## Initiating Cue:

The CRS directs you to restore Shutdown Cooling using RHR B per AOP-30 Attachment 1.



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

<u>S/RO</u>	<u>NRC 16-1 F</u>	TASK TITLE: Recover Turbine Building Ventilation After Exhaust Duct Radiation Monitor Trip Isolation
APPL. TO	JPM NUMBER	

REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 288000 A4.01 (3.1/2.9)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

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CANDIDATE NAME: \_\_\_\_\_

JPM Completion      ☐ Simulated      ☒ Performed

Location:            ☐ Plant            ☒ Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:      ☐ Satisfactory      ☐ Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_  
SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_  
PROGRAM ADMINISTER



**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

S/RO _____ APPL. TO	NRC 16-1 F _____ JPM NUMBER
---------------------------	-----------------------------------

TASK TITLE: Recover Turbine Building Ventilation After Exhaust  
Duct Radiation Monitor Trip Isolation

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Outstanding Items

- |   |   |
|---|---|
| <input type="checkbox"/> Technical Review           | <input type="checkbox"/> Additional Information |
| <input type="checkbox"/> Questions and Answers      | <input type="checkbox"/> Validation             |
| <input type="checkbox"/> Procedural Change Required | <input checked="" type="checkbox"/> None        |

Comments:

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int.

Previous Revision Date:



**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO	NRC 16-1 F	TASK TITLE:	Recover Turbine Building Ventilation After Exhaust Duct Radiation Monitor Trip Isolation
APPL. TO	JPM NUMBER		

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. OP-52, Turbine Building Ventilation

**III. TOOLS AND EQUIPMENT**

- A. None

**IV. SET UP REQUIREMENTS**

- A. Reset the simulator to an IC with the following conditions (IC-128):
- Ensure 'A' Turbine Building Supply/Exhaust Fans are in service and 'B' are in standby.
  - Fail both TBV exhaust radiation monitors upscale using malfunctions RM01:23 and RM01:24.
  - Allow Turbine Building Ventilation to respond to the isolation.
  - Delete the RM01 malfunctions.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, place keeping and three-point communication.

**VI. TASK CONDITIONS**

- A. A steam leak in the Turbine Building and a loss of coolant accident in the Drywell has occurred.
- B. Turbine Building Ventilation isolated due to high exhaust radiation monitor readings.
- C. The steam leak has been isolated by closing the MSIVs.
- D. The Turbine Building Ventilation exhaust radiation monitors have returned to normal background readings.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you to recover Turbine Building Ventilation per OP-52 Section G.9. Place the 'B' Turbine Building Ventilation Supply and Exhaust Fans in service."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of OP-52.	Obtains a controlled copy of OP-52.	SAT / UNSAT
2.	Select the correct section to perform the task.	Selects Section G.9.	SAT / UNSAT
*3.	<p>Ensure control switch for each of the following fans is green flagged at panel 09-75:</p> <ul style="list-style-type: none"> <li>• TURB BLDG SUPP 67FN-5A</li> <li>• TURB BLDG SUPP 67FN-5B</li> <li>• TURB BLDG EXH 67FN-6A</li> <li>• TURB BLDG EXH 67FN-6B</li> </ul>	<p>*Rotates TURB BLDG SUPP 67FN-5A control switch counterclockwise to green flag.</p> <p>Observes TURB BLDG SUPP 67FN-5B control switch is green flagged.</p> <p>*Rotates TURB BLDG EXH 67FN-6A control switch counterclockwise to green flag.</p> <p>Observes TURB BLDG EXH 67FN-6B control switch is green flagged.</p>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
*4.	<p>IF there is no steam flowing through main steam lines, THEN ensure control switch for each of the following fans is green flagged at panel 09-75:</p> <ul style="list-style-type: none"> <li>• STM TUN EXH 67FN-23A</li> <li>• STM TUN EXH 67FN-23B</li> </ul>	<p>Determines there is no steam flow through the main steam lines.</p> <p>*Rotates STM TUN EXH 67FN-23A control switch counterclockwise to green flag.</p> <p>Observes STM TUN EXH 67FN-23B control switch is green flagged.</p>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>
5.	<p>Verify 17RM-431 radiation level is LESS THAN upscale trip setpoint (25,000 cpm).</p>	<p>Observes 17RM-431 indicates less than 25,000 cpm on EPIC or dispatches operator to verify indication at 67HV-1.</p> <p><b>EVALUATOR CUE:</b> If dispatched to verify 17RM-431 indication, report it indicates approximately 50 cpm.</p>	<p>SAT / UNSAT</p>
*6.	<p>Depress the following pushbuttons at panel 67HV-1:</p> <ul style="list-style-type: none"> <li>• RESET pushbutton below white HIGH RADIATION - TRIP A light</li> <li>• ALARM RESET pushbutton on 17RM-431 TURB BLDG EXH RAD MONITOR</li> </ul>	<p>Dispatches operator to depress the following pushbuttons at panel 67HV-1:</p> <ul style="list-style-type: none"> <li>• RESET pushbutton below white HIGH RADIATION - TRIP A light</li> <li>• ALARM RESET pushbutton on 17RM-431 TURB BLDG EXH RAD MONITOR</li> </ul> <p><b>EVALUATOR CUE:</b> The directed pushbuttons have been depressed.</p>	<p><b>CRITICAL STEP</b> SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
7.	Verify white HIGH RADIATION - TRIP A light is off at panel 67HV-1.	<p>Contacts operator to verify status of white HIGH RADIATION – TRIP A light at panel 67HV-1.</p> <p><b>EVALUATOR CUE:</b> The white HIGH RADIATION – TRIP A light is OFF at panel 67HV-1.</p>	SAT / UNSAT
8.	Verify 17RM-432 radiation level is LESS THAN upscale trip setpoint (25,000 cpm).	<p>Observes 17RM-432 indicates less than 25,000 cpm on EPIC or dispatches operator to verify indication at 67HV-1.</p> <p><b>EVALUATOR CUE:</b> If dispatched to verify 17RM-432 indication, report it indicates approximately 50 cpm.</p>	SAT / UNSAT
*9.	<p>Depress the following pushbuttons:</p> <ul style="list-style-type: none"> <li>• RESET pushbutton below white HIGH RADIATION - TRIP B light</li> <li>• ALARM RESET pushbutton on 17RM-432 TURB BLDG EXH RAD MONITOR</li> </ul>	<p>Contacts operator to depress the following pushbuttons at panel 67HV-1:</p> <ul style="list-style-type: none"> <li>• RESET pushbutton below white HIGH RADIATION - TRIP B light</li> <li>• ALARM RESET pushbutton on 17RM-432 TURB BLDG EXH RAD MONITOR</li> </ul> <p><b>EVALUATOR CUE:</b> When dispatched, direct applicant to call the simulator booth for these actions.</p> <p><b>BOOTH OPERATOR:</b> When requested, insert trigger 30.</p> <p><b>EVALUATOR CUE:</b> Once annunciator 09-75-2-22 has cleared, report that the directed pushbuttons have been depressed.</p>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
10.	Verify white HIGH RADIATION - TRIP B light is off.	<p>Contacts operator to verify status of white HIGH RADIATION – TRIP B light at panel 67HV-1.</p> <p><b>EVALUATOR CUE:</b> The white HIGH RADIATION – TRIP B light is OFF at panel 67HV-1.</p>	SAT / UNSAT
11.	Verify annunciator HV-1-1-23 TURBINE BLDG EXHAUST RAD MONITOR HI/INOPERATIVE is clear.	<p>Contacts operator to verify status of annunciator HV-1-1-23.</p> <p><b>EVALUATOR CUE:</b> Annunciator HV-1-1-23 is clear.</p>	SAT / UNSAT
12.	Verify annunciator 09-75-2-22 TURB EXH RAD MON INOP OR HI is clear.	Observes annunciator 09-75-2-22 is clear.	SAT / UNSAT
*13.	<p>Place turbine building exhaust fans in normal operating lineup as follows at panel 09-75:</p> <p><b>NOTE:</b> The turbine building exhaust fan will start when its outlet damper is open.</p> <p>Start TURB BLDG EXH 67FN-6A or 6B by placing its control switch to ON, spring return to normal.</p>	Starts TURB BLDG EXH 67FN-6B by rotating its control switch clockwise to ON, spring return to normal.	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
14.	Ensure control switch for the other turbine building exhaust fan (TURB BLDG EXH 67FN-6A or 6B) is green flagged.	Observes TURB BLDG EXH 67FN-6A control switch is green flagged.	SAT / UNSAT
*15.	<p>Place turbine building supply fans in normal operating lineup as follows at panel 09-75:</p> <p><b>NOTE:</b> The turbine building supply fan will start when its outlet damper is open.</p> <p>Start TURB BLDG SUPP 67FN-5A or 5B by placing its control switch to ON, spring return to normal.</p>	Starts TURB BLDG SUPP 67FN-5B by rotating its control switch clockwise to ON, spring return to normal.	<b>CRITICAL STEP</b> SAT / UNSAT
16.	Ensure control switch for the other turbine building supply fan (TURB BLDG SUPP 67FN-5A or 5B) is green flagged.	Observes TURB BLDG SUPP 67FN-5A control switch is green flagged.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
*17.	<p>Place steam pipe tunnel exhaust fans in normal operating lineup as follows at panel 09-75:</p> <p><b>NOTE:</b> The steam pipe tunnel exhaust fan outlet damper will open after fan is started.</p> <p>Ensure STM TUN EXH 67FN-23A or 23B is running with its control switch red flagged.</p>	Starts STM TUN EXH 67FN-23B by rotating its control switch clockwise to ON, spring return to normal.	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p>
18.	Ensure control switch for the other steam pipe tunnel exhaust fan (STM TUN EXH 67FN-23A or 23B) is green flagged.	Observes STM TUN EXH 67FN-23A is green flagged with green light on, red light off.	SAT / UNSAT
<p><b><u>EVALUATOR:</u></b> Terminate the task at this point.</p>			

**Task Standard:** The Turbine Building Ventilation exhaust radiation monitor trips are reset. The 'B' Turbine Building Ventilation supply and exhaust fans are in service. The 'A' Turbine Building Ventilation supply and exhaust fans are in standby. The 'B' steam tunnel exhaust fan is in service and the 'A' steam tunnel exhaust fan is in standby.



# HANDOUT

## Initial Conditions:

- A steam leak in the Turbine Building and a loss of coolant accident in the Drywell has occurred.
- Turbine Building Ventilation isolated due to high exhaust radiation monitor readings.
- The steam leak has been isolated by closing the MSIVs.
- The Turbine Building Ventilation exhaust radiation monitors have returned to normal background readings.

## Initiating Cue:

The CRS directs you to recover Turbine Building Ventilation per OP-52 Section G.9.

- Place the 'B' Turbine Building Ventilation Supply and Exhaust Fans in service.



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

<u>S/RO</u>	<u>NRC 16-1 G</u>	TASK TITLE: Supply Ventilation Loads with Emergency Service Water
<u>APPL. TO</u>	<u>JPM NUMBER</u>	

REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 400000 A4.01 (3.1/3.0)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

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CANDIDATE NAME: \_\_\_\_\_

JPM Completion      ☐ Simulated      ☒ Performed

Location:              ☐ Plant              ☒ Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:      ☐ Satisfactory      ☐ Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_  
SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_  
PROGRAM ADMINISTER



**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

<u>S/RO</u>	<u>NRC 16-1 G</u>	
APPL. TO	JPM NUMBER	TASK TITLE: Supply Ventilation Loads with Emergency Service Water

Current Update: _____	By: _____
Date	Int

Outstanding Items

- |   |   |
|---|---|
| <input type="checkbox"/> Technical Review           | <input type="checkbox"/> Additional Information |
| <input type="checkbox"/> Questions and Answers      | <input type="checkbox"/> Validation             |
| <input type="checkbox"/> Procedural Change Required | <input checked="" type="checkbox"/> None        |

Comments:

Current Update: _____	By: _____
Date	Int.

Previous Revision Date:



**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

<u>S/RO</u>	<u>NRC 16-1 G</u>		TASK TITLE:	Supply Ventilation Loads with Emergency Service Water
APPL. TO	JPM NUMBER			

**I. SAFETY CONSIDERATIONS**

A. None

**II. REFERENCES**

- A. AOP-11, Loss of RBCLC
- B. OP-21, Emergency Service Water

**III. TOOLS AND EQUIPMENT**

A. None

**IV. SET UP REQUIREMENTS**

A. Reset the simulator to IC-130.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, place keeping and three-point communication.

**VI. TASK CONDITIONS**

- A. A complete loss of Reactor Building Closed Loop Cooling (RBCLC) has occurred.
- B. AOP-11 (Loss of RBCLC) is being executed.
- C. A loss of coolant accident (LOCA) has NOT occurred.
- D. Emergency Service Water (ESW) is necessary for drywell cooling.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you supply ESW to all Drywell Coolers per AOP-11 Section F.2.4."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of AOP-11.	Obtains a controlled copy of AOP-11.	SAT / UNSAT
2.	Select the correct section to perform the task.	Selects Section F.2.4.	SAT / UNSAT
3.	CAUTION: Supplying ESW or re-injecting RBC to drywell loads during a LOCA could cause failure of the RBCLC piping due to water hammer and jeopardize primary containment integrity. During LOCA conditions, this lineup is prohibited.	Candidate reads CAUTION.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
4.	IF ESW is necessary for drywell cooling as determined by the CRS, THEN perform the following:	Determines ESW is necessary for drywell cooling.	SAT / UNSAT
5.	Verify a LOCA <u>has not</u> occurred.	Determines a LOCA condition does NOT exits per Initiating Cue and/or observing Plant parameters.	SAT / UNSAT
*6.	To supply Drywell Cooler A, perform the following:  1) Ensure 46P-2B (ESW Pump B) in service.	1) Starts 46P-2B by rotating its control switch on Panel 09-6 clockwise to ON, spring return to normal, red flag.	<b>CRITICAL STEP</b> SAT / UNSAT
*7.	2) Open ESW TO DW CLR 15MOV-102.	2) Opens 15MOV-102 by rotating its control switch on Panel 09-75 clockwise to ON, spring return to normal, red flag.	<b>CRITICAL STEP</b> SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
*8.	To supply Drywell Cooler B, perform the following:  1) Ensure 46P-2A (ESW Pump A) in service.	1) Starts 46P-2A by rotating its control switch on Panel 09-6 clockwise to ON, spring return to normal, red flag.	<b>CRITICAL STEP</b> SAT / UNSAT
*9.	2) Open ESW TO DW CLR 15MOV-103.	2) Opens 15MOV-103 by rotating its control switch on Panel 09-75 clockwise to ON, spring return to normal, red flag.	<b>CRITICAL STEP</b> SAT / UNSAT
<b><u>EVALUATOR:</u></b> Terminate the task at this point.			

**Task Standard:** ESW is being supplied to Drywell Coolers A and B.



# HANDOUT

## Initial Conditions:

- A complete loss of Reactor Building Closed Loop Cooling (RBCLC) has occurred.
- AOP-11 (Loss of RBCLC) is being executed.
- A loss of coolant accident (LOCA) has NOT occurred.
- Emergency Service Water (ESW) is necessary for drywell cooling.

## Initiating Cue:

The CRS directs you supply ESW to all Drywell Coolers per AOP-11 Section F.2.4.



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

RO _____ APPL. TO	NRC 16-1 H _____ JPM NUMBER	TASK TITLE: Perform Main Turbine Roll
REV: _____	DATE: _____	NRC K/A SYSTEM NUMBER: <u>241000 A4.11 (3.1/3.1)</u>
JAF TASK NUMBER: _____	JAF QUAL STANDARD NUMBER: _____	
ESTIMATED COMPLETION TIME: <u>10</u> Minutes		
SUBMITTED: _____		OPERATIONS REVIEW: _____
APPROVED: _____ ~~~~~		
CANDIDATE NAME: _____		
JPM Completion	<input type="checkbox"/> Simulated	<input checked="" type="checkbox"/> Performed
Location:	<input type="checkbox"/> Plant	<input checked="" type="checkbox"/> Simulator
DATE PERFORMED: _____		TIME TO COMPLETE: _____ Minutes
PERFORMANCE EVALUATION: <input type="checkbox"/> Satisfactory		<input type="checkbox"/> Unsatisfactory
~~~~~		
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)		
EVALUATOR: _____ SIGNATURE/PRINTED		
CANDIDATE REVIEW: _____ SIGNATURE		
REVIEWED BY: _____ PROGRAM ADMINISTER		DOC. COMPLETE: _____



**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

RO	NRC 16-1 H	TASK TITLE: Perform Main Turbine Roll
APPL. TO	JPM NUMBER	

Current Update: \_\_\_\_\_ By: \_\_\_\_\_  
Date Int

Outstanding Items

- |                                                     |                                                 |
|-----------------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> Technical Review           | <input type="checkbox"/> Additional Information |
| <input type="checkbox"/> Questions and Answers      | <input type="checkbox"/> Validation             |
| <input type="checkbox"/> Procedural Change Required | <input checked="" type="checkbox"/> None        |

Comments:

Current Update: \_\_\_\_\_ By: \_\_\_\_\_  
Date Int.

Previous Revision Date:



**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

RO	NRC 16-1 H	TASK TITLE: Perform Main Turbine Roll
APPL. TO	JPM NUMBER	

**I. SAFETY CONSIDERATIONS**

A. None

**II. REFERENCES**

A. OP-9, Main Turbine

**III. TOOLS AND EQUIPMENT**

A. None

**IV. SET UP REQUIREMENTS**

- A. Reset the simulator to IC-129.
- B. Place EPIC TGO screen up on Slave 2.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, place keeping and three-point communication.

**VI. TASK CONDITIONS**

- A. A plant startup is in progress.
- B. The Main Turbine is ready to be rolled per OP-9 (Main Turbine).
- C. An operator is stationed on the turbine deck.
- D. Another operator will assist while performing OP-9 step D.8.6.e (verifying Turbine trip indications).



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you to roll the Main Turbine per OP-9 section D.8."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of OP-9.	Obtains a controlled copy of OP-9.	SAT / UNSAT
2.	Select the correct section to perform the task.	Selects Section D.8.	SAT / UNSAT
3.	<p><b>CAUTIONS:</b> Operating the Main Turbine at low speed could result in large rotor bows being generated by rubbing with no indication of high vibration being evident from Turbine Supervisory Instrumentation.</p> <p>If rotor bowing caused by rubbing is allowed to occur, damage to buckets, covers, and possibly a permanently bowed rotor could occur.</p> <p>Operating the Main Turbine at a steady-state speed LESS THAN 800 rpm for GREATER THAN 5 minutes could cause rotor bowing due to rubbing.</p>	Candidate reads CAUTIONS.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
4.	Station an operator on turbine deck.	Recalls an operator is stationed on turbine deck per Initiating Cue.	SAT / UNSAT
5.	Verify open ISV-1, 2, 3, and 4.	Verifies ISV1, 2, 3, 4 are open by observing position indicators.	SAT / UNSAT
*6.	Depress 100 (RPM) pushbutton.	100 (RPM) pushbutton depressed.	<b>CRITICAL STEP</b> SAT / UNSAT
7.	Verify the following valves open: <ul style="list-style-type: none"> <li>• TSV-1, 2, 3, and 4</li> <li>• IV-1, 2, 3, and 4</li> </ul>	Verifies TSV1, 2, 3, 4 are open by observing position indicators.  Verifies IV1, 2, 3, 4 are open by observing position indicators.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
*8.	<p>Immediately perform main turbine trip test as follows:</p> <p>a) Depress both TRIP pushbuttons.</p> <p>b) Verify closed the following valves:</p> <ul style="list-style-type: none"> <li>• TSV-1, 2, 3, and 4</li> <li>• TCV-1, 2, 3, and 4</li> <li>• ISV-1, 2, 3, and 4</li> <li>• IV-1, 2, 3, and 4</li> </ul>	<p>* Depresses both TRIP pushbuttons</p> <p>Verifies closed the following valves by observing position indicators:</p> <ul style="list-style-type: none"> <li>• TSV-1, 2, 3, and 4</li> <li>• TCV-1, 2, 3, and 4</li> <li>• ISV-1, 2, 3, and 4</li> <li>• IV-1, 2, 3, and 4</li> </ul>	<p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p> <p>SAT / UNSAT</p>
9.	<p>Immediately reset main turbine trip as follows:</p> <p>a. Verify main turbine trip condition annunciators at annunciator window section 09-5-2 are clear.</p> <p>b. Ensure ALL VALVES CLOSED pushbutton backlight is on.</p> <p>c. Verify VACUUM NORMAL light is on.</p>	<p>Observes main turbine trip condition annunciators at annunciator window section 09-5-2 are clear.</p> <p><b>EVALUATOR NOTE:</b> Annunciator 09-5-2-9 will be in alarm until the Turbine trip is reset.</p> <p>Observes ALL VALVES CLOSED pushbutton backlight is on.</p> <p>Observes VACUUM NORMAL light is on.</p>	<p>SAT / UNSAT</p> <p>SAT / UNSAT</p> <p>SAT / UNSAT</p>



	STEP	STANDARD	EVALUATION / COMMENT
10.	NOTE: TRIP RESET pushbutton will be held depressed until Step D.8.6f.	Reads NOTE.	SAT / UNSAT
*11.	Depress and hold TRIP RESET pushbutton.	Depresses and holds TRIP RESET pushbutton until Step D.8.6.f.	<b>CRITICAL STEP</b> SAT / UNSAT
12.	Verify the following: <ul style="list-style-type: none"> <li>• RESETTING light is on</li> <li>• ISV-1, 2, 3, and 4 open</li> <li>• The following valves remain closed:               <ul style="list-style-type: none"> <li>– TSV-1, 2, 3, and 4</li> <li>– TCV-1, 2, 3, and 4</li> <li>– IV-1, 2, 3, and 4</li> </ul> </li> <li>• RESET light is on at RESET pushbutton</li> <li>• RESET light is on at MECHANICAL TRIP section</li> <li>• RESET light is on at CNDSR VAC TRIP STATUS section</li> <li>• TRIPPED light is off at MECHANICAL TRIP section</li> <li>• TRIPPED light is off at CNDSR VAC TRIP STATUS section</li> <li>• Annunciator 09-5-2-9 MAIN TURB TRIP clears</li> </ul>	<b>Evaluator Cue:</b> Inform candidate that ALL items in this verification step are satisfactory.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
*13	Release TRIP RESET pushbutton.	Releases the TRIP RESET pushbutton <u>after</u> confirmation of above Evaluator Cue.	<b>CRITICAL STEP</b> SAT / UNSAT
*14	Depresses MEDIUM STARTUP RATE pushbutton.	<p>Depresses the MEDIUM STARTUP RATE pushbutton.</p> <p><b>Evaluator Cue:</b> Another Operator will monitor parameters listed in Step D.8.7.</p> <p><b>Evaluator Cue:</b> Step D.8.8 has been completed SAT.</p>	<b>CRITICAL STEP</b> SAT / UNSAT



*15	<p>Roll Main Turbine as follows:</p> <p>a. Verify open ISV 1, 2, 3, and 4.</p> <p><b>b. Depress 100 (RPM) pushbutton.</b></p> <p>c. Verify the following valves open:</p> <ul style="list-style-type: none"> <li>• TSV 1, 2, 3, and 4</li> <li>• IV 1, 2, 3, and 4</li> </ul> <p>d. Verify servo current meter indicator needle moves for turbine control valves TCV-1, TCV-2 and TCV-3.</p> <p>e. Verify TURB TURN GEAR 94TTG-3 is disengaged.</p> <p>f. Place control switch for TURB TURN GEAR 94TTG-3 to TRIP, spring return to normal.</p> <p>g. Verify TURB TURN GEAR 94TTG-3 is stopped.</p> <p>h. Begin walkdown of main turbine; listen for rubbing or unusual noise.</p>	<p>a. Observes ISV 1, 2, 3, and 4 are open.</p> <p><b>b. Depresses the 100 RPM pushbutton.</b></p> <p>c. Observes TSV and IV 1,2,3,4 are open.</p> <p>d. Observes meter needles for TCV-1,2,3,4 move.</p> <p>e. Observes 94TTG-3 is disengaged (right most red light ON only).</p> <p>f. Places control switch 94TTG-3 in Trip.</p> <p>g. Verifies 94TTG-3 has stopped. <b>Evaluator Cue:</b> 94TTG-3 has stopped.</p> <p>h. <b>Evaluator Cue:</b> Walkdown has commenced.</p>	<p>SAT / UNSAT</p> <p><b>CRITICAL STEP</b></p>
<p><b><u>EVALUATOR:</u></b> Terminate the task at this point.</p>			

**Task Standard:** The Main Turbine has been rolled and speed is increasing.



# HANDOUT

## Initial Conditions:

- A plant startup is in progress.
- The Main Turbine is ready to be rolled per OP-9 (Main Turbine).
- An operator is stationed on the turbine deck.
- Another operator will assist while performing OP-9 step D.8.6.e (verifying Turbine trip indications).

## Initiating Cue:

**"The CRS directs you to roll the Main Turbine per OP-9 section D.8."**



ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE

S/RO  
APPL. TO

16-1 NRC I  
JPM NUMBER

TASK TITLE: Vent Torus to Lower Primary Containment  
Pressure (Alt Path)

REV: \_\_\_\_\_ DATE: \_\_\_\_\_ NRC K/A SYSTEM NUMBER: 295010 AA1.05 (3.1/3.4)

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 20 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

CANDIDATE NAME: \_\_\_\_\_

JPM Completion Location: ☒ Simulated ☐ Performed  
☒ Plant ☐ Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes  
PERFORMANCE EVALUATION: ☐ Satisfactory ☐ Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_  
SIGNATURE

REVIEWED BY: \_\_\_\_\_ DOC. COMPLETE: \_\_\_\_\_  
PROGRAM ADMINISTER



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

        S/RO          
APPL. TO

        16-1 NRC I          
JPM NUMBER

TASK TITLE: Vent Torus to Lower Primary Containment  
Pressure (Alt Path)

Current Update:                           
                                Date

By:                           
                                Int

Outstanding Items

- ☐ Technical Review
- ☐ Questions and Answers
- ☐ Procedural Change Required

- ☐ Additional Information
- ☐ Validation
- ☒ None

Comments:

Current Update                           
                                Date

By:                           
                                Int

Previous Revision Date:



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

S/RO  
APPL. TO

16-1 NRC I  
JPM NUMBER

TASK TITLE: Vent Torus to Lower Primary Containment  
Pressure (Alt Path)

**I. SAFETY CONSIDERATIONS**

- A. Ensure proper safety equipment and safety procedures are observed.

**II. REFERENCES**

- A. EP-6, POST ACCIDENT CONTAINMENT VENTING AND GAS CONTROL

**III. TOOLS AND EQUIPMENT**

- A. None

**IV. SET UP REQUIREMENTS**

- A. Current copy of EP-6 including Attachment 1.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, placekeeping and three-point communication.

**VI. INITIAL CONDITIONS**

- A. An event has occurred which requires venting the containment.
- B. The EOPs have been entered.
- C. Action to preclude the failure of containment must be completed.
- D. One train of SGT is in service. The other train of SGT is secured.
- E. Containment purge is NOT in progress.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you to vent the Torus using EP-6, Section 5.7 "Venting Containment". Start at step 5.7.6."

**NOTE:** Unless otherwise noted, all controls are located on Panel 27PCP in the Relay Room.

|    | STEP   | STANDARD  | EVALUATION / COMMENT |
|----|--|---|----------------------|
| 1. | Obtain a controlled copy of procedure EP-6.  | <p>Applicant obtains a controlled copy of procedure EP-6 from: the Relay Room equipment box or Control Room or MERLIN.</p> <p><b><u>EVALUATOR:</u></b> Evaluator to provide working copy.</p> | SAT / UNSAT          |
| 2. | Reviews prerequisites, precautions and special instructions associated with the procedure.   | Reviews applicable portions of procedure.   | SAT / UNSAT          |
| 3. | Selects section 5.7, Venting Containment.  | Selects the correct section of the procedure to be performed.   | SAT / UNSAT          |
| 4. | <p><b>NOTE:</b><br/>Steps 5.7.6 and 5.7.7 may be performed and repeated in any order to alternate between torus and drywell venting. Torus venting is preferred.</p> | Reviews Note and selects step 5.7.6 to perform as directed.   | SAT / UNSAT          |



|    | STEP  | STANDARD  | EVALUATION / COMMENT |
|----|---|---|----------------------|
| 5. | <p><b>(Step 5.7.6)</b></p> <p><b>IF</b> Torus will be vented <b>THEN</b> perform the following:</p> <ul style="list-style-type: none"> <li>• Verify torus pressure is <b>LESS THAN</b> PCPL</li> <li>• Verify primary containment water level is <b>LESS THAN</b> 29.5 feet.</li> <li>• While venting torus, frequently monitor torus pressure and primary containment water level.</li> <li>• <b>IF</b> primary containment water level reaches 29.5 feet while venting the torus, <b>THEN</b> vent drywell per Step 5.7.7.</li> </ul> | <p>Verifies Torus pressure is less than PCPL and Torus level is less than 29.5 ft.</p> <p><b><u>EVALUATOR CUE:</u></b> If/when candidate inquires about pressure and level, inform the candidate that Torus Pressure is 50 psig and Primary Containment Water Level is 29.0 ft.</p> | SAT / UNSAT          |



|               | STEP  | STANDARD   | EVALUATION / COMMENT                |
|---------------|---|--|-------------------------------------|
| 5. cont.<br>* | <b>(Step 5.7.6.D)</b> <ul style="list-style-type: none"> <li>Open TORUS EXH INNER BYP VLV 27MOV-117.</li> </ul> | Candidate places TORUS EXH INNER BYP VLV 27MOV-117 control switch to the OPEN position.<br><br><b><u>EVALUATOR CUE:</u></b> When candidate indicates placing the control switch to open, inform the candidate that the green light is off, red light is on.  | <b>CRITICAL STEP</b><br>SAT / UNSAT |
|               | <b>(Step 5.7.6.E)</b> <ul style="list-style-type: none"> <li>Open TORUS EXH OUTER BYP VLV 27MOV-123.</li> </ul> | Candidate places TORUS EXH OUTER BYP VLV 27MOV-123 control switch to the OPEN position.<br><br><b><u>EVALUATOR CUE:</u></b> When candidate indicates placing the control switch to open, inform the candidate that the green light is off, red light is on.<br><br><b><u>EVALUATOR CUE:</u></b> After 27MOV-117 & 123 are open, inform the candidate that the control room has called to inform the candidate that <b>Primary Containment Water Level is 30 ft.</b><br><br><b><u>EVALUATOR NOTE:</u></b> Candidate should recall and invoke the IF \ THEN statement of EP-6 Step 5.7.6.C | <b>CRITICAL STEP</b><br>SAT / UNSAT |



|    | STEP  | STANDARD  | EVALUATION / COMMENT |
|----|---|---|----------------------|
|    | <p><b>(Step 5.7.6.F)</b></p> <ul style="list-style-type: none"> <li>• Ensure closed the following valves: <ul style="list-style-type: none"> <li>○ DW EXH OUTER BYP VLV 27MOV-113.</li> <li>○ DW EXH INNER BYPASS VLV 27MOV-122.</li> <li>○ DW EXH INNER ISOL VLV 27AOV-113.</li> <li>○ DW EXH OUTER ISOL VLV 27AOV-114.</li> </ul> </li> </ul> | <p>For each valve, candidate locates its red/green position lights and indicates it should be closed.</p> <p><b><u>EVALUATOR CUE:</u></b> When candidate inquires about light status, inform the candidate the green light is on, red light is off.</p> | SAT / UNSAT          |
| 6. | <p><b>(Step 5.7.6.C)</b></p> <p><b>IF</b> primary containment water level reaches 29.5 feet while venting the torus, <b>THEN</b> vent drywell per Step 5.7.7.</p>   | <p>Candidate refers to section 5.7.7</p> <p><b><u>EVALUATOR CUE:</u></b> If candidate wants direction from the control room, inform the candidate that for the purposes of this JPM, no further guidance can be given.</p>                              | SAT / UNSAT          |



|    | STEP   | STANDARD  | EVALUATION / COMMENT                |
|----|--|---|-------------------------------------|
| 7. | <b>(Step 5.7.7)</b><br><b>IF</b> drywell will be vented, <b>THEN</b> perform the following: <ul style="list-style-type: none"> <li>Verify torus pressure is <b>BELOW</b> PCPL</li> </ul> | Verifies Torus pressure is less than PCPL.<br><br><u><b>EVALUATOR CUE:</b></u> If/when candidate inquires about pressure and level, inform the candidate that Torus Pressure is 50 psig and Primary Containment Water Level is 30.0 ft                      | SAT / UNSAT                         |
| *  | <b>(Step 5.7.7.B)</b> <ul style="list-style-type: none"> <li>Open DW EXH OUTER BYP VLV 27MOV-113</li> </ul>  | Candidate places DW EXH OUTER BYP VLV 27MOV-113 control switch to the OPEN position.<br><br><u><b>EVALUATOR CUE:</b></u> When candidate indicates placing the control switch to open, inform the candidate that the green light is off, red light is on.    | <b>CRITICAL STEP</b><br>SAT / UNSAT |
| *  | <b>(Step 5.7.7.C)</b> <ul style="list-style-type: none"> <li>Open DW EXH INNER BYPASS VLV 27MOV-122.</li> </ul>  | Candidate places DW EXH INNER BYPASS VLV 27MOV-122 control switch to the OPEN position.<br><br><u><b>EVALUATOR CUE:</b></u> When candidate indicates placing the control switch to open, inform the candidate that the green light is off, red light is on. | <b>CRITICAL STEP</b><br>SAT / UNSAT |



|         | STEP   | STANDARD  | EVALUATION / COMMENT                        |
|---------|--|---|---|
| 7 cont. | <b>(Step 5.7.7.D)</b> <ul style="list-style-type: none"> <li>Ensure closed the following valves:</li> </ul>                              |   |   |
| *       | <ul style="list-style-type: none"> <li>TORUS EXH INNER<br/>BYP VLV 27MOV-117</li> </ul>  | <p>Candidate places TORUS EXH INNER BYP VLV 27MOV-117 control switch to the CLOSE position.</p> <p><b>EVALUATOR CUE:</b> When candidate indicates placing the control switch to close, inform the candidate that the green light is on, red light is off.</p> | <p><b>CRITICAL STEP</b><br/>SAT / UNSAT</p> |
| *       | <ul style="list-style-type: none"> <li>TORUS EXH OUTER<br/>BYP VLV 27MOV-123</li> </ul>  | <p>Candidate places TORUS EXH OUTER BYP VLV 27MOV-123 control switch to the CLOSE position.</p> <p><b>EVALUATOR CUE:</b> When candidate indicates placing the control switch to close, inform the candidate that the green light is on, red light is off.</p> | <p><b>CRITICAL STEP</b><br/>SAT / UNSAT</p> |
|         | <ul style="list-style-type: none"> <li>TORUS EXH INNER<br/>ISOL VLV 27AOV-117</li> <li>TORUS EXH OUTER<br/>ISOL VLV 27AOV-118</li> </ul> | <p>For each valve, candidate locates its red/green position lights and indicates it should be closed.</p> <p><b>EVALUATOR CUE:</b> When candidate inquires about light status, inform the candidate the green light is on, red light is off.</p>              | <p>SAT / UNSAT</p>                          |



|   | STEP  | STANDARD   | EVALUATION / COMMENT |
|---|---|--|----------------------|
| 8.  | <b>(Step 5.7.7.E)</b> <ul style="list-style-type: none"> <li>• IF it becomes necessary to raise vent rate, <b>AND</b> torus pressure is <b>LESS THAN</b> PCPL, <b>THEN</b> attempt to open the following valves: <ul style="list-style-type: none"> <li>○ DW EXH INNER ISOL VLV 27AOV-113</li> <li>○ DW EXH OUTER ISOL VLV 27AOV-114</li> </ul> </li> </ul> | <b><u>EVALUATOR CUE:</u></b> Inform candidate that current rate of pressure reduction is acceptable. |                      |
| <b><u>EVALUATOR:</u></b> Terminate the JPM at this point. |   |  |                      |

**Task Standard:** Valving is repositioned to support the Containment vented in accordance with EP-6.



# HANDOUT

## **Initial Conditions:**

- An event has occurred which requires venting the containment.
- The EOPs have been entered.
- Action to preclude the failure of containment must be completed.
- One train of SGT is in service. The other train of SGT is secured.
- Containment purge is NOT in progress.

## **Initiating Cue:**

The CRS directs you to vent the Torus using EP-6, Section 5.7 (Venting Containment).

Start at step 5.7.6.



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

|                 |                   |                                       |
|-----------------|-------------------|---------------------------------------|
| <u>S/RO</u>     | <u>16-1 NRC J</u> | TASK TITLE: Vent the Scram Air Header |
| <u>APPL. TO</u> | <u>JPM NUMBER</u> |                                       |

|                        |                                 |   |
|------------------------|---------------------------------|---|
| REV: _____             | DATE: _____                     | NRC K/A SYSTEM NUMBER: <u>400000 2.4.35 (3.8/4.0)</u> |
| JAF TASK NUMBER: _____ | JAF QUAL STANDARD NUMBER: _____ |   |

ESTIMATED COMPLETION TIME: 13 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~

CANDIDATE NAME: \_\_\_\_\_

JPM Completion	<input checked="" type="checkbox"/> Simulated	<input type="checkbox"/> Performed
Location:	<input checked="" type="checkbox"/> Plant	<input type="checkbox"/> Simulator

DATE PERFORMED: _____	TIME TO COMPLETE: _____	Minutes
-----------------------	-------------------------	---------

PERFORMANCE EVALUATION: ☐ Satisfactory ☐ Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_

SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_

SIGNATURE

|                    |                      |
|--------------------|----------------------|
| REVIEWED BY: _____ | DOC. COMPLETE: _____ |
| PROGRAM ADMINISTER |                      |



**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

|             |                   |  |
|-------------|-------------------|--|
| <u>S/RO</u> | <u>16-1 NRC J</u> |  |
| APPL. TO    | JPM NUMBER        |  |

TASK TITLE: Vent the Scram Air Header

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int

Outstanding Items

- |   |   |
|---|---|
| <input type="checkbox"/> Technical Review           | <input type="checkbox"/> Additional Information |
| <input type="checkbox"/> Questions and Answers      | <input type="checkbox"/> Validation             |
| <input type="checkbox"/> Procedural Change Required | <input checked="" type="checkbox"/> None        |

Comments:

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int.

Previous Revision Date:



**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

|          |            |                                       |
|----------|------------|---------------------------------------|
| S/RO     | 16-1 NRC J | TASK TITLE: Vent the Scram Air Header |
| APPL. TO | JPM NUMBER |                                       |

**I. SAFETY CONSIDERATIONS**

A. None

**II. REFERENCES**

A. EP-3, Backup Control Rod Insertion

**III. TOOLS AND EQUIPMENT**

A. None

**IV. SET UP REQUIREMENTS**

A. None

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, place keeping and three-point communication.

**VI. INITIAL CONDITIONS**

- A. A failure to scram has occurred.
- B. Numerous control rods have failed to insert.
- C. EOP-3, Failure to Scram, is being executed.
- D. Scram Air Header pressure is 70 psig and steady.
- E. EP-3 (Backup Control Rod Insertion) success path is to vent the Scram Air Header.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you to vent the Scram Air Header per EP-3 section 5.3."

|    | STEP  | STANDARD   | EVALUATION / COMMENT |
|----|---|--|----------------------|
| 1. | Obtain a controlled copy of EP-3.               | <p>Applicant would obtain a controlled copy of EP-3 from the Control Room or CRD venting rig equipment box or Relay Room equipment box or MERLIN.</p> <p><b>EVALUATOR:</b> Provide a working copy of EP-3.</p> | SAT / UNSAT          |
| 2. | Select the correct section to perform the task. | <p>Selects Section 5.3 of EP-3.</p> <p><b>EVALUATOR NOTE:</b> All remaining actions of this JPM are <u>simulated</u> performed on Reactor Building elevation 272' in the southwest corner.</p>                 | SAT / UNSAT          |



|     | STEP  | STANDARD  | EVALUATION / COMMENT                        |
|-----|---|---|---|
| 3.  | <p><b>(Step 5.3.1)</b> Ensure open the following valves:</p> <ul style="list-style-type: none"> <li>• 03CRD-2028 (control rod drive system inlet instrument air filter 27B outlet isol valve)</li> <li>• 03CRD-2029 (control rod drive system inlet instrument air filter 27A outlet isol valve)</li> </ul> | <p>Ensures open 03CRD-2028 and 03CRD-2029 by:</p> <ul style="list-style-type: none"> <li>• For initially closed valve, simulates rotating handwheel counterclockwise until it reaches a hard stop.</li> <li>• For initially open valve, simulates rotating handwheel to check position.</li> </ul> <p><b>EVALUATOR NOTE:</b> One of these valves is initially open and one is initially closed.</p> <p><b>EVALUATOR CUE:</b> For the closed valve, the indicated handwheel is turned in the indicated direction and reaches a hard stop. For the open valve, the indicated handwheel will not move counterclockwise, but will move clockwise.</p> | SAT / UNSAT                                 |
| *4. | <p><b>(Step 5.3.2)</b> Close the following valves:</p> <ul style="list-style-type: none"> <li>• 03CRD-2030 (control rod drive system inlet instrument air filter 27A inlet isol valve)</li> <li>• 03CRD-2031 (control rod drive system inlet instrument air filter 27B inlet isol valve)</li> </ul>         | <p>Closes the following valves by simulating rotating handwheel clockwise until it reaches a hard stop:</p> <ul style="list-style-type: none"> <li>• 03CRD-2030</li> <li>• 03CRD-2031</li> </ul> <p><b>EVALUATOR NOTE:</b> If only one filter is aligned to the scram air header based on the candidate's actions in JPM step 3, then it is only critical for that filter's inlet valve to be closed.</p> <p><b>EVALUATOR CUE:</b> For each valve, the indicated handwheel is turned in the indicated direction and reaches a hard stop.</p>  | <p><b>CRITICAL STEP</b><br/>SAT / UNSAT</p> |



|     | STEP  | STANDARD  | EVALUATION / COMMENT                           |
|-----|---|---|--|
| *5. | <b>(Step 5.3.3)</b> Open scram air filter drain valve on both scram air filters (valve located on bottom of filter).              | <p>Opens scram air filter drain valves by simulating rotating valve operators counterclockwise.</p> <p><b>EVALUATOR NOTE:</b> Valve 03F-27A is a ball valve and valve 03F-27B is a petcock valve.</p> <p><b>EVALUATOR NOTE:</b> It is only critical for one drain valve to be opened. If only one filter is aligned to the scram air header based on the candidate's actions in JPM step 3, then it is only critical for that filter's drain valve to be opened.</p> <p><b>EVALUATOR CUE:</b> For each valve, the indicated handwheel is turned in the indicated direction and reaches a hard stop. Flow noise is heard through the valve(s).</p> | <p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p> |
| 6.  | <b>(Step 5.3.4)</b> Verify scram air header pressure lowers to zero psig on 03PI-229 (HCU scram pilot valve air hdr press indic). | <p>Observes indication on 03PI-229.</p> <p><b>EVALUATOR CUE:</b> Indicate 0 psig on 03PI-229. If asked, no more flow noise is heard through the drain valves.</p> <p><b>EVALUATOR CUE:</b> The control room reports that all control rods are full in. If asked, it is desired to restore the scram air header.</p>   | SAT / UNSAT                                    |



|     | STEP   | STANDARD   | EVALUATION / COMMENT                        |
|-----|--|--|---|
| *7. | <p><b>(Step 5.3.5)</b> WHEN control rods no longer move inward, restore scram air header as follows:</p> <ul style="list-style-type: none"> <li>• Close scram air filter drain valve on both scram air filters.</li> </ul> | <p>Closes both scram air filter drain valves by simulating rotating valve operators clockwise.</p> <p><b>EVALUATOR NOTE:</b> It is only critical that any drain valve that was opened in JPM step 5 be closed.</p> <p><b>EVALUATOR CUE:</b> For each valve, the indicated valve operator is turned in the indicated direction and reaches a hard stop.</p> | <p><b>CRITICAL STEP</b><br/>SAT / UNSAT</p> |
| *8. | <p><b>(Step 5.3.5.B)</b> Open the following valves:</p> <ul style="list-style-type: none"> <li>• 03CRD-2030</li> <li>• 03CRD-2031</li> </ul>   | <p>Opens both of the following valves by simulating rotating the handwheel counterclockwise.</p> <p><b>EVALUATOR NOTE:</b> It is only critical that one of these valves be opened.</p> <p><b>EVALUATOR CUE:</b> For each valve, the indicated handwheel is turned in the indicated direction and reaches a hard stop.</p>                                  | <p><b>CRITICAL STEP</b><br/>SAT / UNSAT</p> |



|  | STEP   | STANDARD  | EVALUATION / COMMENT |
|--|--|---|----------------------|
| 9.   | <b>(Step 5.3.5.C)</b> Close one of the following valves: <ul style="list-style-type: none"> <li>• 03CRD-2028<br/>OR</li> <li>• 03CRD-2029</li> </ul> | Closes one of the following valves by simulating rotating the handwheel clockwise: <ul style="list-style-type: none"> <li>• 03CRD-2028<br/>OR</li> <li>• 03CRD-2029</li> </ul><br><b>EVALUATOR CUE:</b> The indicated handwheel is turned in the indicated direction and reaches a hard stop. | SAT / UNSAT          |
| <p align="center"><b><u>EVALUATOR:</u></b> Terminate the task at this point.</p> |  |   |                      |

**Task Standard:** All control rods inserted with scram air header vented.



# HANDOUT

## **Initial Conditions:**

- A failure to scram has occurred.
- Numerous control rods have failed to insert.
- EOP-3, Failure to Scram, is being executed.
- Scram Air Header pressure is 70 psig and steady.
- EP-3 (Backup Control Rod Insertion) success path is to vent the Scram Air Header.

## **Initiating Cue:**

The CRS directs you to vent the Scram Air Header per EP-3 section 5.3.



**ENTERGY NUCLEAR NORTHEAST  
JOB PERFORMANCE MEASURE**

|                 |                   |  |
|-----------------|-------------------|--|
| <u>S/RO</u>     | <u>16-1 NRC K</u> | TASK TITLE: Swap CRD Flow Control Valves |
| <u>APPL. TO</u> | <u>JPM NUMBER</u> |  |

|                        |                                 |  |
|------------------------|---------------------------------|--|
| REV: _____             | DATE: _____                     | NRC K/A SYSTEM NUMBER: <u>201001 A2.07 3.2/3.1</u> |
| JAF TASK NUMBER: _____ | JAF QUAL STANDARD NUMBER: _____ |  |

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: \_\_\_\_\_ OPERATIONS REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~

CANDIDATE NAME: \_\_\_\_\_

JPM Completion	<input checked="" type="checkbox"/> Simulated	<input type="checkbox"/> Performed
Location:	<input checked="" type="checkbox"/> Plant	<input type="checkbox"/> Simulator

DATE PERFORMED: _____	TIME TO COMPLETE: _____	Minutes
-----------------------	-------------------------	---------

PERFORMANCE EVALUATION: ☐ Satisfactory ☐ Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_

SIGNATURE/PRINTED

CANDIDATE REVIEW: \_\_\_\_\_

SIGNATURE

|                    |                      |
|--------------------|----------------------|
| REVIEWED BY: _____ | DOC. COMPLETE: _____ |
| PROGRAM ADMINISTER |                      |



## JOB PERFORMANCE MEASURE RECORD AND CHECKLIST

|          |            |
|----------|------------|
| S/RO     | 16-1 NRC K |
| APPL. TO | JPM NUMBER |

**TASK TITLE:** Swap CRD Flow Control Valves

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int: \_\_\_\_\_

## Outstanding Items

- |   |   |
|---|---|
| <input type="checkbox"/> Technical Review           | <input type="checkbox"/> Additional Information |
| <input type="checkbox"/> Questions and Answers      | <input type="checkbox"/> Validation             |
| <input type="checkbox"/> Procedural Change Required | <input checked="" type="checkbox"/> None        |

Comments:

Current Update: \_\_\_\_\_  
Date

By: \_\_\_\_\_  
Int.

Previous Revision Date:



**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

|          |            |             |                              |
|----------|------------|-------------|------------------------------|
| S/RO     | 16-1 NRC K | TASK TITLE: | Swap CRD Flow Control Valves |
| APPL. TO | JPM NUMBER |             |                              |

**I. SAFETY CONSIDERATIONS**

A. None

**II. REFERENCES**

A. OP-25, Control Rod Drive Hydraulic System

**III. TOOLS AND EQUIPMENT**

A. None

**IV. SET UP REQUIREMENTS**

A. JPM is written with flow control valve 03FCV-19A in-service.

**V. EVALUATOR NOTES**

- A. The candidate should, at a minimum, observe the change in equipment status light indication when equipment is operated.
- B. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- C. The candidate should demonstrate proper use of HU tools such as procedure use, self checking, place keeping and three-point communication.

**VI. INITIAL CONDITIONS**

- The Control Rod Drive Hydraulic System is in operation.
- The "A" CRD Flow Control Valve (03FCV-19A) is currently in service.
- The standby CRD Flow Control Valve must be placed in-service in order to verify its ability to operate correctly in automatic.



**\* - CRITICAL STEP**

**VII. INITIATING CUE**

Inform the candidate, "The CRS directs you to swap CRD Flow Control Valves per OP-25 (Control Rod Drive Hydraulic System), Section G.14 (Changing Inservice CRD Flow Control Valves)".

|    | STEP  | STANDARD  | EVALUATION / COMMENT |
|----|---|---|----------------------|
| 1. | Obtain a controlled copy of OP-25.  | <p>Applicant would obtain a controlled copy of OP-25 from the Control Room or NPO Watch Station or Rad Waste Control Room or CRD Charging Cart or MERLIN.</p> <p><b>EVALUATOR:</b> Provide a working copy of OP-25.</p>   | SAT / UNSAT          |
| 2. | Select the correct section to perform the task.   | <p>Selects Section G.14 of OP-25.</p> <p><b>EVALUATOR NOTE:</b> All actions are <u>simulated</u> performed on Rx Bldg 272' area west of the West HCU's.</p>   | SAT / UNSAT          |
| 3. | <p>(G.14.1)</p> <p>Establish communication between Flow Control Hand Select Station and the Control Room.</p> | <p>The candidate goes to the Rx Building 272' level to the area West of the West HCU's.</p> <p>When the candidate states that he/she would establish communications between the Control Room and the master control station using either the West HCU area Gaitronics or nearby sound powered phone jack or cell phone.</p> <p><b><u>Evaluator Cue:</u></b> Communications with the Control Room are ESTABLISHED.</p> | SAT / UNSAT          |



|     | STEP   | STANDARD  | EVALUATION / COMMENT                           |
|-----|--|---|--|
| 4.  | <p>(G.14.2)</p> <p>Line up CRD FLOW CNTRL 03FIC-301 per the following steps:</p> <p>a. Ensure controller is in AUTO.</p> <p>b. Adjust controller setpoint to zero gpm.</p>   | <p>a. Contacts the Control Room to ensure the controller is in AUTO.</p> <p><b><u>Evaluator Cue:</u></b> Controller is in AUTO.</p> <p>b. Requests the Control Room place the CRD flow controller setpoint to zero gpm</p> <p><b><u>Evaluator Cue:</u></b> The CRD Flow Controller setpoint is at zero gpm.</p> | SAT / UNSAT                                    |
| 5.  | <p>(G.14.3.a)</p> <p>Perform the following for the flow control valve to be placed in service:</p> <p>a. Verify open inlet isolation valve:</p> <ul style="list-style-type: none"> <li>03CRD-68B (CRD water 03FCV-19B inlet isol valve)</li> </ul> | <p>Verifies 03CRD-68B is open by rotating handwheel in the clockwise (closed) direction then rotating handwheel in the counterclockwise (open) direction.</p> <p><b><u>Evaluator Cue:</u></b> Valve 03CRD-68B is open.</p>  | SAT / UNSAT                                    |
| *6. | <p>(G.14.3.b)</p> <p>Slowly open outlet isolation valve: 03CRD-69B (CRD water 03FCV-19B outlet isol valve)</p>   | <p>Opens 03CRD-69B by rotating handwheel full counterclockwise.</p> <p><b><u>Evaluator Cue:</u></b> 03CRD-69B is open.</p>  | <p><b>CRITICAL STEP</b></p> <p>SAT / UNSAT</p> |



|     | STEP   | STANDARD  | EVALUATION / COMMENT                |
|-----|--|---|-------------------------------------|
| *7. | (G.14.4)<br>Close outlet isolation valve for flow control valve to be removed from service.<br><ul style="list-style-type: none"> <li>• 03CRD-69A (CRD water 03CRD-69A outlet isolation valve).</li> </ul> | Closes 03CRD-69A by rotating handwheel full clockwise.<br><br><u><b>Evaluator Cue:</b></u> 03CRD-69A is closed. | <b>CRITICAL STEP</b><br>SAT / UNSAT |
| *8. | (G.14.5)<br>Place AUTO-MAN select knob in AUTO for inservice flow control valve:<br><br><ul style="list-style-type: none"> <li>• AUTO-MAN select knob at 03HSS-245B</li> </ul>                             | Places AUTO-MAN knob to AUTO at 03HSS-245B.<br><br><u><b>Evaluator Cue:</b></u> AUTO-MAN knob is in AUTO.       | <b>CRITICAL STEP</b><br>SAT / UNSAT |
| *9. | G.14.6<br>Ensure AUTO-MAN select knob is in MAN for standby flow control valve.<br><br><ul style="list-style-type: none"> <li>• AUTO-MAN select knob at 03HSS-245A</li> </ul>                              | Places AUTO-MAN knob to MAN at 03HSS-245A.<br><br><u><b>Evaluator Cue:</b></u> AUTO-MAN knob is in MAN.         | <b>CRITICAL STEP</b><br>SAT / UNSAT |



|  | STEP  | STANDARD  | EVALUATION / COMMENT |
|--|---|---|----------------------|
| 10.  | (G.14.7)<br>Slowly raise setpoint on CRD FLOW CNTRL 03FIC-301 to establish 59 to 61 gpm on 03FI-310.  | Requests Control Room slowly raises setpoint on 03FIC-301 to 59-61 gpm.<br><br><b><u>Evaluator Cue:</u></b> 03FIC-301 is set to 60 gpm; flow is 60 gpm and steady | SAT / UNSAT          |
| 11.  | (G.14.8)<br>Verify normal operating values on the following indicators at panel 09-5: <ul style="list-style-type: none"> <li>• CHG WTR PRESS 03PI-302: BETWEEN 1390 and 1580 psig, not to exceed 1670 psig</li> <li>• DRV WTR DIFF PRESS 03DPI-303: 260 to 270 psid</li> <li>• CLG WTR DIFF PRESS 03DPI-304: approximately 10 to 26 psid</li> <li>• DRV WTR FLOW 03FI-305: zero when no CRD is being driven</li> <li>• FLOW 03FI-306: 59 to 61 gpm</li> </ul> | Requests Control Room verifies parameters.<br><br><b><u>Evaluator Cue:</u></b> All parameters on the 09-5 panel are satisfactory.                                 | SAT / UNSAT          |
| <b><u>EVALUATOR:</u></b> Terminate the task at this point. |   |   |                      |

**Task Standard:** The “B” CRD Flow Control valve is in service, in automatic at 60 gpm and the A CRD FCV is in manual and valved out of service.



# HANDOUT

## **Initial Conditions:**

- The Control Rod Drive Hydraulic System is in operation.
- The “A” CRD Flow Control Valve (03FCV-19A) is currently in service.
- The standby CRD Flow Control Valve must be placed in-service in order to verify its ability to operate correctly in automatic.

## **Initiating Cue:**

The CRS directs you to swap CRD Flow Control Valves per OP-25 (Control Rod Drive Hydraulic System), Section G.14 (Changing Inservice CRD Flow Control Valves).



# JAMES A. FITZPATRICK NUCLEAR POWER PLANT

## LOI 16-1 NRC EXAMINATION SCENARIO 1

**TITLE:** LOI 16-1 NRC EXAMINATION SCENARIO 1

**SCENARIO NUMBER:** NRC 1

**PATH:** STAND ALONE

**Validation:** \_\_\_\_\_ **Training:** \_\_\_\_\_ **Operations:** \_\_\_\_\_

|     | CANDIDATES |
|-----|------------|
| CRS |            |
| ATC |            |
| BOP |            |



## RECORD OF CHANGES

[illegible]



A. **TITLE:** LOI 16-1 NRC EXAMINATION SCENARIO 1

B. **SCENARIO SETUP:**

1. IC-121

2. Special Instructions:

- a. The Plant is operating at approximately 100% power.
- b. Core Spray Loop 'A' is out of service (yellow tag on CSP 'A').
- c. ST-3PA is in progress with sections 4 and 5 completed.
- d. Crew will perform section 8.4 only.

3. Preset Conditions:

- a. Trigger 1, M:NM14:B, APRM Channel B failure, Delay: 20 sec, Final: 100
- b. Trigger 3, M:RD06:A, CRD pump 'A' trip
- c. Trigger 3, M:RD09:18:31, Control Rod 18:31 Accumulator trouble, Delay 30 sec
- d. Trigger 5, M:RD13:ALL, Control Rods fail to scram, Delay 1 sec
- e. Trigger 8, M:SL01:A, SLC pump A trip, Delay: 1 min
- f. Trigger 9, M:SL01:B, SLC pump B trip, Delay: 1 min
- g. Preset, M:RR13:A, ATWS system fail to initiate RWR pump A trip
- h. Preset, M:RR13:B, ATWS system fail to initiate RWR pump B trip
- i. Trigger 5, M:RR02A, Recirc pump A controller power failure
- j. Trigger 5, M:RR02B, Recirc pump B controller power failure
- k. Trigger 6, M:TC04:A, TBV 1 failure
- l. Trigger 6, M:TC04:B, TBV 2 failure
- m. Preset, M:CS01:A, Core Spray pump A trip
- n. Trigger 4, M:TU04:E, Main Turbine high bearing #5 vibes, Ramp: 6 min, Initial: 15 (will show as zero after snap and reset), Final: 27
- o. Trigger 4, M:TU04:F, Main Turbine high bearing #6 vibes, Ramp: 6 min, Initial: 15 (will show as zero after snap and reset), Final: 27
- p. Trigger 2, R:HP15, 23P-150 HPCI Aux Oil pump ckt brkr, Final: Open
- q. Preset, O:CSZLO14AS5A(1) Core Spray pump A red light: OFF
- r. Preset, O:CSZLO14AS5A(2) Core Spray pump A green light: OFF
- s. Preset, O:AN931:21, Core Spray pump A trip or loss of control power: ON
- t. Event Trigger 1, Event: zdi14as2a(1)==1, Command: none
- u. Event Trigger 5, Event: (zlo5ads8a == 0) && (zlo5ads8b == 0), Command: none
- v. Event Trigger 6, Event: ycx07nmaprmaf<24, Command: none
- w. Event Trigger 8, Event: zdi11s1(2)==1, Command: dmf sl01:b
- x. Event Trigger 9, Event: zdi11s1(1)==1, Command: dmf sl01:a

4. Consumable Forms and Procedures:

- ◆ AOP-1



**C. SCENARIO SUMMARY:**

The scenario will begin at approximately 100% power with Core Spray Loop 'A' out of service for pump maintenance. The crew will begin the shift by performing Core Spray 'A' valve stroke timing per ST-3PA.

During the test, APRM 'B' fails upscale and causes a half scram of RPS 'B'. The SRO will determine that Technical Specifications are satisfied with APRM 'B' bypassed. The crew will bypass APRM B and reset the half scram.

Next, the HPCI Auxiliary Oil pump power supply breaker trips. This will render HPCI inoperable for the remainder of the scenario. The SRO will determine the Technical Specification impact.

Following the HPCI Aux Oil pump issue, the running Control Rod Drive pump will trip. The crew will enter AOP-69, start the standby pump, and restore normal Control Rod Drive parameters. During this evolution, one Control Rod Drive accumulator will develop a low pressure. The SRO will determine the Technical Specification impact.

Main Turbine vibrations will then develop. The crew will enter AOP-66 to address the vibrations. The vibrations will not subside as Reactor power is lowered and eventually reach the procedure threshold for a manual scram and turbine trip to be initiated.

Following the manual scram, all control rods do not fully insert (hydraulic ATWS). Rx power will initially be approximately 40-50%. The Crew will execute EOP-3 (Failure to Scram).

The ATWS is complicated due to:

1. Two Turbine Bypass Valves fail to open, resulting in SRV manipulation to control RPV pressure.
2. The first SLC pump will trip after it is started, requiring the second pump to be started.
3. RWR controllers will fail as-is, therefore preventing RWR flow from being reduced to minimum.
4. The ATWS-RPT signal will fail to automatically trip the RWR pumps, requiring the RWR pumps to be manually tripped.

Execution of EOP-3 will eventually result in Rx power being reduced to <2.5%.

The scenario will be terminated when Rx power is downscale on APRMs, control rod insertion in progress or completed and RPV level is controlled above zero inches.



The Plant is operating at approximately 100% power.

Core Spray Loop 'A' is out of service due to maintenance being performed on Core Spray pump 'A'.

Day 1 of 7 for TS LCO 3.5.1.

When you take the shift:

1. Perform ST-3PA Section 8.4 only.



**Critical Task #1:** Given a failure to scram with Reactor power above 2.5%, the crew will lower reactor power by one or more of the following methods, in accordance with EOP-3:

- Terminating and preventing all RPV injection except SLC, RCIC and CRD
- Tripping Recirculation pumps
- Injecting boron

This task is critical based on:

Safety Significance: With a failure of the Reactor Protection System to automatically shutdown the Reactor when conditions warrant the Reactor to cease heat generation, alternative methods of shutting down \ lowering the heat generation of the Reactor will be implemented. This will protect the integrity of the fuel cladding and Primary Containment.

Cueing: A Scram condition present and significant heat generation still present, indicated by any or all of the following: Reactor power above the APRM downscale setpoint, Neutron Monitoring indicators and/or Control Rod position indication will be present to the Crew.

Measurable Performance Indicators: EOP-3 provides direction for manual actions to be taken to lower RPV water level below the Feedwater Sparger level, securing RWR pumps and/or initiating Standby Liquid Control.

Performance Feedback: Successful implementation of any/all Performance Indicators will result in Reactor power lowering thus reducing the heat generation rate of the Reactor.



**Critical Task #2:      Given a failure to scram, the crew will initiate Control Rod insertion, in accordance with EOP-3.**

This task is critical based on:

Safety Significance: With a failure of the Reactor Protection System to automatically insert Control Rods when conditions warrant, the Reactor may continue to generate a significant amount of heat and/or regain criticality. Alternative methods of inserting Control Rods will be required to shutdown the Reactor. This will protect the integrity of the fuel cladding and Primary Containment.

Cueing: A Scram condition present and all Control Rods not full in as indicated on the Full Core Display, 4 Rod Display and/or EPIC.

Measurable Performance Indicators: EOP-3 provides direction to manually insert Control Rods per EP-3 to the full in position.

Performance Feedback: Successful implementation of any/all Performance Indicators will result in Control Rod insertion thus reducing the heat generation rate of the Reactor and the potential for re-criticality.



| EVENT NO. | EVENT SEQUENCE   |  |
|-----------|--|--|
| 1.        | Perform Core Spray Valve Testing   | (Normal: BOP, SRO)                         |
| 2.        | APRM 'B' fails upscale   | (Instrument : ATC, SRO)                    |
| 3.        | HPCI Aux Oil pump power supply loss  | (Component: SRO)                           |
| 4.        | CRD pump trip, one CRD Accumulator low pressure  | (Component : BOP, SRO)                     |
| 5.        | Main Turbine vibration   | (Reactivity: ATC, SRO)<br>(Component: BOP) |
| 6.        | Hydraulic ATWS   | (Major: ALL)                               |
| 7.        | Delayed SLC pump trip  | (Component : ATC, SRO )                    |
| 8.        | Recirculation Flow Controllers fail as is and<br>Recirculation pumps fail to auto trip | (Component: ATC, SRO)                      |
| 9.        | Turbine Bypass valves fail partially closed  | (Component: BOP, SRO)                      |

#### D. TERMINATION CUES:

- Rx power is downscale on APRMs
- Control rod insertion in progress or completed
- RPV level is controlled above zero inches.



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|--|----------|--|---------------------|
| Simulator in RUN<br>Recorder and Alarm Power<br>ON<br>Simulator Checklist Complete |          |  |                     |
| Provide Turnover (Attach. 1)   |          |  |                     |
| After the shift turnover, allow<br>no more than five minutes for<br>panel walkdown | All      | <ul style="list-style-type: none"> <li>Walkdown the control panels and assume the watch</li> </ul>   |                     |
| <b>Event 1</b><br><b>Core Spray valve test</b><br>(ST-3PA)                         | SRO      | <ul style="list-style-type: none"> <li>Perform Crew Brief</li> <li>Direct ST-3PA section 8.4 performed</li> </ul>  | SAT / UNSAT / NA    |
|  | BOP      | <ul style="list-style-type: none"> <li>Close and time MIN FLOW VLV 14MOV-5A</li> <li>Open and time MIN FLOW VLV 14MOV-5A</li> <li>Ensure closed INBD INJ VLV 14MOV-12A</li> <li>Close and time OUTBD INJ VLV 14MOV-11A</li> <li>Open and time OUTBD INJ VLV 14MOV-11A, as time allows</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|--|----------|---|---------------------|
| <b>Event 2</b><br><b>APRM 'B' fails upscale</b><br>(automatically occurs when 14MOV-11A is stroked closed) | ATC      | <ul style="list-style-type: none"> <li>Recognize / report multiple annunciators, including:               <ul style="list-style-type: none"> <li>09-5-2-44, APRM UPSCALE</li> <li>09-5-2-55, APRM TRIP SYS B INOP OR UPSCALE TRIP</li> </ul> </li> <li>Recognize / report APRM B indicates upscale</li> <li>Recognize / report half scram</li> </ul>  | SAT / UNSAT / NA    |
|  | SRO      | <ul style="list-style-type: none"> <li>Acknowledge report</li> <li>Direct ARP response</li> <li>Determine Technical Specification Table 3.3.1.1-1 Functions 2b, c, and d are met with APRM B out of service</li> <li>Determines TRM Table T3.3.B-1 Functions 1a, b, and c are met with APRM B out of service</li> <li>Direct bypassing APRM B per OP-16</li> <li>Direct reset of half scram</li> </ul>  | SAT / UNSAT / NA    |
|  | ATC      | <ul style="list-style-type: none"> <li>Bypass APRM B per OP-16 Section E.16:               <ul style="list-style-type: none"> <li>Place APRM BYP switch in B</li> <li>Verify APRM B is bypassed using one or both of the following:                   <ul style="list-style-type: none"> <li>APRM B BYPASS indicating light is on</li> <li>APRM B EPIC alarm indicates bypassed</li> </ul> </li> <li>Verify the other two APRM channels associated with the same APRM BYP switch are in service using one or both of the following:                   <ul style="list-style-type: none"> <li>APRM BYPASS indicating lights are off for the other two APRMs</li> <li>No EPIC bypassed alarms for the other two APRMs</li> </ul> </li> </ul> </li> <li>Reset half scram per ARP:               <ul style="list-style-type: none"> <li>Place RX SCRAM RESET switch to GROUP 2 &amp; 3, then to GROUP 1 &amp; 4, spring return to NORM</li> <li>Verify RPS B SCRAM GROUPS 1, 2, 3, and 4 lights are on</li> </ul> </li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|--|----------|--|---------------------|
| <b>Event 3</b><br><b>HPCI Aux Oil Pump Power Supply Loss</b><br>(on Lead Examiner Cue: ACTIVATE TRIGGER 2)   | BOP      | <ul style="list-style-type: none"> <li>Recognize / report 09-3-3-38, HPCI AUX OIL PMP OVERLOAD OR CNTRL PWR LOSS</li> <li>Recognize / report loss of power to HPCI Auxiliary Oil pump</li> </ul>   | SAT / UNSAT / NA    |
| <b>Role Play:</b><br>If dispatched to investigate, wait 2 minutes and then report that the circuit breaker (71BMCC-4-OE2) for the HPCI Aux Oil Pump is in the tripped position, but nothing else is obviously abnormal. No smoke, no fire. | SRO      | <ul style="list-style-type: none"> <li>Acknowledge report</li> <li>Direct ARP response</li> <li>Declare HPCI inoperable</li> <li>Determine Technical Specification 3.5.1 Condition C must be entered and requires verifying RCIC operable immediately and restoring HPCI operability within 14 days.</li> <li>Additionally, 3.5.1 Condition D must be entered which requires either HPCI or Core Spray returned to operable status within 72 hours.</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|---|----------|--|---------------------|
| <b>Event 4</b><br><b>CRD pump trip \ accumulator alarm</b><br>(on Lead Examiner Cue: ACTIVATE TRIGGER 3)  | ATC      | <ul style="list-style-type: none"> <li>Recognize / report annunciators:               <ul style="list-style-type: none"> <li>09-5-1-9, CRD CHARGING WTR PRESS LO</li> <li>09-5-1-39, CRD PMP 3P-16A OVERLOAD</li> <li>09-5-1-49, CRD PMP 3P-16A TRIP</li> <li>09-5-1-43, CRD ACCUM PRESS LO OR LVL HI (delayed)</li> </ul> </li> <li>Recognize / report trip of CRD pump A</li> <li>Recognize / report accumulator alarm on control rod 18-31 (delayed)</li> </ul> | SAT / UNSAT / NA    |
|   | SRO      | <ul style="list-style-type: none"> <li>Acknowledge reports</li> <li>Enter AOP-69 (Control Rod Drive Pump Trouble)</li> <li>Direct start of CRD pump B</li> <li>Determine Technical Specification 3.1.5 Condition A requires declaring control rod 18-31 scram time "slow" or declaring control rod 18-31 inoperable within 8 hours</li> </ul>  | SAT / UNSAT / NA    |
| <b>Role Play:</b><br>If dispatched to investigate accumulator alarm, wait 2 minutes, then report that the accumulator pressure for control rod 18-31 is 850 psig and slowly lowering. | ATC      | <ul style="list-style-type: none"> <li>Execute AOP-69</li> <li>Note override conditions for RPV pressure above 900 psig and required scram</li> <li>Monitor ACCUM alarm lights on full core display</li> <li>Ensure CRD FLOW CNTRL 03FIC-301 is in MAN</li> <li>Rotate manual control knob on CRD FLOW CNTRL 03FIC-301 fully counterclockwise</li> </ul>   | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|-----------|---|---------------------|
|   | ATC cont. | <ul style="list-style-type: none"> <li>• Verify in-service CRD flow control valve (03FCV-19A or B) is closed</li> <li>• Start CRD PMP 03P-16B</li> <li>• Slowly adjust manual control knob on CRD FLOW CNTRL - 03FIC-301 to establish 59 to 61 gpm on 03-FI-310 or 03FIC-301</li> <li>• Place CRD FLOW CNTRL 03FIC-301 in automatic as follows: <ul style="list-style-type: none"> <li>○ Balance controller by adjusting setpoint tape</li> <li>○ Place controller in AUTO</li> <li>○ Adjust setpoint to BETWEEN 59 and 61 gpm</li> </ul> </li> </ul> | SAT / UNSAT / NA    |
| <b>Event 5</b><br><b>Main Turbine vibrations</b><br><br>(on Lead Examiner Cue:<br>ACTIVATE TRIGGER 4)                                 | ATC / BOP | <ul style="list-style-type: none"> <li>• Recognize / report high Turbine vibrations</li> <li>• Monitor Turbine vibrations</li> <li>• Report vibrations on bearing 5 &amp; 6 are greater than 9 mils but less than 12 mils</li> </ul>  | SAT / UNSAT / NA    |
| <b>Note:</b><br>A Reactor scram is required if vibrations exceeded 12 mils or if vibrations exceeded 9 mils for more than 15 minutes. | SRO       | <ul style="list-style-type: none"> <li>• Acknowledge report</li> <li>• Enter AOP-66 (Main Turbine High Vibration)</li> </ul>  | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|----------|---|---------------------|
| <b>Role Play:</b><br>If dispatched to investigate vibrations, wait 2 minutes, then report you can feel vibrations on the Turbine Deck but do not see any obvious cause. | BOP      | <ul style="list-style-type: none"> <li>• Execute AOP-66</li> <li>• Notify crew of Reactor scram criteria</li> <li>• Ensure Main Turbine system engineer is notified</li> <li>• Lower MVARs to minimum (expect ~175 MVAR, depending on exact plant status)</li> <li>• Coordinate with ATC to lower Recirc flow with RWR MG A(B) SPEED CNTRL</li> <li>• Monitor Turbine vibrations</li> </ul> | SAT / UNSAT / NA    |
|   | ATC      | <ul style="list-style-type: none"> <li>• Lower Recirc flow with RWR MG A(B) SPEED CNTRL</li> <li>• Monitor APRMs, CTP, Recirc flow, Reactor water level</li> </ul>  | SAT / UNSAT / NA    |
|   | ALL      | <ul style="list-style-type: none"> <li>• Report Bearing vibrations &gt;12 mils</li> </ul>   | SAT / UNSAT / NA    |
| <b>Booth Operator:</b><br>When directed by lead examiner, ramp malfunctions TU04E(F) to 36(38) over 3 minutes to drive scram.   | SRO      | <ul style="list-style-type: none"> <li>• Direct Reactor Scram</li> <li>• Direct Main Turbine trip</li> </ul>  | SAT / UNSAT / NA    |
| <b>Event 6</b><br><b>Hydraulic ATWS</b>   | ATC      | <ul style="list-style-type: none"> <li>• Depress MANUAL SCRAM A and MANUAL SCRAM B pushbuttons</li> <li>• Place RX MODE switch in SHUTDOWN</li> <li>• Observe Reactor power above APRM downscale and control rods not fully inserted</li> <li>• Initiate ARI</li> <li>• Recognize / report failure to scram</li> </ul>  | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY     | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|-------------------------|----------|---|---------------------|
| <b>Critical Task #1</b> |          | <p><b>Given a failure to scram with Reactor power above 2.5%, the crew will lower reactor power by one or more of the following methods, in accordance with EOP-3:</b></p> <ul style="list-style-type: none"> <li>• Terminating and preventing all RPV injection except SLC, RCIC and CRD</li> <li>• Tripping Recirculation pumps</li> <li>• Injecting boron</li> </ul> | <b>Pass / Fail</b>  |
| <b>Critical Task #2</b> |          | <p><b>Given a failure to scram, the crew will initiate Control Rod insertion, in accordance with EOP-3.</b></p>   | <b>Pass / Fail</b>  |



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION                                    |
|--|----------|--|--|
| <p><b>Role Play:</b> When directed to insert MSIV low level jumpers, Run CAE EP2_MSIVLEVEL</p> | SRO      | <ul style="list-style-type: none"> <li>• Acknowledge report</li> <li>• Enter EOP-2 (RPV Control) on Reactor power above 2.5% or unknown when a scram is required</li> <li>• Determine the Reactor will NOT remain shutdown under all conditions without boron</li> <li>• Exit EOP-2</li> <li>• Enter EOP-3 (Failure to Scram)</li> <li>• Direct EOP-3 Failure to Scram Actions</li> <li>• May direct bypassing MSIV low RPV water level isolation interlocks per EP-2</li> <li>• Direct terminate and prevent all injection except SLC, RCIC and CRD per EP-5 (may not direct low pressure systems T&amp;P)</li> <li>• Direct Reactor water level controlled between -19" and 110" with only Group 1 Water Level Control Systems (Condensate/Feedwater, CRD, HPCI, LPCI)</li> <li>• Direct Reactor pressure controlled 800-1000 psig SRVs</li> <li>• Concurs with BOP request to inject SLC</li> <li>• Ensure ADS overridden</li> <li>• Direct control rod insertion per EP-3</li> </ul> | SAT / UNSAT / NA                                       |
| <p><b>Event 8</b><br/><b>RWR controllers fail as is and RWR pumps fail to auto trip</b></p>    | ATC      | <ul style="list-style-type: none"> <li>• Perform EOP-3 Failure to Scram Actions: <ul style="list-style-type: none"> <li>○ Ensure Rx Mode Switch in SHUTDOWN</li> <li>○ Ensure ARI initiated</li> <li>○ Run Recirc flow to minimum (cannot perform)</li> <li>○ Determine Rx power greater than 2.5%</li> </ul> </li> <li>• <b>Ensure Recirc pumps tripped (manually trip both)</b></li> </ul>   | <p>SAT / UNSAT / NA</p> <p><b>Critical Task #1</b></p> |



| INSTRUCTOR ACTIVITY                                      | POSITION  | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION                                    |
|--|-----------|---|--|
| <p>Event 7<br/>1<sup>st</sup> SLC pump started trips</p> | ATC cont. | <ul style="list-style-type: none"> <li>○ Override ADS</li> <li>○ Place ADS LOGIC OVERRIDE &amp; RESET LOGIC A 2E-S2A in OVERRIDE</li> <li>○ Place ADS LOGIC OVERRIDE &amp; RESET LOGIC B 2E-S2B in OVERRIDE</li> <li>○ Verify annunciator 09-4-1-27 ADS OVERRIDE SW IN OVERRIDE is in alarm</li> <li>○ Verify white ADS LOGIC OVERRIDDEN 2E-DS10 light is on</li> <li>○ Obtain CRS concurrence to inject SLC</li> <li>○ Inject SLC</li> <li>○ Verify white SQUIB VLVS READY lights are on</li> <li>○ Note level on TK LVL 11LI-66</li> <li>○ Place SLC pump keylock switch in START SYS-A or START SYS-B</li> <li>○ Verify red SLC pump running light is on</li> <li>○ Verify SLC pump discharge pressure on DISCH PRESS 11PI-65 is greater than or equal to RPV pressure</li> <li>○ Verify the following: <ul style="list-style-type: none"> <li>○ CLN UP SUCT 12MOV-18 is closed</li> <li>○ CLN UP RETURN ISOL VALVE 12MOV-69 is closed</li> </ul> </li> <li>• Recognize / report trip of SLC pump <ul style="list-style-type: none"> <li>○ <b>Start alternate SLC pump</b></li> </ul> </li> <li>• Insert IRMs and SRMs</li> <li>• Range IRMs as necessary</li> </ul> | <p>SAT / UNSAT / NA</p> <p><b>Critical Task #1</b></p> |



| INSTRUCTOR ACTIVITY  | POSITION         | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION     |
|--|------------------|--|-------------------------|
| <p><b>Role Play:</b> When directed to reset ARI, insert Remote RP20 to TEST.</p> | <p>ATC cont.</p> | <ul style="list-style-type: none"> <li>• <b>Perform EP-3 Backup Control Rod Insertion Actions</b> <ul style="list-style-type: none"> <li>○ Direct NPO to reset ARI per Subsection 5.4</li> <li>○ May insert rods using RMCS per Subsection 5.7:</li> <li>○ Ensure ARI is reset</li> <li>○ Place RWM keylock switch in BYPASS</li> <li>○ If reactor scram can be reset, then reset reactor scram as follows: <ul style="list-style-type: none"> <li>▪ Place SDIV HI LVL TRIP switch in BYPASS</li> <li>▪ Place RX SCRAM RESET switch to GROUP 2&amp;3, then to GROUP 1&amp;4, spring return to NORM</li> </ul> </li> <li>○ Verify the following lights are on: <ul style="list-style-type: none"> <li>▪ RPS A SCRAM GROUPS 1, 2, 3, and 4</li> <li>▪ RPS B SCRAM GROUPS 1, 2, 3, and 4</li> </ul> </li> <li>○ Raise CRD drive water differential pressure using one or more of the following methods: <ul style="list-style-type: none"> <li>▪ Closing 03CRD-56, if the scram cannot be reset</li> <li>▪ Closing CRD DRV WTR PRESS VLV 03MOV-20</li> <li>▪ Raising CRD System flow rate using CRD FLOW CNTRL 03FIC-301</li> </ul> </li> </ul> </li> </ul> | <p>SAT / UNSAT / NA</p> |



| INSTRUCTOR ACTIVITY  | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION                                    |
|--|-----------|--|--|
| <p><b>Role Play:</b> When directed to close 03CRD-56 and 91, insert Remote and report those valves closed.</p> | ATC cont. | <ul style="list-style-type: none"> <li>○ Select control rod on ROD SEL matrix</li> <li>○ Insert control rod using ROD MOVEMENT CNTRL or ROD EMERG IN NOTCH OVERRIDE</li> <li>○ May insert rods by raising dP using CRD cooling water per Subsection 5.8: <ul style="list-style-type: none"> <li>▪ May direct NPO to close 03CRD-56</li> <li>▪ Direct NPO to close 03CRD-91</li> <li>▪ Ensure open CRD DRV WTR PRESS VLV 03MOV-20</li> <li>▪ Ensure closed CRD CLG WTR PRESS CNTRL VLV 03MOV-22</li> <li>▪ Raise CRD system flow rate to maximum by adjusting CRD FLOW CNTRL 03FIC-301 in automatic or manual</li> </ul> </li> <li>○ May attempt repeated manual scrams</li> </ul> <p>• Report control rod insertion to CRS</p> | <p>SAT / UNSAT / NA</p> <p><b>Critical Task #2</b></p> |
|  | BOP       | <ul style="list-style-type: none"> <li>• Terminate and prevent all injection except SLC, RCIC and CRD per EP-5 <ul style="list-style-type: none"> <li>○ Feedwater <ul style="list-style-type: none"> <li>○ If RFP A is running: <ul style="list-style-type: none"> <li>○ Ensure RFP A FLOW CNTRL 06-84A is in MAN</li> <li>○ Lower RFP A FLOW CNTRL 06-84A to minimum</li> <li>○ Ensure open RFP A MIN FLOW 34FCV-135A</li> </ul> </li> </ul> </li> </ul> </li> </ul>  | <p>SAT / UNSAT / NA</p> <p><b>Critical Task #1</b></p> |



| INSTRUCTOR ACTIVITY | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION                                    |
|---------------------|-----------|--|--|
|                     | BOP cont. | <ul style="list-style-type: none"> <li>○ If RFP B is running: <ul style="list-style-type: none"> <li>○ Ensure RFP B FLOW CNTRL 06-84B is in MAN</li> <li>○ Lower RFP BFLOW CNTRL 06-84B to minimum</li> <li>○ Ensure open RFP B MIN FLOW 34FCV-135B</li> </ul> </li> <li>○ Ensure closed: <ul style="list-style-type: none"> <li>○ RFP A DISCH 34MOV-100A</li> <li>○ RFP B DISCH 34MOV-100B</li> </ul> </li> <li>○ Ensure FDWTR STARTUP VLV 34FCV-137 in MANUAL</li> <li>○ Ensure closed FDWTR STARTUP VLV 34FCV-137</li> <li>○ <b>HPCI</b> <ul style="list-style-type: none"> <li>○ Trip HPCI by depressing TURB TRIP 23A-S19 pushbutton</li> </ul> </li> <li>○ RHR Loop A(B) (may not T&amp;P low pressure systems) <ul style="list-style-type: none"> <li>○ Place 10MOV-27A(B) AUTO CONTROL BYPASS 10A-S23A(B)</li> <li>○ Verify white light above 10MOV-27A(B) AUTO CONTROL BYPASS 10A-S23A(B) is on</li> <li>○ Ensure closed LPCI OUTBD INJ VLV 10MOV-27A(B)</li> <li>○ Ensure RHR Loop A(B) pumps which are not required to be running are stopped</li> </ul> </li> <li>○ Core Spray Loop A(B) (may not T&amp;P low pressure systems) <ul style="list-style-type: none"> <li>○ Place 14MOV-11A(B) AUTO ACTUATION BYPASS SW 14A-S16A(B) switch in BYPASS</li> <li>○ Verify white 14MOV-11A(B) AUTO ACTUATION BYPASS LT 14A-DS35A(B) light is on</li> <li>○ Ensure closed OUTBD INJ VLV 14MOV-11A(B)</li> <li>○ Ensure PMP 14P-1A(B) is stopped</li> </ul> </li> </ul> | <p>SAT / UNSAT / NA</p> <p><b>Critical Task #1</b></p> |



| INSTRUCTOR ACTIVITY                          | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|--|-----------|--|---------------------|
| <b>Event 9</b><br><b>TBVs partially open</b> | BOP cont. | <ul style="list-style-type: none"> <li>• Report Reactor water level is less than 110" to CRS</li> <li>• Recognize \ report only 2 TBVs open</li> <li>• Control Reactor pressure 800-1000 psig using SRVs</li> <li>• Control Reactor water level between -19" and 110" with only Group 1 Water Level Control Systems (Condensate/Feedwater, CRD)</li> </ul> | SAT / UNSAT / NA    |

**Termination Criteria:**

Rx power is downscale on APRMs, control rod insertion in progress or completed and RPV level is controlled above zero inches.



### Shift Turnover

The Plant is operating at approximately 100% power.

Core Spray Loop 'A' is out of service due to maintenance being performed on Core Spray pump 'A'.

Day 1 of 7 for TS LCO 3.5.1.

When you take the shift:

1. Perform ST-3PA Section 8.4 only.



# JAMES A. FITZPATRICK NUCLEAR POWER PLANT

## LOI 16-1 NRC EXAMINATION SCENARIO 2

**TITLE:** LOI 16-1 NRC EXAMINATION SCENARIO 2

**SCENARIO NUMBER:** NRC 2

**PATH:** STAND ALONE

**Validation:** \_\_\_\_\_ **Training:** \_\_\_\_\_ **Operations:** \_\_\_\_\_

|     | CANDIDATES |
|-----|------------|
| CRS |            |
| ATC |            |
| BOP |            |



## RECORD OF CHANGES

[illegible]



A. **TITLE:** LOI 16-1 NRC EXAMINATION SCENARIO 2

B. **SCENARIO SETUP:**

1. IC-122

2. Special Instructions:

- a. The Plant is operating at approximately 73% power.
- b. Core Spray Loop 'A' is out of service (yellow tag on CSP 'A').
- c. Ensure CWP 'C' is OFF.
- d. Crew will perform OP-4 section G.5.3.

3. Preset Conditions:

- a. Preset, M:CS01:A, Core Spray pump A trip
- b. Preset, M:RD10:30:31, Control Rod 30-31 stuck
- c. Trigger 2, M:ED19D, Bus 10400 failure
- d. Trigger 3, M:RR15:A, Coolant A leak inside Primary Containment, Ramp: 3 min, Final: 5
- e. Trigger 4, M:MS02:A, MSL A steam leak inside Primary Containment, Ramp: 3 min, Final: 50
- f. Preset, M:RH14, LPCI failure to auto initiate
- g. Trigger 4, M:FW19:A, Condensate pump A trip, Delay 4 min
- h. Preset, M:HP01, HPCI failure to auto start
- i. Trigger 5, M:HP02, HPCI turbine trip
- j. Preset, O:AN931:21, Core Spray pump A trip or loss of control power: ON
- k. Trigger 1, O:AN932:01, Core Spray Header B pipe break detector: ON
- l. Preset, O:CSZLO14AS5A(1) Core Spray pump A red light: OFF
- m. Preset, O:CSZLO14AS5A(2) Core Spray pump A green light: OFF
- n. Event Trigger 4, Event: (zlo5ads8a == 0) && (zlo5ads8b == 0), Command: imf rr15:a 32 20:00 5
- o. Event Trigger 5, Event: hpfm>100, Command: none
- p. Event Trigger 16, Event: rdpdrvdp>340, Command: dmf rd10:30:31

4. Consumable Forms and Procedures:

- ◆ AOP-1



**C. SCENARIO SUMMARY:**

The scenario will begin at approximately 73% power with Core Spray Loop 'A' out of service for pump maintenance. The crew will begin the shift by starting Circulating Water pump 'C' and then securing Circulating Water pump 'B'.

After the pump swap is complete, a Control Rod pattern adjustment will be performed. The third rod moved will be stuck. The crew will raise drive water differential pressure to un-stick the control rod and complete the rod pattern adjustment.

Next, the Core Spray Leak Detection alarm is received. The SRO will consult Tech Specs and declare Core Spray Loop 'B' inoperable. This now results in both loops of Core Spray inoperable.

Following the Core Spray Leak Detection TS determination, the 4160 VAC 10400 Bus will de-energize. This results in a half scram on RPS Bus 'B' and a trip of RWR pump 'B'. The crew will execute AOP-17, AOP-8 and AOP-60.

After the plant is stabilized, a coolant leak inside the Drywell develops. Rising DW pressure will dictate a manual scram to be inserted. The scram transient will cause the leak to worsen. The scram response will be complicated due to:

1. The only remaining Condensate pump will trip.
2. HPCI will fail to auto start and then trip after manual start attempt.
3. RHR pumps will fail to auto start.

The Crew will execute the Alternate Level Control leg of EOP-2 (RPV Control) to restore \ maintain RPV water level above the Top of Active Fuel (zero inches) and EOP-4 (Primary Containment Control) to mitigate degrading Primary Containment parameters.

Due to high Drywell pressure, the crew will spray the Torus and Drywell.

Due to lowering RPV water level and insufficient high pressure injection sources available, the crew will perform an Emergency Depressurization to allow low pressure injection sources to restore and/or maintain RPV water level >0 inches.

The scenario will be terminated when all control rods are inserted, Emergency Depressurization is in progress and Reactor water level is being controlled above 0 inches.



## Shift Turnover

The Plant is operating at approximately 73% power.

Core Spray Loop 'A' is out of service due to maintenance being performed on Core Spray pump 'A'.

Day 1 of 7 for TS LCO 3.5.1.

When you take the shift:

1. Start Circulating Water pump 'C' per OP-4
2. Secure Circulating Water pump 'B' per OP-4
3. Perform Control Rod pattern adjustment in accordance with Reactor Engineering instructions.
4. Maintain Reactor power <75% until Circulating Water pump 'B' maintenance is complete.



**Critical Task #1: Given a coolant leak inside the Containment, the crew will spray the Drywell, in accordance with EOP-4.**

This task is critical based on:

Safety Significance: With a primary system leaking into the Primary Containment, Drywell parameters will degrade and challenge the integrity of the Primary Containment. Initiating Drywell spray will mitigate the potential of Primary Containment failure thus preventing a challenge to the Secondary Containment.

Cueing: A coolant leak inside Primary Containment will result in rising Drywell pressure and Drywell temperatures as indicated on multiple, redundant Control Room indicators, alarms and EPIC.

Measurable Performance Indicators: EOP-4 provides direction for manual actions to lineup and spray the Primary Containment to lower Primary Containment pressure and temperature.

Performance Feedback: Successful implementation of any/all Performance Indicators will result in Primary Containment parameters to lower by placing the RHR system in Drywell Spray mode.



**Critical Task #2:** Given a coolant leak, a loss of high pressure injection system and the inability to restore and maintain Reactor water level above the Top of Active Fuel (TAF), the crew will initiate actions for an Emergency RPV Depressurization, in accordance with EOP-2.

This task is critical based on:

Safety Significance: With a primary system leaking into the Primary Containment, no high pressure injection systems available and RPV water level unable to be maintained above TAF (0 inches), the fuel cladding is being challenged. This condition requires RPV pressure to be rapidly lowered to within the capability of low pressure injection sources to allow for RPV water level to be restored above 0 inches. This protects the integrity of the fuel cladding.

Cueing: A coolant leak inside Primary Containment will result in rising Drywell pressure and Drywell temperatures as indicated on multiple, redundant Control Room indicators and EPIC. HPCI, RCIC and Feedwater will be unavailable for use as an injection source. The coolant leak will also result in lowering RPV water level as indicated on multiple, redundant Control Room indicators and EPIC. RPV pressure will be above the shutoff head of the RHR and Core Spray system low pressure injection sources.

Measurable Performance Indicators: EOP-2 provides direction for rapidly depressurizing the RPV by opening 7 SRVs.

Performance Feedback: Successful implementation of any/all Performance Indicators will result in RPV pressure to be rapidly lowered using SRVs to below the shutoff head of RHR and Core Spray.



| <b>EVENT NO.</b> | <b>EVENT SEQUENCE</b>   |
|------------------|---|
| 1.               | Swap Circulating Water Pumps (Normal: BOP, SRO)                                     |
| 2.               | Perform Control Rod Pattern Adjustment (Reactivity: ATC, SRO)                       |
| 3.               | Stuck Control Rod (Component: ATC, SRO)   |
| 4.               | Core Spray Sparger Leak (Component: SRO)  |
| 5.               | Electrical Fault on 10400 Bus (Component: BOP, SRO)<br>(Reactivity: ATC, SRO)       |
| 6.               | Loss of Coolant Accident (Major: ALL)   |
| 7.               | RHR Pumps Fail to Automatically Start (Component : BOP, SRO)                        |
| 8.               | Condensate Pump A Trips and HPCI Fails to Automatically Start (Component: ATC, SRO) |
| 9.               | HPCI Trips (Component: ALL)   |

#### **D. TERMINATION CUES:**

- All control rods are inserted
- Emergency Depressurization is in progress
- Reactor water level is being controlled above 0"



| INSTRUCTOR ACTIVITY   | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|----------|---|---------------------|
| Simulator in RUN<br>Recorder and Alarm Power ON<br>Simulator Checklist Complete   |          |   |                     |
| Provide Turnover (Attach. 1)  |          |   |                     |
| After the shift turnover, allow no more than five minutes for panel walkdown  | All      | <ul style="list-style-type: none"> <li>Walkdown the control panels and assume the watch</li> </ul>  |                     |
| <b>Event 1</b><br><b>Swap Circ Water pumps</b>  | SRO      | <ul style="list-style-type: none"> <li>Perform Crew Brief</li> <li>Direct CWP C started per OP-4</li> <li>Direct CWP B secured per OP-4</li> </ul>  | SAT / UNSAT / NA    |
| <b>Role Play as NPO:</b> When asked about pump discharge pressure, report "pump discharge pressure is 12 psig and all conditions are normal". | BOP      | <ul style="list-style-type: none"> <li>Obtain OP-4 section G.5.3</li> <li>May raise 600 VAC bus voltage by "tapping-up" on 71T-4</li> <li>Place and hold CWP C control switch to START at panel 09-6.</li> <li>WHEN circulating water pump starts, release control switch.</li> <li>Verify open circulating water pump C discharge valve.</li> <li>Verify the following: <ul style="list-style-type: none"> <li>Pump discharge pressure is approximately 12 psig.</li> <li>Pump current is stable.</li> <li>All white lights for RPS A and RPS B power source selectors are on at panel 09-16.</li> </ul> </li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY                                     | POSITION  | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|-----------|---|---------------------|
|   | BOP cont. | <ul style="list-style-type: none"> <li>Stop the circulating water pump B as follows:               <ul style="list-style-type: none"> <li>Place control switch to STOP at panel 09 6.</li> <li>Verify closed circulating water pump discharge valve.</li> <li>Verify circulating water pump motor current is zero.</li> </ul> </li> <li>Restore 600 VAC bus voltage by “tapping-down” on 71T-4, if raised earlier.</li> </ul>   | SAT / UNSAT / NA    |
| <b>Event 2</b><br><b>Control Rod pattern adjustment</b> | SRO       | <ul style="list-style-type: none"> <li>Direct ATC to position control rods per provided instructions</li> <li>Provide oversight of reactivity manipulation</li> </ul>   | SAT / UNSAT / NA    |
|   | ATC       | <p><b>Evaluator NOTE: the first rod manipulated is 26-27; going from position 48 to 12.</b></p> <ul style="list-style-type: none"> <li>While inserting control rods, monitor the following:               <ul style="list-style-type: none"> <li>Nuclear instrumentation</li> <li>Control rod position indication</li> </ul> </li> <li>Ensure ROD SEL PWR switch is in ON</li> <li>Ensure control rod to be moved is selected by depressing rod select pushbutton on ROD SEL matrix, if necessary</li> <li>Verify the following:               <ul style="list-style-type: none"> <li>Select pushbutton is brightly backlit</li> <li>Control rod indicating light is on</li> <li>ROD OUT PERM light is on</li> </ul> </li> <li>Place ROD MOVEMENT CNTRL switch to IN.</li> <li>Release ROD MOVEMENT CNTRL switch 3 notches before reaching desired rod position:</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY | POSITION  | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---------------------|-----------|---|---------------------|
|                     | ATC cont. | <ul style="list-style-type: none"> <li>• Verify control rod latches in the expected even numbered position before ROD SETTLE light goes off.</li> <li>• Verify ROD SETTLE light is off</li> <li>• Repeat as necessary</li> </ul> <p><b>Evaluator NOTE: the next four rods manipulated are 22-31, 30-31, 30-23, 22-23; going from position 00 to 04.</b></p> <ul style="list-style-type: none"> <li>• While withdrawing control rods, monitor the following: <ul style="list-style-type: none"> <li>○ Nuclear instrumentation</li> <li>○ Control rod position indication</li> </ul> </li> <li>• Ensure ROD SEL PWR switch is in ON</li> <li>• Ensure control rod to be moved is selected by depressing rod select pushbutton on ROD SEL matrix, if necessary</li> <li>• Verify the following: <ul style="list-style-type: none"> <li>○ Select pushbutton is brightly backlit</li> <li>○ Control rod indicating light is on</li> <li>○ ROD OUT PERM light is on</li> </ul> </li> <li>• Place ROD MOVEMENT CNTRL switch to OUT NOTCH, spring return to OFF</li> <li>• Verify control rod latches in the expected even numbered position before ROD SETTLE light goes off</li> <li>• Verify ROD SETTLE light is off</li> <li>• Repeat as necessary</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|----------|---|---------------------|
| <b>Event 3</b><br><b>Stuck Control Rod</b><br>(Rod 30-31)   | ATC      | <ul style="list-style-type: none"> <li>Report Rod 30-31 failed to move from position 00</li> </ul>  | SAT / UNSAT / NA    |
|   | SRO      | <ul style="list-style-type: none"> <li>Acknowledge report of rod 30-31 failing to move</li> <li>Direct OP-25 section E.6 performed</li> </ul>   | SAT / UNSAT / NA    |
| <b>Role Play:</b><br>If dispatched to investigate, wait 2 minutes and then report nothing is obviously abnormal at HCU 30-31. | ATC      | <ul style="list-style-type: none"> <li>Raises CRD drive water differential pressure in 50 psid increments per OP-25, Section E.6</li> <li>Attempt to withdraw rod 30-31</li> <li>Report rod 30-31 failed to move</li> <li>Raises CRD drive water differential pressure in 50 psid increments per OP-25, Section E.6</li> <li>Attempt to withdraw rod 30-31</li> <li>Report rod 30-31 moved to position 02</li> <li>Restore CRD drive water differential pressure to 260-270 psid</li> <li>Continue rod pattern adjustments</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|---|-----------|--|---------------------|
| <b>Event 4</b><br><b>Core Spray sparger leak</b><br>(on Lead Examiner Cue:<br>ACTIVATE TRIGGER 1)   | ATC / BOP | <ul style="list-style-type: none"> <li>Recognize \ report Annunciator 09-3-2-1 Core Spray Header 'B' Pipe Break Detector alarm</li> <li>Refer to ARP</li> <li>Dispatch I&amp;C \ NPO</li> <li>Run 3D case</li> </ul>   | SAT / UNSAT / NA    |
| <b>Role Play:</b><br>when contacted as I&C \ NPO,<br>wait 2 minutes and report<br>Core Spray 'B' Leak detector<br>dP pegged high (positive) and<br>alarm is valid. 14DPIS-43B | SRO       | <ul style="list-style-type: none"> <li>Acknowledge reports</li> <li>Consult TRM 3.3.H (monitor once every 12 hrs)</li> <li>Declare Core Spray Loop 'B' inoperable (TS 3.5.1 Condition A, 7 day LCO)</li> <li>Enter TS 3.5.1 Condition H, therefore TS 3.0.3 entered immediately.</li> <li>Inform Station Management</li> </ul>   | SAT / UNSAT / NA    |
| <b>Event 5</b><br><b>Electrical fault on 10400 bus</b><br><br>(on Lead Examiner Cue:<br>ACTIVATE TRIGGER 2)   | ALL       | <ul style="list-style-type: none"> <li>Report loss of 10400 bus</li> <li>Report ½ scram RPS B</li> <li>Report trip of RWR pump B</li> </ul>  | SAT / UNSAT / NA    |
|   | SRO       | <ul style="list-style-type: none"> <li>Enter AOP-17 (Loss of 10400 bus)</li> <li>May enter AOP-19 (Loss 10600 bus). EDGs re-power bus.</li> <li>Enter AOP-8 (Unexpected change in Core Flow)</li> <li>Enter AOP-60 (Loss of RPS Bus B Power)</li> <li>Enter AOP-51 (Unexpected Fire Pump Start)</li> <li>Enter TS LCO 3.8.1 Condition A</li> <li>If Drywell/Torus D/P is low, enters TS 3.6.2.2 Condition A</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|--|----------|---|---------------------|
| <p><b>Role Play:</b> if dispatched to report condition of 10400 Bus, report there is a Ground Fault condition on the 10400 Bus.</p> <p><b>Role Play:</b> If dispatched to perform AOP-51 field actions, wait 2 minutes, then report task completion.</p> | BOP      | <ul style="list-style-type: none"> <li>• Execute AOP-17               <ul style="list-style-type: none"> <li>○ Cross tie 10400 Bus L-Gear with 10300 Bus L-Gear per Attachment 2.</li> <li>○ Verify closed L13 L23 L33 L43 4KV FDR BKR 10340.</li> <li>○ Cross tie L44 with L43 as follows:                   <ul style="list-style-type: none"> <li>▪ Place L44 600V FDR BKR 14402 in PTL.</li> <li>▪ Close L43 L44 TIE BKR 14304.</li> </ul> </li> <li>○ Cross tie L34 with L33 as follows:                   <ul style="list-style-type: none"> <li>▪ Place L34 600V FDR BKR 13402 in PTL.</li> <li>▪ Close L33 L34 TIE BKR 13404.</li> </ul> </li> <li>○ Cross tie L24 with L23 as follows:                   <ul style="list-style-type: none"> <li>▪ Place L24 600V FDR BKR 12402 in PTL.</li> <li>▪ Close L23 L24 TIE BKR 12404.</li> </ul> </li> <li>○ IF 36P-1B is not running, THEN ensure closed CIRC WTR PMP DISCH VLV 36MOV-100</li> </ul> </li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|---------------------|-----------|--|---------------------|
|                     | BOP cont. | <ul style="list-style-type: none"> <li>• Execute AOP-8               <ul style="list-style-type: none"> <li>○ Determine operating point on the applicable Power-Flow Map (SLO) is in the Buffer Zone</li> <li>○ Demand a 3D Monicore Official Program edit and review margin to core thermal limits.</li> <li>○ Stop idle RWR Pump rotation as follows:                   <ul style="list-style-type: none"> <li>▪ Close RWR PMP DISCH 02MOV-53(B)</li> <li>▪ WAIT until 5 minutes has elapsed since RWR PMP DISCH 02MOV- 53(B) was closed</li> </ul> </li> <li>○ Perform the following steps without delay:                   <ul style="list-style-type: none"> <li>○ Ensure closed RWR PMP DISCH 02MOV-53(B)</li> <li>○ Throttle open RWR PMP DISCH 02MOV-53(B) for 3.5 seconds.</li> <li>○ As time allows, perform AOP-8 Attachment 2</li> </ul> </li> <li>○ May start TBCLC pump A</li> </ul> </li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|---|-----------|--|---------------------|
| <p><b>Role Play:</b> if dispatched to restore RPS power, report preparations \ briefs will begin.</p> | BOP cont. | <ul style="list-style-type: none"> <li>○ Execute AOP-60               <ul style="list-style-type: none"> <li>○ Verify the following automatic actions:</li> <li>○ SGT B Start per Section G of OP-20</li> <li>○ RWCU Isolation per Section G of OP-28</li> <li>○ Isolate Reactor Bldg Vent per Section G of OP-51A.</li> <li>○ As time allows, execute OP-18 section D.2 (may take RPS power source switch to the alternate position)</li> </ul> </li> </ul> | SAT / UNSAT / NA    |
|   | ATC       | <ul style="list-style-type: none"> <li>○ Insert Cram Rods (1<sup>st</sup> group will exit Buffer Zone(14-31, 30-39, 38-23, 22-15), additional rods may be inserted as directed by SRO)</li> </ul>  | SAT / UNSAT / NA    |



**Critical Task #1:** Given a coolant leak inside the Containment, the crew will spray the Drywell, in accordance with EOP-4.

**Critical Task #2:** Given a coolant leak, a loss of high pressure injection systems, and the inability to restore and maintain Reactor water level above the Top of Active Fuel (TAF), the crew will initiate actions for an Emergency RPV Depressurization in accordance with EOP-2.

|  |     |   |                  |
|--|-----|---|------------------|
| <b>Event 6</b><br><b>Loss of Coolant Accident</b><br>(on Lead Examiner Cue:<br>ACTIVATE TRIGGER 3) | All | <ul style="list-style-type: none"> <li>• - Recognize \ report rising DW pressure, DW Floor Drain Sump Level</li> </ul>  | SAT / UNSAT / NA |
|  | SRO | <ul style="list-style-type: none"> <li>• Acknowledge reports</li> <li>• Direct Reactor scram</li> <li>• Enter AOP-1 (Reactor Scram)</li> <li>• Enter AOP-39 (Loss of Coolant)</li> <li>• Enter EOP-2 (RPV Control) on low Reactor water level</li> <li>• Enter EOP-4 (Primary Containment Control) on high Drywell pressure and high Drywell temperature (as they occur)</li> <li>• Direct Reactor water level controlled 180-220" using HPCI, RCIC, Condensate, SLC, and/or CRD</li> </ul> | SAT / UNSAT / NA |



|  |           |   |   |
|--|-----------|---|---|
|  | SRO cont. | <ul style="list-style-type: none"> <li>• Acknowledge HPCI fail to auto start</li> <li>• Direct Reactor pressure controlled 800-1000# using Turbine Bypass Valves</li> <li>• Enter AOP-39 (Loss of Coolant)</li> <li>• Direct Control Room and Relay Room Ventilation isolated per OP-55B Section G within 30 minutes</li> <li>• Direct TSC filtered ventilation started per Section D of OP-59B within 60 minutes</li> <li>• Direct Core Spray and RHR injection prevented per EP-5</li> <li>• When Primary Containment pressure exceeds 2.7 psig and before Torus pressure exceeds 15 psig, direct initiation of Torus Spray</li> <li>• <b>When Torus pressure exceed 15 psig, direct Drywell spray</b></li> <li>• Determine Reactor water level cannot be maintained above 0"</li> <li>• Enter Alternate RPV Level Control leg of EOP-2</li> <li>• Direct override of ADS</li> <li>• Direct CRD maximized and SLC injection, if not done previously</li> <li>• <b>When Reactor water level reaches 0", enter Emergency RPV Depressurization leg of EOP-2</b></li> <li>• Direct opening 7 ADS valves</li> <li>• Direct Reactor water level restored and maintained 180-220" using Core Spray and/or LPCI</li> <li>• As time allows, directs re-start of Drywell spray</li> </ul> | <p>SAT / UNSAT / NA</p> <p><b>Critical Task #1</b></p> <p><b>Critical Task #2</b></p> |
|--|-----------|---|---|



|  |     |  |                  |
|--|-----|--|------------------|
|  | ATC | <ul style="list-style-type: none"> <li>• Enter AOP-1</li> <li>• Depress MANUAL SCRAM A and MANUAL SCRAM B pushbuttons</li> <li>• Place RX MODE switch in SHUTDOWN</li> <li>• Fully insert IRMs and SRMs</li> <li>• Observe Reactor power lowering</li> <li>• Ensure closed SDIV vent and drain valves</li> <li>• Ensure Main Turbine is tripped</li> <li>• Verify 4KV loads (10300 Bus) transfer to reserve power</li> <li>• May begin Reactor depressurization</li> </ul>   | SAT / UNSAT / NA |
| <b><u>Event 8 and 9</u></b><br><b>HPCI fails to auto start</b><br><b>HPCI trips</b><br><b>Condensate pump A trip</b> | BOP | <ul style="list-style-type: none"> <li>• Enter AOP-1</li> <li>• Attempt to control Reactor water level 180-220" using HPCI, Condensate, SLC, RCIC and/or CRD</li> <li>• Report HPCI failed to auto start</li> <li>• Manually start HPCI: <ul style="list-style-type: none"> <li>▪ Ensure open 23MOV-16</li> <li>▪ Ensure running 23P-140</li> <li>▪ Ensure open 23MOV-14</li> <li>▪ If 09-3-3-28 is in alarm, then depress 23A-S17</li> <li>▪ Ensure running 23P-150</li> </ul> </li> <li>• Recognize / report trip of HPCI</li> <li>• Report trip of Condensate pump A</li> </ul> | SAT / UNSAT / NA |



|  |           |   |                  |
|--|-----------|---|------------------|
|  | BOP cont. | <ul style="list-style-type: none"> <li>• Terminate and prevent RHR A per EP-5 (may also do RHR B, Core Spray A and B, but these are all inop already): <ul style="list-style-type: none"> <li>○ Place 10MOV-27A AUTO CONTROL BYPASS 10A-S23A switch in BYPASS</li> <li>○ Verify white light above 10MOV-27A AUTO CONTROL BYPASS 10A-S23A is on</li> <li>○ Ensure closed LPCI OUTBD INJ VLV 10MOV-27A</li> <li>○ Ensure RHR Loop A pumps which are not required to be running are stopped</li> </ul> </li> </ul>   | SAT / UNSAT / NA |
| <b>Event 7</b><br><b>RHR pumps fail to automatically start</b> | ATC / BOP | <ul style="list-style-type: none"> <li>• Attempt to maintain Reactor water level with SLC, RCIC and/or CRD</li> <li>• Recognize / report leakage exceeds capacity of SLC, RCIC and/or CRD</li> <li>• Report RHR pumps failed to auto start</li> <li>• Manually start RHR pumps A, B, C, D</li> <li>• Initiate Torus spray: <ul style="list-style-type: none"> <li>▪ Place SPRAY CNTRL 10A-S17A switch to MANUAL, spring return to normal</li> <li>▪ Verify white SPRAY PERM 10A-DS67A light is on</li> <li>▪ Ensure available RHR pumps in RHR Loop A are running (recognize/report failure to automatically start)</li> <li>▪ Open RHR TEST TORUS CLG &amp; SPRAY 10MOV-39A</li> <li>▪ Throttle TORUS SPRAY INBD VLV 10MOV-38A to establish desired torus spray flow rate</li> <li>▪ WHEN RHR Loop A flow is GREATER THAN 1500 gpm, ensure closed MIN FLOW VLV 10MOV-16A</li> <li>▪ Throttle RHR TEST &amp; TORUS CLG 10MOV-34A to divert excess flow to the torus to maintain &gt; 6,500 gpm RHR Loop A flow with one RHR pump operating or &gt; 13,000 gpm RHR Loop A flow with two RHR pumps operating</li> </ul> </li> </ul> | SAT / UNSAT / NA |



|  |                    |   |                  |
|--|--------------------|---|------------------|
|  | ATC / BOP<br>cont. | <ul style="list-style-type: none"> <li>• Establish RHRSW flow and temperature control:</li> <li>• Loop A: <ul style="list-style-type: none"> <li>▪ Establish RHRSW flow and temperature control:</li> <li>▪ Start one of the RHRSW pumps</li> <li>▪ Throttle RHRSW DISCH VLV FROM HX A 10MOV-89A to establish 2500 to 4000 gpm</li> <li>▪ Start the second RHRSW pump if desired</li> <li>▪ Throttle RHRSW DISCH VLV FROM HX A 10MOV-89A to establish 2500 to 4000 gpm per RHRSW pump</li> </ul> </li> <li>• IF drywell or torus sprays are in service, THEN establish 4000 gpm per RHRSW pump</li> <li>• Close HX A BYP VLV 10MOV-66A</li> </ul> | SAT / UNSAT / NA |
|--|--------------------|---|------------------|



|  |           |   |   |
|--|-----------|---|---|
|  | ATC / BOP | <ul style="list-style-type: none"> <li>• Ensure Recirc pumps tripped</li> <li>• Ensure Drywell Cooling fans tripped</li> <li>• <b>Initiate Drywell spray:</b></li> <li>• Place SPRAY CNTRL 10A-S17A switch to MANUAL, spring return to normal <ul style="list-style-type: none"> <li>▪ Verify white SPRAY PERM 10A-DS67A light is on</li> <li>▪ Ensure available RHR pumps in RHR Loop A are running</li> <li>▪ Open DW SPRAY OUTBD VLV 10MOV-26A</li> <li>▪ Throttle DW SPRAY INBD VLV 10MOV-31A to establish desired drywell spray flow rate</li> </ul> </li> <li>• Override ADS: <ul style="list-style-type: none"> <li>▪ Place ADS LOGIC OVERRIDE &amp; RESET LOGIC A 2E-S2A in OVERRIDE</li> <li>▪ Place ADS LOGIC OVERRIDE &amp; RESET LOGIC B 2E-S2B in OVERRIDE</li> <li>▪ Verify annunciator 09-4-1-27 ADS OVERRIDE SW IN OVERRIDE is in alarm</li> <li>▪ Verify white ADS LOGIC OVERRIDDEN 2E-DS10 light is on</li> </ul> </li> <li>• Maximize CRD, if not done previously</li> <li>• Initiate SLC injection, if not done previously</li> <li>• Verify isolations per AOP-15</li> <li>• As time permits, executes AOP-39 (Loss of Coolant)</li> </ul> | SAT / UNSAT / NA<br><br><b>Critical Task #1</b> |
|--|-----------|---|---|







### Shift Turnover

The Plant is operating at approximately 73% power.

Core Spray Loop 'A' is out of service due to maintenance being performed on Core Spray pump 'A'.

Day 1 of 7 for TS LCO 3.5.1.

When you take the shift:

1. Start Circulating Water pump 'C' per OP-4
2. Secure Circulating Water pump 'B' per OP-4
3. Perform Control Rod pattern adjustment in accordance with Reactor Engineering instructions.
4. Maintain Reactor power <75% until Circulating Water pump 'B' maintenance is complete.



# JAMES A. FITZPATRICK NUCLEAR POWER PLANT

## LOI 16-1 NRC EXAMINATION SCENARIO 3

**TITLE:** LOI 16-1 NRC EXAMINATION SCENARIO 3

**SCENARIO NUMBER:** NRC 3

**PATH:** STAND ALONE

**Validation:** \_\_\_\_\_ **Training:** \_\_\_\_\_ **Operations:** \_\_\_\_\_

|     | CANDIDATES |
|-----|------------|
| CRS |            |
| ATC |            |
| BOP |            |



## RECORD OF CHANGES

[illegible]



A. **TITLE:** LOI 16-1 NRC EXAMINATION SCENARIO 3

B. **SCENARIO SETUP:**

1. IC-123

2. Special Instructions:

- a. The Plant is operating at approximately 100% power.
- b. A power reduction is planned iaw OP-65.

3. Preset Conditions:

- a. Trigger 2, M:ED43:A, LHH Line 3 fault
- b. Trigger 3, M:RR04:A, RWR pump A #1 seal failure, Ramp: 30 sec, Final: 20
- c. Trigger 3, M:RR05:A, RWR pump A #2 seal failure, Delay: 3 min, Final: 30
- d. Trigger 4, M:MS02:A, MSL A steam leak inside Primary Containment, Ramp: 8 min, Final: 4
- e. Trigger 5, M:RR10:A, RHR loop A suction line pipe failure, Ramp: 30 sec, Final: 20
- f. Preset, M:RP01A,RPS auto scram failure
- g. Preset, M:RP01B,RPS manual scram failure
- h. Preset, M:RD10:02:35, 02-31, 06-31, 10-35, 06:39, 10-39, 06-43, 14-43, 10-47, 14-47, 18-43, 18-47, 18-51,Control Rod xx-yy blade stuck
- i. Trigger 2, R:EP09, Seismic event alarm
- j. Trigger 30, R:RR09, Recirc pump A seal purge flow, Final 0
- k. Trigger 25, R:RH46, RHR keepfull normal lineup valve, Final: 100
- l. Trigger 26, R: RH47, RHR keepfull normal lineup valve, Final: 100
- m. Trigger 16, O:RH ZDI10AS4C, Torus suction valve, Delay: 5 sec, Final: Open
- n. Trigger 16, O: RH ZLO10AS4C(1), RHR pump 10P-3C suction valve, Delay: 5 sec, Final: Off
- o. Trigger 16, O: RH ZLO10AS4C(2), RHR pump 10P-3C suction valve, Delay: 5 sec, Final: Off
- p. Trigger 1, O:RR ZAID218416A, MG Set digital speed controller, Ramp: 3 min, Value: -25, Final: 35
- q. Event Trigger 1, Event: rrfpa(1)<4050, Command: none
- r. Event Trigger 4, Event: Available, Command: irf ep09 trip
- s. Event Trigger 5, Event: rhftorsprya<-10, Command: none
- t. Event Trigger 6, Event: rhftorspryb<-10, Command: trg! 5
- u. Event Trigger 7, Event: iapcrd<20, Command: imf ms02:a 40 10:00
- v. Event Trigger 16, Event: zdi10as4c==0, Command: imf rh10:a 100 5:00
- w. Event Trigger 17, Event: rrp2sa(1)>800, Command: irf ep09 norm

4. Consumable Forms and Procedures:

- ◆ AOP-1



**C. SCENARIO SUMMARY:**

The scenario will begin at approximately 100% power with a down-power scheduled to support water box cleaning. The crew will begin the shift by performing an EHC pump auto start capability test per OP-8.

After the test, the crew will begin a down-power with Recirculation (RWR) flow. During the flow reduction, the RWR Pump A controller will drift low. The crew will execute AOP-8 (Unexpected Change in Core Flow), AOP-32 (Unplanned Power Change) and OP-27 (Recirculation System). The SRO will determine the Technical Specification impact due to this condition.

Next, a Seismic event occurs that results in a loss of one of two 115KV system lines. The crew will execute AOP-14 (Earthquake) and AOP-72 (115 KV Grid Loss, Instability, or Degradation). The SRO will determine the Technical Specification impact for this condition also.

As the crew is executing the above AOP's, RWR pump A will develop a seal failure. This will require the crew to manually trip and isolate RWR loop A. Technical Specifications will be addressed by the SRO.

Following RWR loop A isolation, a second Seismic event will occur. This will cause a steam leak inside of the Primary Containment. Degrading Drywell conditions will dictate a manual scram to be initiated.

The Manual scram pushbuttons and Mode Switch fail to scram the Reactor. Alternate Rod Insertion (ARI) will result in some rods to insert. EOP-2 (RPV Control) and EOP-4 (Primary Containment Control) will be executed.

Multiple control rods do not fully insert (mechanically bound) with ARI initiated. Rx power will be less than the APRM downscale setpoint, however, EOP-3 (Failure to Scram) will be required to be entered and executed.

Primary Containment parameters will require the Torus and Drywell to be sprayed. When Torus spray is placed in service, the suction pipe from the Torus to the RHR system breaks. This break is un-isolable and results in Torus water level lowering.

The crew will determine that Torus water level cannot be maintained above 9.58 feet and an Emergency Depressurization will be required.

Due to all Control Rods not being fully inserted, the SRO will enter EOP-3a (Failure to Scram-ED) and direct an Emergency Depressurization in accordance with this contingency procedure.

The scenario will be terminated when all Control Rods, with the exception of the 13 stuck control rods are inserted, an Emergency Depressurization is in progress and RPV level is controlled above zero inches.



The Plant is operating at approximately 100% power.

When you take the shift:

1. Test EHC pump B auto-start capability per OP-8, section G.2.
2. Secure EHC pump A following the test.
3. Lower Reactor power with Recirculation flow.
4. Stop power reduction at approximately 80% power for further Reactor Engineering direction.



### Critical Tasks/Standards

**Critical Task #1:**      **Given the need for a Reactor scram and failure of RPS to insert control rods, the crew will initiate Alternate Rod Insertion (ARI), in accordance with AOP-1 and/or EOP-3.**

This task is critical based on:

Safety Significance: With a failure of the Reactor Protection System to automatically insert Control Rods when conditions warrant, the Reactor will continue to generate a significant amount of heat. Alternative methods of inserting Control Rods will be required to shutdown the Reactor. This will protect the integrity of the fuel cladding and Primary Containment.

Cueing: A Scram condition present and all Control Rods not full in as indicated on the Full Core Display, 4 Rod Display and/or EPIC.

Measurable Performance Indicators: AOP-1 and EOP-3 provides direction to manually insert Control Rods by actuating ARI to insert Control Rods to the full in position.

Performance Feedback: Successful implementation of any/all Performance Indicators will result in Control Rod insertion by placing the ARI Switch to Actuate thus reducing the heat generation rate of the Reactor.



**Critical Task #2:**      **Given an un-isolable Torus water leak and the inability to maintain Torus water level above 10.75 feet, the crew will initiate a manual HPCI turbine trip, in accordance with EOP-4.**

This task is critical based on:

Safety Significance: With an un-isolable leak in the Torus, Torus water level cannot be maintained above 10.75 feet. This results in the HPCI turbine steam discharge line becoming uncovered. Without submergence of the discharge pipe, the Torus air space will become over-pressurized. Tripping HPCI prior to its steam discharge line becoming uncovered will protect the integrity of the Primary Containment Torus.

Cueing: Low Torus water level will be indicated on multiple, redundant Control Room indicators and EPIC.

Measurable Performance Indicators: EOP-4 provides direction to manually trip the HPCI turbine prior to Torus water level reaching 10.75 feet.

Performance Feedback: Successful implementation of any/all Performance Indicators will result in the HPCI turbine being manually tripped by depressing the HPCI Turbine Trip pushbutton prior to over-pressurizing the Torus air space.



**Critical Task #3:**      **Given an un-isolable Torus water leak and the inability to maintain Torus water level above 9.58 feet, the crew will perform an Emergency RPV Depressurization, in accordance with EOP-3a.**

This task is critical based on:

Safety Significance: With an un-isolable leak in the Torus, Torus water level cannot be maintained above 9.58 feet. This will result in the Drywell downcomer vent openings to become uncovered. Without submergence of the downcomer pipe, the Torus air space will become over-pressurized. Performing an Emergency RPV Depressurization prior to the downcomer vent opening becoming uncovered will protect the integrity of the Primary Containment Torus.

Cueing: Low Torus water level will be indicated on multiple, redundant Control Room indicators and EPIC.

Measurable Performance Indicators: EOP-4 provides direction to perform an Emergency RPV Depressurization prior to Torus water level reaching 9.58 feet in accordance with EOP-3a due to all Control Rods not being fully inserted.

Performance Feedback: Successful implementation of any/all Performance Indicators will result in the RPV being rapidly depressurized prior to over-pressurizing the Torus air space by opening SRVs.



| EVENT NO. | EVENT SEQUENCE   |
|-----------|--|
| 1.        | Test EHC Pump B Auto-Start, Secure EHC Pump A (Normal: BOP, SRO)       |
| 2.        | Lower Reactor Power with Recirculation Flow (Reactivity : ATC, SRO)    |
| 3.        | Recirculation Pump A Speed Drifts Low (Instrument: ATC, SRO)           |
| 4.        | Seismic Event with Loss of Line 3 (Component : SRO)                    |
| 5.        | Recirculation Pump A Seal Failure (Component: ALL)                     |
| 6.        | Seismic Event with Steam Leak in Drywell (Component: ALL)              |
| 7.        | RHR Suction Piping Leak,<br>RHR Suction Fails to Isolate (Major : ALL) |
| 8.        | RPS Fails to Scram the Reactor (Instrument: ATC, SRO)                  |
| 9.        | Multiple Control Rods Fail to Insert (Component: ALL)                  |

#### D. TERMINATION CUES:

- All Control Rods, with the exception of the 13 stuck control rods are inserted, an Emergency Depressurization is in progress and RPV level is controlled above zero inches.



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|--|----------|---|---------------------|
| Simulator in RUN<br>Recorder and Alarm Power<br>ON<br>Simulator Checklist Complete |          |   |                     |
| Provide Turnover (Attach. 1)   |          |   |                     |
| After the shift turnover, allow<br>no more than five minutes for<br>panel walkdown | All      | <ul style="list-style-type: none"> <li>Walkdown the control panels and assume the watch</li> </ul>  |                     |
| <b>Event 1</b><br><b>EHC B Auto start test</b><br>(OP-8)                           | SRO      | <ul style="list-style-type: none"> <li>Perform Crew Brief</li> <li>Direct OP-8 section G.2 performed</li> </ul>   | SAT / UNSAT / NA    |
|  | BOP      | <ul style="list-style-type: none"> <li>Depress and hold EHC PMP 94P-7B TEST pushbutton.</li> <li>Verify EHC PMP 94P-7B starts.</li> <li>Verify red light above EHC PMP 94P-7B TEST pushbutton is on.</li> <li>Verify annunciator 09-7-3-17 EHC HYD FLUID PMP B AUTO START is in alarm.</li> <li>Release EHC PMP 94P-7B TEST pushbutton.</li> <li>Verify annunciator 09-7-3-17 EHC HYD FLUID PMP B AUTO START is clear.</li> <li>Verify red light above EHC PMP 94P-7A TEST pushbutton is on.</li> <li>Place control switch for EHC PMP 94P-7B to CLOSE, spring return to normal.</li> <li>Stop EHC PMP 94P-7A by placing its control switch to TRIP, spring return to normal</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|--|----------|--|---------------------|
| <b>Event 2</b><br><b>Lower Rx power with RWR</b>   | SRO      | <ul style="list-style-type: none"> <li>• Direct ATC to lower power to 80% with Recirc flow</li> <li>• Provide oversight for reactivity manipulation</li> </ul>   | SAT / UNSAT / NA    |
|  | ATC      | <ul style="list-style-type: none"> <li>• Lower Recirc flow alternately with RWR MG A(B) SPEED CNTRL</li> <li>• Monitor APRMs, CTP, Recirc flow, Reactor water level</li> </ul>   | SAT / UNSAT / NA    |
|  | BOP      | <ul style="list-style-type: none"> <li>• Assist ATC with peer checks and plant monitoring</li> </ul>   | SAT / UNSAT / NA    |
| <b>Event 3</b><br><b>RWR A speed drifts low</b><br>(automatically occurs after RWR A flow is lowered)  | ATC      | <ul style="list-style-type: none"> <li>• Recognize / report RWR A speed controller is malfunctioning</li> </ul>  | SAT / UNSAT / NA    |
| <b>Note:</b><br>The decision to restore loop flow mismatch may be made from OP-27 precaution C.2.14 or Tech Specs.<br><br><b>Role Play:</b><br>If asked as Reactor Engineering how to respond, recommend restoring loop flow mismatch by rapidly lowering RWR loop B flow. | SRO      | <ul style="list-style-type: none"> <li>• Acknowledge report</li> <li>• Direct lock-up of RWR A scoop tube per OP-27 Section G.6</li> <li>• Enter AOP-8 (Unexpected Change in Core Flow)</li> <li>• Enter AOP-32 (Unexplained/Unanticipated Reactivity Change)</li> <li>• Direct lowering RWR B flow to restore loop flow mismatch (has 24 hr to perform) – TS 3.4.1 Condition B</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|---|-----------|--|---------------------|
|   | ATC       | <ul style="list-style-type: none"> <li>Place RWR A SCOOP TUBE control switch to TRIP</li> <li>Place SCOOP TUBE A AUTO UNLOCK control switch in ON</li> <li>Lower RWR B flow to restore loop flow mismatch less than or equal to either 5% of rated core flow (if &gt;70% flow) or 10% of rated core flow (if &lt;70% flow)</li> <li>Monitor for Thermal Hydraulic Instabilities <ul style="list-style-type: none"> <li>May select control rod(s) to monitor LPRMs</li> </ul> </li> </ul> | SAT / UNSAT / NA    |
|   | BOP       | <ul style="list-style-type: none"> <li>Monitor Feedwater response</li> </ul>   | SAT / UNSAT / NA    |
| <b>Event 4</b><br><b>Seismic and loss of Line #3</b><br>(on Lead Examiner Cue:<br>ACTIVATE TRIGGER 2) | ATC \ BOP | <ul style="list-style-type: none"> <li>Recognize / report seismic event alarm</li> </ul>   | SAT / UNSAT / NA    |
|   | SRO       | <ul style="list-style-type: none"> <li>Acknowledge reports</li> <li>Enter AOP-14 (Earthquake)</li> <li>Enter AOP-72 (115KV)</li> <li>Determine Technical Specification 3.8.1 Condition A must be entered (verify Line 4 alignment/availability within 1 hour and restore Line 3 to operable within 7 days)</li> </ul>  | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|--|----------|---|---------------------|
| <p><b>Role Play:</b><br/>If asked about seismic indications in Relay Room, wait one minute, then report that the Seismic Relay Alarm light is lit, but the OBE Exceeded light is NOT lit.</p> <p><b>Delete EP09 after report.</b><br/>If asked about position of CAD valves, report 27SOV-129A is open</p> <p><b>Role Play:</b><br/>If contacted as Nine Mile Point about seismic event, report that you have also felt a seismic event and had actuation of seismic alarms.</p> | BOP      | <ul style="list-style-type: none"> <li>• Execute AOP-14 (Earthquake) <ul style="list-style-type: none"> <li>○ Ensure open one of the following valves at Panel 27CAD: <ul style="list-style-type: none"> <li>○ 27SOV-129A</li> <li>○ 27SOV-129B</li> </ul> </li> <li>○ IF Relay Room Ventilation tripped, THEN restart per OP-56. (Evaluator Note: is NOT tripped)</li> <li>○ Confirm seismic event using any of the following sources: <ul style="list-style-type: none"> <li>○ JAF seismic instrumentation (Any TRIGGER LED on seismic indicator panel)</li> <li>○ NMP 2 seismic instrumentation</li> <li>○ National Earthquake Information Center</li> </ul> </li> </ul> </li> </ul> | SAT / UNSAT / NA    |
| <p><b>Role Play:</b><br/>When contacted as National Grid, acknowledge that Line #3 has de-energized and are investigating.</p> <p>When contacted as NMP, report that NMP has experienced a loss of Line #3 also.</p> <p>When contacted as Security, report that Security will investigate the switchyard.</p>  | BOP      | <ul style="list-style-type: none"> <li>• Execute AOP-72 (115KV) <ul style="list-style-type: none"> <li>○ Notify the following of electrical status and request rapid restoration of 115 KV line voltage: <ul style="list-style-type: none"> <li>○ National Grid Power Control</li> <li>○ Nine Mile Point Unit One Control Room</li> </ul> </li> <li>○ Notify Security there has been an unplanned loss or degradation of the 115 KV system.</li> <li>○ Monitor 115 KV System parameters</li> </ul> </li> </ul>  | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|---|-----------|--|---------------------|
| <b>Event 5</b><br><b>RWR Pump A Seal Failure</b><br><br>(on Lead Examiner Cue:<br>ACTIVATE TRIGGER 3)   | BOP \ ATC | <ul style="list-style-type: none"> <li>Recognize / report RWR pump A seal degradation</li> <li>Recognize / report rising Drywell leak rate, pressure, and temperature</li> </ul>   | SAT / UNSAT / NA    |
|   | SRO       | <ul style="list-style-type: none"> <li>Direct shutdown and isolation of RWR pump A</li> <li>Enter AOP-8 (Loss or Reduction of Reactor Coolant Flow)</li> <li>Enter AOP-39 (Loss of Coolant)</li> <li>Recognize Single Loop requirements of OP-27 or AOP-8</li> </ul>   | SAT / UNSAT / NA    |
| <b>Role Play:</b><br>When dispatched to close 02-2RWR-39A, wait 2 minutes, insert trigger 30, and then report task completion.<br><br><b>Note:</b><br>It is not expected for the crew to have time to establish single-loop scram and rod-block settings during the course of this scenario. Prior to these actions, the next event should be inserted. | BOP       | <ul style="list-style-type: none"> <li>Shutdown and isolate RWR pump A per OP-27 section G.2               <ul style="list-style-type: none"> <li>Close RWR PMP A DISCH 02MOV-53A</li> <li>Verify RWR PMP 02-2P-1A is tripped</li> <li>Place RWR PMP 02-2P-1A control switch in PULL TO LOCK.</li> <li>Verify open RWR MG A GEN FIELD BKR</li> <li>Dispatch operator to close 02-2RWR-39A (RWR pump A seal purge upstr isol valve)</li> <li>Close RWR PMP A SUCT 02MOV-43A</li> <li>Ensure RWR MG DC LUBE OIL PMP 02-184P-3A is stopped</li> </ul> </li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY | POSITION | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|---------------------|----------|--|---------------------|
|                     | ATC      | <ul style="list-style-type: none"> <li>• Execute AOP-8               <ul style="list-style-type: none"> <li>○ Monitor for onset of thermal-hydraulic instability per OP-16</li> <li>○ Ensure RPV water level returns to normal and stabilizes</li> <li>○ Determine operating point on the applicable Power-Flow Map</li> <li>○ As time permits, coordinate with BOP to insert control rods due to position on Power-Flow Map</li> <li>○ Demand a 3D Monicore case and review margin to core thermal limits</li> </ul> </li> </ul>              | SAT / UNSAT / NA    |
|                     | BOP      | <ul style="list-style-type: none"> <li>• Execute AOP-39               <ul style="list-style-type: none"> <li>○ May direct Operator to Vent the Torus per OP-37 as necessary to maintain primary containment pressure less than 2.7 psig</li> <li>○ Direct Operator to isolate Control Room Ventilation per OP-55B section G.1 within 30 minutes</li> <li>○ Direct Operator to isolate Relay Room Ventilation per OP-56 Section G within 30 minutes</li> <li>○ Direct Operator to startup TSC Ventilation within 60 min.</li> </ul> </li> </ul> | SAT / UNSAT / NA    |







| INSTRUCTOR ACTIVITY | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION                             |
|---------------------|----------|---|---|
|                     | ATC      | <ul style="list-style-type: none"> <li>○ Perform EOP-3 Failure to Scram Actions: <ul style="list-style-type: none"> <li>○ Ensure Rx Mode Switch in SHUTDOWN</li> <li>○ <b>Initiate ARI</b></li> <li>○ Report all Control Rods not full in (13 remain out)</li> <li>○ Run Recirc flow to minimum</li> <li>○ Determine Rx power less than 2.5%</li> <li>○ Insert IRMs and SRMs</li> <li>○ Range IRMs as necessary</li> </ul> </li> <li>○ Perform EP-3 Backup Control Rod Insertion Actions <ul style="list-style-type: none"> <li>○ Determine Control Rods cannot be inserted from Control Room.</li> <li>○ Direct Over-piston volume of HCU's to be vented.</li> </ul> </li> </ul> | SAT / UNSAT / NA<br><br><b>Critical Task #1</b> |
|                     | BOP      | <ul style="list-style-type: none"> <li>• Terminate/prevent Core Spray per EP-5, as directed: <ul style="list-style-type: none"> <li>○ Place 14MOV-11A(B) AUTO ACTUATION BYPASS SW 14A-S16A(B) switch in BYPASS</li> <li>○ Verify white 14MOV-11A(B) AUTO ACTUATION BYPASS LT 14A-DS35A(B) light is on</li> <li>○ Ensure closed OUTBD INJ VLV 14MOV-11A(B)</li> <li>○ Ensure PMP 14P-1A(B) is stopped</li> </ul> </li> </ul>   | SAT / UNSAT / NA                                |
|                     | SRO      | <ul style="list-style-type: none"> <li>• Recognize Drywell pressure &gt; 2.7 psig</li> <li>• Enter EOP-4 (Primary Containment Control)</li> <li>• Direct Torus spray placed in service</li> </ul>   | SAT / UNSAT / NA                                |



| INSTRUCTOR ACTIVITY   | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|----------|---|---------------------|
| <p><b>Note:</b><br/>When Torus spray is established, Trigger 5 \ 6 automatically activate to start the Torus water leak.</p> <p><b>Role Play:</b><br/>When directed to close and open two turns 10RHR-22B or D, report completed.</p> <p>Throttle open the valve that is directed and report completed.</p> | BOP      | <ul style="list-style-type: none"> <li>• Initiate Torus spray: <ul style="list-style-type: none"> <li>○ Place SPRAY CNTRL 10A-S17A or B switch to MANUAL, spring return to normal</li> <li>○ Verify white SPRAY PERM 10A-DS67A or B light is on</li> <li>○ Ensure available RHR pumps are running</li> <li>○ Open RHR TEST TORUS CLG &amp; SPRAY 10MOV-39A or B</li> <li>○ Throttle TORUS SPRAY INBD VLV 10MOV-38A or B to establish desired torus spray flow rate</li> <li>○ WHEN RHR Loop A or B flow is GREATER THAN 1500 gpm, ensure closed MIN FLOW VLV 10MOV-16A or B</li> <li>○ Throttle RHR TEST &amp; TORUS CLG 10MOV-34A or B to divert excess flow to the torus to maintain &gt; 6,500 gpm RHR Loop A or B flow with one RHR pump operating</li> <li>○ Establish RHRSW flow and temperature control:</li> <li>○ Loop B: <ul style="list-style-type: none"> <li>○ Ensure closed the RHRSW pump discharge valve for the pump to be started: <ul style="list-style-type: none"> <li>▪ 10RHR-22B or D</li> <li>▪ Throttle open two turns the valve closed above</li> </ul> </li> </ul> </li> <li>○ Start one of the RHRSW pumps</li> <li>○ Throttle open the discharge valve for the running pump to establish 2500-4000 gpm or motor current &lt; Max amps</li> <li>○ Start the second RHRSW pump if desired</li> </ul> </li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|---|-----------|--|---------------------|
|   | BOP cont. | <ul style="list-style-type: none"> <li>• Loop A:</li> <li>• Establish RHRSW flow and temperature control:</li> <li>• Start one of the RHRSW pumps</li> <li>• Throttle RHRSW DISCH VLV FROM HX A 10MOV-89A to establish 2500 to 4000 gpm</li> <li>• Start the second RHRSW pump if desired</li> <li>• Throttle RHRSW DISCH VLV FROM HX A 10MOV-89A to establish 2500 to 4000 gpm per RHRSW pump</li> <li>• IF drywell or torus sprays are in service, THEN establish 4000 gpm per RHRSW pump</li> <li>• Close HX A BYP VLV 10MOV-66A</li> </ul> | SAT / UNSAT / NA    |
| <b><u>Event 7</u></b><br><b>RHR suction piping leak,</b><br><b>RHR suction fails to isolate</b> | ALL       | <ul style="list-style-type: none"> <li>• Recognize \ report lowering Torus water level</li> </ul>  | SAT / UNSAT / NA    |
| <b>Critical Task #2</b>   |           | <b>Given an un-isolable Torus water leak and the inability to maintain Torus water level above 10.75 feet, the crew will initiate a manual HPCI turbine trip, in accordance with EOP-4.</b>  | <b>Pass / Fail</b>  |
| <b>Critical Task #3</b>   |           | <b>Given an un-isolable Torus water leak and the inability to maintain Torus water level above 9.58 feet, the crew will perform an Emergency RPV Depressurization, in accordance with EOP-3a.</b>  | <b>Pass / Fail</b>  |



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION                             |
|--|----------|--|---|
|  | SRO      | <ul style="list-style-type: none"> <li>• Re-enter EOP-4</li> <li>• Direct make-up water to the Torus using OP-13B</li> <li>• Monitor for 10.75 feet and 9.58 feet Torus water level</li> </ul> | SAT / UNSAT / NA                                |
| <b>Role Play:</b><br>When dispatched to open 10RHR-260/274, wait 1 minute and insert Remotes to open directed valve  | BOP      | <ul style="list-style-type: none"> <li>• Direct NPO to supply Condensate Transfer water to Torus</li> </ul>  | SAT / UNSAT / NA                                |
|  | SRO      | <ul style="list-style-type: none"> <li>• Determine Torus water level cannot be maintained &gt; 10.75 feet</li> <li>• <b>Direct HPCI turbine tripped</b></li> </ul>                             | SAT / UNSAT / NA<br><br><b>Critical Task #2</b> |
|  | BOP      | <ul style="list-style-type: none"> <li>• <b>Trip HPCI turbine by depressing Turbine Trip pushbutton</b></li> <li>• Report HPCI tripped</li> </ul>  | SAT / UNSAT / NA<br><b>Critical Task #2</b>     |
| <b>Role Play:</b><br>When dispatched as operator to investigate Torus leak, wait 3 minutes, then report that there is a large leak on RHR pump C suction between the pump and the suction valve. |          | <ul style="list-style-type: none"> <li>• Direct closure of RHR pump C suction valve</li> <li>• Acknowledge failure of RHR pump C suction valve to close</li> </ul>                             | SAT / UNSAT / NA                                |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION                             |
|---|-----------|---|---|
| If requested to close MOV-151A, wait 2 more minutes, then report that MOV-151A is stuck open. | BOP       | <ul style="list-style-type: none"> <li>• Attempt to close RHR pump C suction valve</li> <li>• Recognize / report failure of RHR pump C suction valve to close</li> </ul>  | SAT / UNSAT / NA                                |
| If requested to close MOV-13C, wait 2 more minutes, then report that MOV-13C is stuck open.   | SRO       | <ul style="list-style-type: none"> <li>• Determine Torus water level cannot be maintained &gt; 9.58 feet</li> <li>• Determine Emergency Depressurization required</li> <li>• Enter EOP-3a (Failure to Scram-ED)</li> <li>• Direct all injection into the RPV except from SLC, RCIC and CRD be terminated and prevented</li> <li>• Ensure ADS overridden</li> <li>• <b>Direct 7 ADS valves opened</b></li> </ul>   | SAT / UNSAT / NA<br><br><b>Critical Task #3</b> |
|   | BOP \ ATC | <ul style="list-style-type: none"> <li>• Terminate and prevent all injection into the RPV except for SLC, RCIC and CRD:</li> <li>• RHR per EP-5: <ul style="list-style-type: none"> <li>○ Place 10MOV-27A(B) AUTO CONTROL BYPASS 10A-S23A(B) switch in BYPASS</li> <li>○ Verify white light above 10MOV-27A(B) AUTO CONTROL BYPASS 10A-S23A(B) is on</li> <li>○ Ensure closed LPCI OUTBD INJ VLV 10MOV-27A(B)</li> <li>○ Ensure RHR Loop A(B) pumps which are not required to be running are stopped</li> </ul> </li> </ul> | SAT / UNSAT / NA                                |



| INSTRUCTOR ACTIVITY | POSITION           | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---------------------|--------------------|---|---------------------|
|                     | BOP \ ATC<br>cont. | <ul style="list-style-type: none"> <li>• Core Spray per EP-5:               <ul style="list-style-type: none"> <li>○ Place 14MOV-11A(B) AUTO ACTUATION BYPASS SW 14A-S16A(B) switch in BYPASS</li> <li>○ Verify white 14MOV-11A(B) AUTO ACTUATION BYPASS LT 14A-DS35A(B) light is on</li> <li>○ Ensure closed OUTBD INJ VLV 14MOV-11A(B)</li> <li>○ Ensure PMP 14P-1A(B) is stopped</li> </ul> </li> <li>• Feedwater per EP-5:               <ul style="list-style-type: none"> <li>○ IF RFP is running, THEN perform the following:                   <ul style="list-style-type: none"> <li>▪ IF RFP A FLOW CNTRL 06-84A(B) is in AUTO, THEN balance RFP A(B) FLOW CNTRL 06-84A using RFP A(B) FLOW CNTRL 06-84A(B) manual control knob.</li> <li>▪ Ensure RFP A(B) FLOW CNTRL 06-84A(B) in MAN.</li> <li>▪ Lower RFP A(B) Flow Control 06-84A(B) to minimum.</li> <li>▪ Ensure open RFP A(B) MIN FLOW 34FCV-135A(B).</li> </ul> </li> <li>○ Ensure closed the following valves:                   <ul style="list-style-type: none"> <li>▪ RFP A DISCH 34MOV-100A(B)</li> <li>▪ Ensure FDWTR STARTUP VLV 34FCV-137 in MANUAL.</li> <li>▪ Ensure closed FDWTR STARTUP VLV 34FCV-137.</li> </ul> </li> </ul> </li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION                         |
|---------------------|-----------|--|---|
|                     | BOP \ ATC | <ul style="list-style-type: none"> <li>• <b>Open 7 ADS valves</b></li> <li>• Report 7 ADS valves are open</li> <li>• Trend lowering RPV pressure</li> <li>• Monitor \ maintain RPV water level in assigned band</li> </ul> | SAT / UNSAT / NA<br><b>Critical Task #3</b> |

### Termination Criteria:

All Control Rods, with the exception of the 13 stuck control rods are inserted, an Emergency Depressurization is in progress and RPV level is controlled above zero inches.



## Shift Turnover

The Plant is operating at approximately 100% power.

When you take the shift:

1. Test EHC pump B auto-start capability per OP-8; Section G.2 for Post Maintenance Testing.
2. Secure EHC pump A following the test.
3. Lower Reactor power with Recirculation flow.
4. Stop power reduction at approximately 80% power for further Reactor Engineering direction.



# JAMES A. FITZPATRICK NUCLEAR POWER PLANT

## LOI 16-1 NRC EXAMINATION SCENARIO 4

**TITLE:** LOI 16-1 NRC EXAMINATION SCENARIO 4

**SCENARIO NUMBER:** NRC 4

**PATH:** STAND ALONE

**Validation:** \_\_\_\_\_ **Training:** \_\_\_\_\_ **Operations:** \_\_\_\_\_

|     | CANDIDATES |
|-----|------------|
| CRS |            |
| ATC |            |
| BOP |            |



## RECORD OF CHANGES

[illegible]



A. **TITLE:** LOI 16-1 NRC EXAMINATION SCENARIO 4

B. **SCENARIO SETUP:**

1. IC-124

2. Special Instructions:

- a. The Plant is operating at approximately 7% power in STARTUP.
- b. RWM is bypassed.
- c. OP-65 is "open" and place-kept up and including step D.20.2
- d. Ensure Rod Withdrawal Sequence A1-2 is "open" and place-kept up to and including Step 25.
- e. Have multiple copies of the control rod movement sheets.

3. Preset Conditions:

- a. Trigger 1, M:RD08:18:35, Control Rod (18:35) Drift Out
- b. Trigger 3, M:CU07, RWCU Pipe Break Between 12-MOV-15 and 12-MOV-18, 2%
- c. Preset, M:CU10, RWCU 12MOV-18 Auto Isolation Failure
- d. Preset, M:CU12, RWCU 12MOV-15 Auto Isolation Failure
- e. Trigger 4, M:RC06, RCIC System Inadvertent Initiation
- f. Trigger 5, M:RC09, RCIC Steam Line Break, 2.5%
- g. Preset, M:RC12, RCIC Isolation Relay, 13A-K15, Failure
- h. Preset, M:AD07:B, Rx Press Relief Valve 71B Fails to Open
- i. Preset, M:AD07:D, Rx Press Relief Valve 71D Fails to Open
- j. Preset, M:AD07:G, Rx Press Relief Valve 71G Fails to Open
- k. Preset, M:AD07:H, Rx Press Relief Valve 71H Fails to Open
- l. Preset, M:AD07:I, Rx Press Relief Valve 71J Fails to Open
- m. Preset, M:AD07:J, Rx Press Relief Valve 71K Fails to Open
- n. Trigger 2, R:ED23, LPCI AC Input Bkr 'A' Trip
- o. Trigger 25, R:RC13, 13-MOV-15 Circuit Breaker, OPEN
- p. Preset, O:TC ZDIPNIBVOJI, Bypass Valve Opening Jack, NORMAL
- q. Event Trigger 1, Event: rdreed(41)==10, Command: none
- r. Event Trigger 6, Event: (zlo5ads8a == 0) && (zlo5ads8b == 0),  
Command: imf rc09 (0 0) 8 7:00 4
- s. Event Trigger 16, Event: rdreed(41)>12, Command: dmf rd08:18:35
- t. Event Trigger 24, Event: zlo13as2(1)==1, Command: imf rc09 (0 0) 4 5:00 2.5
- u. Event Trigger 25, Event: zlo13as1(1)==1, Command: none
- v. Event Trigger 26, Event: rcfm>40, Command: dmf rc06

4. Consumable Forms and Procedures:

- ◆ AOP-1



**C. SCENARIO SUMMARY:**

The scenario will begin at approximately 7% power during a startup. The RWM is bypassed due to a hardware failure. The crew will begin by transitioning to Mode 1 and withdrawing all IRMs per OP-65. Then the crew will continue to raise Reactor power by withdrawing control rods.

The second control rod to be moved, 18-35, will double notch beyond its withdraw limit of 12 to 14. The crew will execute guidance to re-insert the control rod to its intended position. This will clear that associated control rod block and allow continued control rod movement.

The AC input to the A LPCI inverter will fail. The crew will transfer the A LPCI inverter to the alternate AC supply. The SRO will determine the Technical Specification impact.

Reactor Water Cleanup system then develops a leak between the inboard and outboard suction isolation valves. This will cause at least one Reactor Building area temperature to exceed max normal and require entry into EOP-5, Secondary Containment Control. The Reactor Water Cleanup pumps will eventually trip on high room temperature, but the suction line will fail to automatically isolate. The crew can isolate the leak by manually closing 12MOV-15 and 12MOV-18. The SRO will determine the Technical Specification impact of the PCIV automatic isolation failure.

RCIC will inadvertently initiate. The crew will execute AOP-77 in response to the inadvertent start. Once RCIC comes up to near rated flow, the initiation signal will clear, allowing full control of the system. The crew will secure RCIC. The SRO will determine the Technical Specification impact.

RCIC will develop a steam leak. This will cause high area temperatures near RCIC and HPCI. HPCI will automatically isolate, however RCIC will fail to automatically isolate. The crew will be able to close 13MOV-16, however the breaker for 13MOV-15 trip open, preventing isolation of the steam leak. The crew will execute EOP-5. The crew will enter AOP-1 and insert a manual Reactor scram. The crew will enter EOP-2, RPV Control. As Reactor Building area temperatures approach max safe levels, the crew will attempt to anticipate Emergency Depressurization by rapidly lowering Reactor pressure with Turbine Bypass Valves. The Bypass Opening Jack will fail to open Turbine Bypass Valves. The crew may open Turbine Bypass Valves by adjusting the pressure regulator setpoint, but this will limit how quickly Reactor pressure can be lowered. Once two max safe temperatures are exceeded, the crew will perform an Emergency Depressurization.

Only three ADS SRVs will open requiring the Crew to open two additional non-ADS SRVs to obtain 5 SRVs open.

The scenario will be terminated when all control rods are inserted, the Emergency RPV Depressurization is in progress, and Reactor water level is controlled above 0".



The Plant is operating at approximately 7% power with the Mode Switch in STARTUP.

The Drywell has been verified to be clear of personnel.

The RWM is bypassed due to a hardware failure.

When you take the shift:

1. Transition to Mode 1 per OP-65 step D.20.3.
2. Continue OP-65, up to and including, step D.20.6 to withdraw all IRMs.
3. Continue control rod withdrawals per the startup control rod sequence:
  - The next movement is A1-2 Sequence
  - RSCS Group 10
  - Step 26
  - Control Rod 26-27
  - Complete Step 26, and then hold for Reactor Engineering analysis.



**Critical Task #1:**     **Given the plant operating at power with an un-isolable primary system discharging into Secondary Containment, the crew will insert a manual Reactor scram before the 1<sup>st</sup> Max Safe temperature is reached, in accordance with EOP-5.**

This task is critical based on:

Safety Significance: With an un-isolable primary system discharging in the Secondary Containment, Reactor Building environmental and radiological conditions will deteriorate. This condition warrants rapidly shutting down the Reactor by inserting a manual Reactor scram thus reducing the energy discharging into the Secondary Containment. This will minimize the potential degradation of the Secondary Containment, Secondary Containment equipment and personnel access.

Cueing: Secondary Containment parameters and primary system status will be indicated on multiple, redundant Control Room indicators, alarms and EPIC.

Measurable Performance Indicators: EOP-5 provides direction to enter EOP-2 and manually scram the Reactor when it has been determined that an un-isolable primary system is discharging into the Secondary Containment.

Performance Feedback: Successful implementation of any/all Performance Indicators will result in the Reactor being manually scrammed by depressing the Manual Scram pushbuttons and/or rotating the Mode Switch to Shutdown.



**Critical Task #2:**     **Given an un-isolable primary system discharging into Secondary Containment and two areas exceeding Maximum Safe Temperatures, the crew will perform an emergency RPV depressurization, in accordance with EOP-5.**

This task is critical based on:

Safety Significance: With an un-isolable primary system discharging in the Secondary Containment, combined with two Reactor Building areas exceeding Max Safe Temperatures, warrants the Reactor to be rapidly depressurized by opening 7 SRVs. This will reduce the energy discharging into the Secondary Containment, which will minimize the potential degradation of the Secondary Containment, Secondary Containment equipment and personnel access.

Cueing: Secondary Containment temperatures and primary system status will be indicated on multiple, redundant Control Room indicators, alarms and EPIC.

Measurable Performance Indicators: EOP-5 provides direction to enter EOP-2 and rapidly depressurize the Reactor using SRVs when it has been determined that an un-isolable primary system is discharging into the Secondary Containment and two RB area temperatures are above their Max Safe values.

Performance Feedback: Successful implementation of any/all Performance Indicators will result in the Reactor being rapidly depressurized by opening SRVs.



| EVENT NO. | EVENT SEQUENCE  |                        |
|-----------|---|------------------------|
| 1.        | Transition to Mode 1  | (Normal: BOP, SRO)     |
| 2.        | Withdraw Control Rods   | (Reactivity: ATC, SRO) |
| 3.        | Double Notched Control Rod  | (Component: ATC, SRO)  |
| 4.        | LPCI 'A' AC input breakers trips open   | (Instrument: BOP, SRO) |
| 5.        | Reactor Water Cleanup Pipe Break,<br>Reactor Water Cleanup Fails to Automatically Isolate | (Component: BOP, SRO)  |
| 6.        | RCIC Inadvertent Initiation   | (Component: BOP, SRO)  |
| 7.        | RCIC Steam Leak and Failure to Isolate  | (Major: All)           |
| 8.        | Bypass Opening Jack Fails   | (Component: BOP, SRO)  |
| 9.        | Multiple SRVs fail to open  | (Component: BOP, SRO)  |

#### D. TERMINATION CUES:

- All control rods are inserted
- Emergency RPV Depressurization is in progress
- Reactor water level is controlled above 0"



| INSTRUCTOR ACTIVITY  | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|--|-----------|--|---------------------|
| Simulator in RUN<br>Recorder and Alarm Power<br>ON<br>Simulator Checklist Complete |           |  |                     |
| Provide Turnover (Attach. 1)   |           |  |                     |
| After the shift turnover, allow<br>no more than five minutes for<br>panel walkdown | All       | <ul style="list-style-type: none"> <li>Walkdown the control panels and assume the watch</li> </ul>   |                     |
| <b><u>Event 1</u></b><br>Transition to Mode 1                                      | SRO       | <ul style="list-style-type: none"> <li>Perform Crew Brief</li> <li>Direct BOP (ATC) to transition to Mode 1 per OP-65 steps D.20.3 thru D.20.6</li> </ul>  | SAT / UNSAT / NA    |
|  | BOP (ATC) | <ul style="list-style-type: none"> <li>Place RX MODE switch in RUN</li> <li>Ensure all personnel out of drywell (NOTE: status provided on turnover sheet)</li> <li>Place CHAN SEL switches for the following recorders in APRM\RBM:</li> <li>07PR-46A,B,C,D</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|---------------------|-----------|--|---------------------|
|                     | BOP cont. | <ul style="list-style-type: none"> <li>• Withdraw IRMs to full out per OP-16: <ul style="list-style-type: none"> <li>▪ Ensure POWER ON light is on</li> <li>▪ Ensure IRMs that will be withdrawn are selected</li> <li>▪ Verify IRM RETRACT PERMIT lights are on for IRMs that will be withdrawn</li> <li>▪ Depress DRIVE OUT/DRIVING OUT pushbutton</li> <li>▪ Verify DRIVE OUT light is on</li> <li>▪ Verify DRIVING OUT light comes on</li> </ul> </li> <br/> <li>• WHEN IRMs are at desired position OR detector OUT light comes on, depress DRIVE OUT/DRIVING OUT pushbutton</li> <li>• Verify the following lights are off: <ul style="list-style-type: none"> <li>◦ DRIVE OUT</li> <li>◦ DRIVING OUT</li> </ul> </li> <li>• WHEN operation of IRMs is no longer desired, ensure IRMs are de-selected</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY  | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|--|----------|---|---------------------|
| <b>Event 2</b><br>Withdraw Control Rods  | SRO      | <ul style="list-style-type: none"> <li>• Direct ATC to continue control rod withdrawals</li> <li>• Provide oversight of reactivity manipulation</li> </ul>  | SAT / UNSAT / NA    |
| <b>Note:</b><br>The first five control rods in the withdrawal sequence are 26-27, 18-35, 34-35, 34-19 and 18-19. These control rods are being moved from position 08 to 12. Control rod 18-35 will double notch to position 14, which will lead to the next event. | ATC      | <ul style="list-style-type: none"> <li>• While withdrawing control rods, monitor the following: <ul style="list-style-type: none"> <li>○ Nuclear instrumentation</li> <li>○ Control rod position indication</li> </ul> </li> <li>• Ensure ROD SEL PWR switch is in ON</li> <li>• Ensure control rod to be moved is selected by depressing rod select pushbutton on ROD SEL matrix, if necessary</li> <li>• Verify the following: <ul style="list-style-type: none"> <li>○ Select pushbutton is brightly backlit</li> <li>○ Control rod indicating light is on</li> <li>○ ROD OUT PERM light is on</li> </ul> </li> <li>• Place ROD MOVEMENT CNTRL switch to OUT NOTCH, spring return to OFF</li> <li>• Verify control rod latches in the expected even numbered position before ROD SETTLE light goes off</li> <li>• Verify ROD SETTLE light is off</li> <li>• Repeat as necessary</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|----------|---|---------------------|
| <b>Event 3</b><br>Double Notched Control Rod  | ATC      | <ul style="list-style-type: none"> <li>Recognize / report control rod 18-35 double notched</li> </ul>   | SAT / UNSAT / NA    |
|   | SRO      | <ul style="list-style-type: none"> <li>Acknowledge report</li> <li>Direct re-inserting control rod 18-35 to position 12</li> <li>Direct continuing control rod withdrawals</li> </ul>   | SAT / UNSAT / NA    |
| <b>Role Play:</b><br>If contacted as Shift Manager, say that you understand the event and direct continuing with control rod withdrawals per the startup sequence.<br><br><b>Role Play:</b><br>If asked for Rx Analyst instruction when control rod 18-35 is at 14, report that the Rx Analyst concurs with following the approved station procedure.<br><br><b>Role Play:</b><br>If asked for Rx Analyst instruction when control rod 18-35 is at 12, report that the Rx Analyst recommends continuing with control rod withdrawals. | ATC      | <ul style="list-style-type: none"> <li>Execute OP-26 Section E.1.3.c:               <ul style="list-style-type: none"> <li>Insert control rod one notch</li> <li>Notify Shift Manager</li> <li>Stop all further control rod withdrawals until Shift Manager reviews event and approves continued rod withdrawal</li> </ul> </li> <li>Continue control rod withdrawals per startup sequence</li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY  | POSITION  | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION |
|--|-----------|--|---------------------|
| <b>Event 4</b><br><b>On Lead Examiner Cue:</b><br><b>ACTIVATE TRIGGER 2</b><br>LPCI Inverter AC Input Loss   | ATC / BOP | Recognize / report annunciator 09-8-3-02, LPCI MOV IPS A 71INV-3A AC INPUT LOSS  | SAT / UNSAT / NA    |
|  | SRO       | <ul style="list-style-type: none"> <li>• Acknowledge reports</li> <li>• Direct ARP response</li> <li>• Determine Technical Specification 3.8.4 Condition D requires LPCI A to be declared inoperable immediately</li> <li>• Declare LPCI A inoperable (TS 3.5.1 Condition A)</li> </ul>  | SAT / UNSAT / NA    |
| <b>Role Play:</b><br>If dispatched to investigate, wait 2 minutes and then report that the AC input breaker to LPCI MOV IPS A is tripped, but you do not see any other obvious problems. | BOP       | <ul style="list-style-type: none"> <li>• Executes ARP 09-8-3-02: <ul style="list-style-type: none"> <li>○ IF alarm is not anticipated, AND LPCI MOV A PWR SUPP control switch is not in ALT PULL TO LOCK at panel 09-8, THEN place LPCI MOV Bus A on alternate feed as follows: <ul style="list-style-type: none"> <li>▪ Verify L-15 is energized at panel 09-8</li> <li>▪ Place LPCI MOV A PWR SUPP switch in ALT PULL TO LOCK at panel 09-8</li> </ul> </li> </ul> </li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|-----------|---|---------------------|
| <b>Event 5</b><br><b>On Lead Examiner Cue:</b><br><b>ACTIVATE TRIGGER 3</b><br>Reactor Water Cleanup Pipe Break, Reactor Water Cleanup Fails to Automatically Isolate | ATC / BOP | <ul style="list-style-type: none"> <li>• Recognize / report EPIC area temperature alarm</li> <li>• Recognize / report annunciators 09-3-3-02(12), DIV I(II) AMBIENT TEMP HI</li> <li>• Recognize / report RWCU pump trip and failure to isolate</li> </ul>  | SAT / UNSAT / NA    |
|   | SRO       | <ul style="list-style-type: none"> <li>• Acknowledge reports</li> <li>• Direct ARP response</li> <li>• Enter EOP-5, Secondary Containment Control, on high area temperature</li> <li>• Direct manual isolation of Reactor Water Cleanup</li> <li>• Direct maximizing Reactor Building area cooling</li> <li>• May direct area/building evacuation</li> <li>• As time permits, exits EOP-5</li> <li>• If isolation failure is revealed based on timing of crew actions: <ul style="list-style-type: none"> <li>○ Determines Technical Specification Table 3.3.6.1-1 Function 5.a was not met</li> <li>○ Determines Technical Specification 3.3.6.1 Conditions A and B were not met and Condition F requires isolating the affected penetration flow path within 1 hour.</li> </ul> </li> </ul> | SAT / UNSAT / NA    |







| INSTRUCTOR ACTIVITY  | POSITION  | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|--|-----------|---|---------------------|
| <b>Event 6</b><br><b>On Lead Examiner Cue:</b><br><b>ACTIVATE TRIGGER 4</b><br>RCIC Inadvertent Initiation   | BOP / ATC | <ul style="list-style-type: none"> <li>Recognize / report EPIC RCIC speed alarm</li> <li>Recognize / report inadvertent RCIC initiation</li> </ul>  | SAT / UNSAT / NA    |
|  | SRO       | <ul style="list-style-type: none"> <li>Acknowledge reports</li> <li>Enter AOP-77 (Inadvertent Initiation of ECCS or RCIC)</li> <li>May enter AOP-32 (Unplanned Power Change)</li> <li>Direct securing RCIC</li> <li>Determine RCIC is inoperable</li> <li>Determine Technical Specification 3.5.3 Condition A requires verifying HPCI operable by administrative means immediately and RCIC to be restored to operable status within 14 days.</li> </ul>                        | SAT / UNSAT / NA    |
| <b>Note:</b><br>The crew may trip RCIC prior to referencing AOP-77, since these are immediate actions.<br><br><b>Role Play:</b><br>If dispatched to investigate, wait 2 minutes, then report that nothing looks abnormal at the RCIC skid. | BOP       | <ul style="list-style-type: none"> <li>Execute AOP-77:               <ul style="list-style-type: none"> <li>Verify by two independent means, initiation is not required</li> <li>IF an inadvertent HPCI or RCIC start occurred, THEN depress associated TURB TRIP pushbutton</li> <li>IF an unplanned power change occurred, consult with SRO to enter AOP-32</li> <li>Determine cause of ECCS/RCIC initiation signal(s) and initiate corrective actions</li> </ul> </li> </ul> | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|-----------|---|---------------------|
| <b>Events 7, 8, &amp; 9</b><br><b>On Lead Examiner Cue:</b><br><b>ACTIVATE TRIGGER 5</b><br>RCIC Steam Leak and Failure to Isolate, Bypass Opening Jack Fails | ATC / BOP | <ul style="list-style-type: none"> <li>• Recognize / report EPIC high area temperature alarms</li> <li>• Recognize / report multiple annunciators, including:               <ul style="list-style-type: none"> <li>○ 09-3-3-33, HPCI ISOL TRIP INITIATED</li> <li>○ 09-4-1-22, RCIC ISOL TRIP LOGIC INITIATED</li> </ul> </li> <li>• Recognize / report RCIC failed to isolate</li> </ul> | SAT / UNSAT / NA    |
| <b>Critical Task #1</b>   |           |   |                     |
|   |           | Given the plant operating at power with an un-isolable primary system discharging into Secondary Containment, the crew will insert a manual Reactor scram before the 1 <sup>st</sup> Max Safe temperature is reached, in accordance with EOP-5.   | Pass / Fail         |
| <b>Critical Task #2</b>   |           |   |                     |
|   |           | Given an un-isolable primary system discharging into Secondary Containment and two areas exceeding Maximum Safe Temperatures, the crew will perform an emergency RPV depressurization, in accordance with EOP-5.  | Pass / Fail         |



| INSTRUCTOR ACTIVITY   | POSITION | OPERATOR ACTIONS/STANDARD  | COMMENTS/EVALUATION   |
|---|----------|--|---|
| <p><b>Note:</b> The severity level of malfunction RC09 may be manually raised with lead examiner concurrence as needed based on the crew's control of Reactor pressure.</p> <p><b>Role Play:</b><br/>If dispatched to investigate high temperature, wait 2 minutes, then report you see steam coming from the Drywell Entrance area and cannot access the area.</p> <p><b>Note:</b> Only 2 additional SRVs will open, for a total of 5.</p> | SRO      | <ul style="list-style-type: none"> <li>• Acknowledge report</li> <li>• Enter / re-enter EOP-5, Secondary Containment Control, on high area temperatures</li> <li>• Direct isolation of RCIC</li> <li>• Direct area/building evacuation, if not previously performed</li> <li>• Acknowledge manual RCIC isolation failure</li> <li>• Enter EOP-2</li> <li>• <b>Direct manual Reactor scram before 1<sup>st</sup> Max Safe Temperature</b></li> <li>• Enter AOP-1, Reactor Scram</li> <li>• Direct Reactor pressure controlled 800 to 1000 psig using TBVs</li> <li>• Direct Reactor water level controlled 180 to 220 inches using Feedwater</li> <li>• May direct Reactor cooldown &lt; 100°F/hr</li> <li>• May direct rapid Reactor depressurization using TBVs</li> <li>• Acknowledge failure of Bypass Opening Jack to open TBVs</li> <li>• Recognize / acknowledge two area temperature above Max Safe Value</li> <li>• Enter Emergency Depressurization leg of EOP-2</li> <li>• Direct 7 ADS valves open</li> <li>• Acknowledge report that only 3 ADS valves opened</li> <li>• <b>Direct additional SRVs opened</b></li> </ul> | <p>SAT / UNSAT / NA</p> <p><b>Critical Task #1</b></p> <p><b>Critical Task #2</b></p> |



| INSTRUCTOR ACTIVITY   | POSITION | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION |
|---|----------|---|---------------------|
|   | ATC      | <ul style="list-style-type: none"> <li>• Depress manual Scram pushbuttons</li> <li>• Place Mode Switch to Shutdown</li> <li>• Enter AOP-1</li> <li>• Fully insert IRMs and SRMs</li> <li>• Observe Reactor power downscale on APRMs</li> <li>• Observe SDIV vent and drain valves closed</li> <li>• Transfer APRM/IRM recorders to IRMs</li> <li>• Down-range IRMs</li> </ul> | SAT / UNSAT / NA    |
| <p><b>Note:</b><br/>The crew may attempt to isolate RCIC by closing 13MOV-15 and 13MOV-16 before referencing an ARP or OP as a backup to a failed automatic action (EN-OP-115) or based on guidance in EOP-5.</p> | BOP      | <ul style="list-style-type: none"> <li>• Attempt to isolate RCIC               <ul style="list-style-type: none"> <li>○ Close 13MOV-16</li> <li>○ Attempt to close 13MOV-15</li> <li>○ Recognize / report 13MOV-15 breaker failure and dual position indication</li> </ul> </li> </ul>  | SAT / UNSAT / NA    |



| INSTRUCTOR ACTIVITY   | POSITION  | OPERATOR ACTIONS/STANDARD   | COMMENTS/EVALUATION                                    |
|---|-----------|---|--|
|   | BOP cont. | <ul style="list-style-type: none"> <li>Announce Reactor Building Evacuation, if not previously performed</li> <li>Enter AOP-1 <ul style="list-style-type: none"> <li>Control RPV water level between 180 and 220" using any of the following methods:</li> <li>Take manual control of reactor feed pump and adjust FDWTR STARTUP VLV (34FCV-137)</li> </ul> </li> </ul>   | SAT / UNSAT / NA                                       |
| <p><b>Note:</b> Only 2 additional SRVs will open, for a total of 5.</p> | ATC / BOP | <ul style="list-style-type: none"> <li>Update crew on RB area temperatures</li> <li>May attempt to open Turbine Bypass Valves to initiate cooldown or rapidly depressurize RPV in anticipation of Emergency Depressurization</li> <li>Recognize / report failure of Bypass Opening Jack to open TBVs</li> <li>May lower pressure regulator setpoint to initiate cooldown</li> <li>Report two area temperatures above Max Safe Value</li> <li>Attempt to open 7 ADS valves</li> <li>Recognize \ report that only 3 ADS valves opened</li> <li><b>Open additional SRVs</b></li> <li>Report 5 SRVs are open</li> </ul> | <p>SAT / UNSAT / NA</p> <p><b>Critical Task #2</b></p> |

### Termination Criteria:

- All control rods are inserted, Emergency RPV Depressurization is in progress, Reactor water level is controlled above 0"



## Shift Turnover

The Plant is operating at approximately 7% power with the Mode Switch in STARTUP.

The Drywell has been verified to be clear of personnel.

The RWM is bypassed due to a hardware failure.

When you take the shift:

4. Transition to Mode 1 per OP-65 step D.20.3.
5. Continue OP-65, up to and including, step D.20.6 to withdraw all IRMs.
6. Continue control rod withdrawals per the startup control rod sequence:
  - The next movement is A1-2 Sequence
  - RSCS Group 10
  - Step 26
  - Control Rod 26-27
  - Complete Step 26, and then hold for Reactor Engineering analysis.