

# **JPM A1a RO**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Determine the Allowable Hours an Operator Can WorkJPM No.: 2020 Admin – JPM A1a RO

K/A Reference: 2.1.5 (2.9)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X  
Classroom X Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last 2 Pages of this JPM) and Handout 1.**

- Initial Conditions:
- Your previous work history is as provided.
  - Alternate work hour rules during the COVID-19 Pandemic are NOT authorized.
  - Your work schedule reveals that over the next five weeks you are scheduled to work an average of 52 hours per week.
  - 10/4/20 1740 You report to work for Shift Turnover.
  - 10/4/20 1800 You assume the HCO watch.

- Initiating Cue:
- Based on your previous work history, the US has directed you to:
1. Determine the latest time that you can be relieved without violating Work Hour Rules or requiring a waiver or exception.
  2. Assuming that you get relieved and leave the site at the time determined in #1 above, determine the earliest time that you can report to work and assume the watch on 10/5/20, if at all, without violating any Work Hour Rules or requiring a waiver or exception.

## Job Performance Measure Worksheet

Task Standard: The operator will determine that the latest they can work is 1000 (+7 minutes) on 10/5/20 and the earliest they can assume the watch on 10/5/20 is 2000 (-7 Minutes) per the attached KEY.

Required Materials: Calculator

General References: LS-AA-119, FATIGUE MANAGEMENT AND WORK HOUR LIMITS, Rev 14

Handouts: Handout 1: Blank copy of LS-AA-119

Time Critical Task: NO

Validation Time: 32 minutes

<b><u>Critical Step Justification</u></b>	
Step 1	This step is critical because determining that they can work until 1000 (+7 Minutes) on 10/5/20 without violating overtime limits or requiring a waiver or exception is necessary to complete the assigned task.
Step 2	This step is critical because determining that they CANNOT assume the watch until 2000 (-7 Minutes) on 10/5/20 without violating overtime limits or requiring a waiver or exception is necessary to complete the assigned task.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

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**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last 2 Pages of this JPM) and Handout 1.</b>				
1	(LS-AA-119, Section 5.1.1 & 5.1.2) Determine the latest time that you can be relieved without violating overtime limits or requiring a waiver or exception.	The operator determines that the maximum amount of time that can be worked in a 24-hour period is 16 hours.	_____	_____	_____
		The operator determines that if the above 16-hour period is worked the "54-Hour Rule," will NOT be violated (6-Week Average <u>will be</u> 51.83 hours or a total of 311 hours [260 hours going forward + 45 hours last week + 6 hours worked on 10/4/20]).	_____	_____	_____
<b>Examiner NOTE: When the Outage ended the six-week average 54-hour rolling limit was reset per Step 5.1.2.</b>					
		The operator determines that if the above 16-hour period is worked the "No more than 26 work hours in any 48-hour period," will NOT be exceeded (Maximum of 16 in a 48).	_____	_____	_____
		The operator determines that if the above 16-hour period is worked the "No more than 72 work hours in any 7-day (168-hour) period," will NOT be exceeded. (Maximum 61 in 168)	_____	_____	_____

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*		<p>The operator determines and documents that they can work until <b>1000 (+7 minutes) on 10/5/20</b> without violating overtime limits or requiring a waiver or exception. (16 hours excluding turnover time)</p> <p>(Note: The 7 minutes allowance incorporates the requirements of Step 5.2.5)</p> <p><b>See Attached KEY</b></p>	_____	_____	_____
2	(LS-AA-119, Section 5.1.1) Assuming that you get relieved and leave the site at the time determined in #1 above, determine the earliest time that you can report to work and assume on 10/5/20, if at all, without violating any Work Hour Rules or requiring a waiver or exception.	<p>The operator determines that a 34-Hour Break is NOT required because a 34-Hour break was experienced on 10/3-4/20.</p>	_____	_____	_____
*		<p>The operator determines and documents that they CANNOT assume the watch until <b>2000 (As early as 1953) on 10/5/20</b> without violating overtime limits or requiring a waiver or exception. (10-hour break between successive work periods)</p> <p>(Note: The 7 minutes allowance incorporates the requirements of Step 5.2.5)</p> <p><b>See Attached KEY</b></p>	_____	_____	_____

JPM Stop Time: \_\_\_\_\_ Terminating Cue: **Applicant states task is complete.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Admin – JPM A1a RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

VERIFICATION OF COMPLETION

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KEY:

Name: Applicant's Name

Latest date/time you can be relieved: 1000 (As late as 1007) on 10/5/20

Earliest date/time you can assume the watch: 2000 (As early as 1953) on 10/5/20

## JPM CUE SHEET

**2020 NRC RO Admin JPM A1a Data Sheet**

	Mon 8/17	Tues 8/18	Wed 8/19	Thurs 8/20	Fri 8/21	Sat 8/22	Sun 8/23	Mon 8/24	Tues 8/25	Wed 8/26	Thurs 8/27	Fri 8/28	Sat 8/29	Sun 8/30	Mon 8/31	Tues 9/1
<b>SHIFT</b>	D	D	D										N	N	N	
<b>HOURS WORKED</b>	12	12	12										12	12	12	

	Wed 9/2	Thurs 9/3	Fri 9/4	Sat 9/5	Sun 9/6	Mon 9/7	Tues 9/8	Wed 9/9	Thurs 9/10	Fri 9/11	Sat 9/12	Sun 9/13	Mon 9/14	Tues 9/15	Wed 9/16	Thurs 9/17
						<b>OUTAGE</b>										
<b>SHIFT</b>		D	D	D	D			N	N	N	N		N	N	N	N
<b>HOURS WORKED</b>		12	12	12	12			12	12	12	12		12	12	12	12

	Fri 9/18	Sat 9/19	Sun 9/20	Mon 9/21	Tues 9/22	Wed 9/23	Thurs 9/24	Fri 9/25	Sat 9/26	Sun 9/27	Mon 9/28	Tues 9/29	Wed 9/30	Thurs 10/1	Fri 10/2	Sat 10/3
	<b>OUTAGE</b>															
<b>SHIFT</b>		N	N	N	N		N	N	N	N		D	D	D	WCC	
<b>HOURS WORKED</b>		12	12	12	12		12	12	12	12		12	12	12	9	

	Sun 10/4	Mon 10/5
<b>SHIFT</b>		N
<b>HOURS WORKED</b>		12



## JPM CUE SHEET

## INITIAL CONDITIONS:

- Your previous work history is as provided.
- Alternate work hour rules during the COVID-19 Pandemic are NOT authorized.
- Your work schedule reveals that over the next five weeks you are scheduled to work an average of 52 hours per week.
- 10/4/20 1740 You report to work for Shift Turnover.
- 10/4/20 1800 You assume the HCO watch.

## INITIATING CUE:

Based on your previous work history, the US has directed you to:

1. Determine the latest time that you can be relieved without violating Work Hour Rules or requiring a waiver or exception.
2. Assuming that you get relieved and leave the site at the time determined in #1 above, determine the earliest time that you can report to work and assume the watch on 10/5/20, if at all, without violating any Work Hour Rules or requiring a waiver or exception.

Name: \_\_\_\_\_

Latest date/time you can be relieved: \_\_\_\_\_

Earliest date/time you can assume the watch: \_\_\_\_\_

# **JPM A1b RO**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Complete Plant System Checks  
Inside Control Room (Verify SDM)JPM No.: 2020 Admin – JPM A1b  
RO

K/A Reference: 2.1.25 (3.9)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X  
Classroom X Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-2.**

- Initial Conditions:
- You are the HCO and started shift at 0600 today.
  - You are performing Attachment 1, Modes 1, 2 and 3, of O-6.13, DAILY SURVEILLANCE LOG.
  - The plant is in Mode 3.
  - The A RCP is running, and the B RCP is secured.
  - RCS temperature is stable at 530°F.
  - RCS Boron Concentration is 1275 PPM.
  - The Rx Core is at 16,000 MWD/MTU.

- Initiating Cue:
1. Complete the Attachment 1 check to Verify SDM on Page 6 of 10.
  2. Identify, based on your check, if any action is required per Technical Specifications.
  3. Identify the latest time that the Shutdown Margin Check of O-6.13, Attachment 1, can be completed.

## Job Performance Measure Worksheet

Task Standard: The operator will determine that adequate SDM does not exist, that the required ACTION is to Initiate boration to restore SDM to within limit within 15 minutes and identify that Attachment 1 of O-6.13 must be complete by 0900.

Required Materials: None

General References: O-6.13, DAILY SURVEILLANCE LOG, Rev 202  
O-3, HOT SHUTDOWN WITH XENON PRESENT, Rev 049  
O-3.1, BORON CONCENTRATION FOR THE XENON FREE ALL RODS IN – MOST REACTIVE ROD STUCK OUT SHUTDOWN MARGIN, Rev 063  
CORE OPERATING LIMITS REPORT – CYCLE 42, Rev 0  
Technical Specification LCO 3.1.1, SHUTDOWN MARGIN (SDM), Amendment 122  
Technical Specification LCO 3.1.1, SHUTDOWN MARGIN (SDM), Basis. Rev 42

Handouts: Handout 1: Blank copy of O-6.13  
Handout 2: Technical Specification LCO 3.1.1, SHUTDOWN MARGIN (SDM)/Basis

Time Critical Task: NO

Validation Time: 10 minutes

<b><u>Critical Step Justification</u></b>	
Step 1	This step is critical using Attachment 14 of O-6.13 to determine the Minimum RCS Boron Concentration to be 1290-1310 ppm and comparing the current RCS Boron Concentration to the required RCS Boron Concentration and determining that SDM does NOT exist is necessary to complete the directed task.
Step 2	This step is critical because determining that the required ACTION is to Initiate boration to restore SDM to within limit within 15 minutes is necessary to complete the directed task.
Step 3	This step is critical because determining that Attachment 1 of O-6.13 must be complete by 0900 is necessary to complete the directed task.

## Job Performance Measure Worksheet

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

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**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-2.</b>				
1	(Directed Action 1; O-6.13, Step 6.3.26) Complete the Attachment 1 check to Verify SDM on Page 6 of 10.	The operator addresses Step 6.3.26 of O-6.13.	_____	_____	_____
	VERIFY SDM as follows:	The operator addresses Step 6.3.26.1 of O-6.13 and determines that this step does NOT apply and proceeds.	_____	_____	_____
	IF in Mode 2 with Keff less than 1.0 OR Mode 3 with RCS temperature greater than 535°F, THEN.....	The operator addresses Step 6.3.26.2 of O-6.13 and proceeds to Attachment 14.	_____	_____	_____
*	IF in Mode 3 with RCS Temperature less than or equal to 535°F, OR in Mode 4 OR Mode 5, THEN USE Attachment 14, CSD Boron Concentration Requirement Cycle 42, of this procedure to verify Boron Concentration.	Using Attachment 14 of O-6.13, the operator determines the intersect point for 16,000 MWD/MTU (X Axis) and the curve and determines the Minimum RCS Boron Concentration (Y Axis) to be 1290-1310 ppm.	_____	_____	_____
*		The operator compares the current RCS Boron Concentration of 1275 PPM to the required RCS Boron Concentration (1290-1310 ppm) and determines and documents that SDM does NOT exist (Circle NO on Cue Sheet). <b>See Attached KEY</b>	_____	_____	_____

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*2	(Directed Action 2) Identify, based on your check, if any action is required per Technical Specifications.	The operator addresses Technical Specification LCO 3.1.1 and determines that the LCO is NOT met, Condition A is applicable and documents (On Cue Sheet) that the required ACTION is to Initiate boration to restore SDM to within limit within 15 minutes. <b>See Attached KEY</b>	___	___	___
*3	(Directed Action 3) Identify the <u>latest time</u> that the Shutdown Margin Check of O-6.13, Attachment 1, can be completed.	The operator determines and documents (On Cue Sheet) that Plant Systems Check (Inside Control Room) section of O-6.13, Attachment 1 must be complete by 0900 (Step 6.3.2 of O-6.13). <b>See Attached KEY</b>	___	___	___

JPM Stop Time: \_\_\_\_\_ Terminating Cue: **Applicant states task is complete.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Admin – JPM A1b RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## VERIFICATION OF COMPLETION

KEY:

Adequate SDM exists (Circle One)	YES	NO
Identify, based on your check, if any action is required per Technical Specifications.	Initiate boration to restore SDM to within limit within 15 minutes.	
Latest time that the Shutdown Margin Check of O-6.13, Attachment 1, can be completed:	0900	

## JPM CUE SHEET

## INITIAL CONDITIONS:

- You are the HCO and started shift at 0600 today.
- You are performing Attachment 1, Modes 1, 2 and 3, of O-6.13, DAILY SURVEILLANCE LOG.
- The plant is in Mode 3.
- The A RCP is running, and the B RCP is secured.
- RCS temperature is stable at 530°F.
- RCS Boron Concentration is 1275 PPM.
- The Rx Core is at 16,000 MWD/MTU.

## INITIATING CUE:

1. Complete the Attachment 1 check to Verify SDM on Page 6 of 10.
2. Identify, based on your check, if any action is required per Technical Specifications.
3. Identify the latest time that the Shutdown Margin Check of O-6.13, Attachment 1, can be completed.

Adequate SDM exists (Circle One)	YES	NO
Identify, based on your check, if any action is required per Technical Specifications.		
Latest time that the Shutdown Margin Check of O-6.13, Attachment 1, can be completed:		

# **JPM A2 RO**

**NOTE: This JPM will be performed individually.**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Determine Leak Isolation  
BoundariesJPM No.: 2020 Admin – JPM A2  
RO

K/A Reference: 2.2.41 (3.5)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_

Actual Performance: XClassroom X Simulator \_\_\_\_\_ Plant \_\_\_\_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page) of this JPM and Handout 1.**

## Initial Conditions:

- The plant is operating at 100% power.
- A leak has occurred on the Service Water System in the Aux Building.
- The crew has entered AP-SW.1, Service Water Leak.
- The EO reports that the leak is coming from a drain line on a 20-inch header. The pipe upstream of V-4793, Service Water Loop B Drain Valve, has separated from the header.

## Initiating Cue:

The US has directed you to:

1. Identify the closest leak isolation boundary valves for this leak.
2. Identify which, if any, of these valves need to be re-positioned from their current position.
3. Identify the Breaker location for any electrically operated leak isolation boundary valve that may need to be operated.

## Job Performance Measure Worksheet

**Task Standard:** The operator will review the Piping & Instrumentation Diagram of the Service Water System as well as system procedures and determine the closest leak isolation boundary valves for this leak, the boundary valves that need to be re-positioned and identify the Breaker location for the two MOVs in accordance with the Attached KEY.

**Required Materials:** The operator must have access to all General References.

**General References:** Drawing 33013-1250 Sheet 1 of 3, Station Service Water Safety Related (SW) P&ID, Rev 66  
Drawing 33013-1250 Sheet 2 of 3, Station Service Water Safety Related (SW) P&ID, Rev 52  
Drawing 33013-1250 Sheet 3 of 3, Station Service Water Safety Related (SW) P&ID, Rev 41  
P-12, ELECTRICAL SYSTEMS PRECAUTIONS, LIMITATIONS, AND SETPOINTS, Rev 029  
T-36.1, STATION SERVICE WATER HEADER VALVE ALIGNMENT FOR TWO LOOP OPERATION, Rev 052  
T-44.2, SAFW SYSTEM ALIGNMENT FOR NORMAL OPERATION, Rev 038  
OP-AA-109-101, PERSONNEL AND EQUIPMENT TAGOUT PROCESS, Rev 016

**Handouts:** Handout 1: Drawing 33013-1250 Sheet 1, 2 and 3 of 3, Station Service Water Safety Related (SW) P&ID.

**Time Critical Task:** NO

**Validation Time:** 15 minutes

<b><u>Critical Step Justification</u></b>	
Step 1	This step is critical because reviewing the Flow Diagram of the Service Water System P&ID and determining the closest leak isolation boundary valves for this leak is necessary to complete the assigned task.
Step 2	This step is critical because reviewing the Flow Diagram of the Service Water System P&ID, T-36.1 and T-44.2 and determining that three valves must be re-positioned is necessary to complete the assigned task.
Step 3	This step is critical because reviewing the Flow Diagram of the Service Water System P&ID, P-12, T-36.1 and/or T-44.2 and determining that the breaker for MOV-4615 is on MCC C Compartment 14J; and the breaker for MOV-4734 is on MCC D Compartment 6F is necessary to complete the assigned task.

## Job Performance Measure Worksheet

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

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**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
CUE	Provide Applicant with Initial Conditions/Cue (Last Page) of this JPM and Handout 1.				
Examiner NOTE: When asked by the applicant for a General Reference procedure such as P-12, T-36.1 and/or T-44.2, provide the applicant with a copy.					
*1	(Directed Action) Identify the closest leak isolation boundary valves for this leak.	<p>The operator will review the Flow Diagram of the Service Water System P&amp;ID and determine and document (Cue Sheet) the closest leak isolation boundary valves for this leak are:</p> <ul style="list-style-type: none"><li>• MOV-4615</li><li>• MOV-4734</li><li>• V-4779</li><li>• V-9626B</li></ul> <p>See Attached KEY</p>	_____	_____	_____
*2	(Directed Action) Identify which, if any, of these valves need to be re-positioned from their current position.	<p>The operator will review the Flow Diagram of the Service Water System P&amp;ID, T-36.1 and/or T-44.2 and determine and document (Cue Sheet) that the following valves must be re-positioned:</p> <ul style="list-style-type: none"><li>• MOV-4615</li><li>• MOV-4734</li><li>• V-9626B</li></ul> <p>See Attached KEY</p>	_____	_____	_____

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*3	(Directed Action) Identify the Breaker location for any electrically operated leak isolation boundary valve that may need to be operated.	<p>The operator will review the Flow Diagram of the Service Water System P&amp;ID, P-12, T-36.1 and/or T-44.2 and determine and document (Cue Sheet) that the breaker for MOV-4615 is on MCC C Compartment 14J; and the breaker for MOV-4734 is on MCC D Compartment 6F</p> <p><b>See Attached KEY</b></p>	_____	_____	_____

JPM Stop Time: \_\_\_\_\_ Terminating Cue: **Applicant states task is complete.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Admin – JPM A2 RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## VERIFICATION OF COMPLETION

## KEY:

<b>Closest leak isolation boundary valves for this leak.</b>	<b>MOV-4615, AUX BLDG SW ISOL VLV MOV-4734, AUX BLDG SW ISOL VLV V-4779, SW LOOPS A &amp; B CROSSTIE VLV (AUX BLDG) V-9626B, SERV WTR INLET ISOL VLV TO STDBY AUX FW PMP RM  As a MINIMUM, the above valves must be identified.</b>
<b>Which, if any, leak isolation boundary valves need to be re-positioned from their current position.</b>	<b>MOV-4615, AUX BLDG SW ISOL VLV MOV-4734, AUX BLDG SW ISOL VLV V-9626B, SERV WTR INLET ISOL VLV TO STDBY AUX FW PMP RM</b>
<b>Breaker location for any electrically operated leak isolation boundary valve that may need to be operated.</b>	<b>The breaker for MOV-4615 is on MCC C Compartment 14J The breaker for MOV-4734 is on MCC D Compartment 6F</b>

## JPM CUE SHEET

## INITIAL CONDITIONS:

- The plant is operating at 100% power.
- A leak has occurred on the Service Water System in the Aux Building.
- The crew has entered AP-SW.1, Service Water Leak.
- The EO reports that the leak is coming from a drain line on a 20-inch header. The pipe upstream of V-4793, Service Water Loop B Drain Valve, has separated from the header.

## INITIATING CUE:

The US has directed you to:

1. Identify the closest leak isolation boundary valves for this leak.
2. Identify which, if any, of these valves need to be re-positioned from their current position.
3. Identify the Breaker location for any electrically operated leak isolation boundary valve that may need to be operated.

<b>Closest leak isolation boundary valves for this leak.</b>	
<b>Which, if any, leak isolation boundary valves need to be re-positioned from their current position.</b>	
<b>Breaker location for any electrically operated leak isolation boundary valve that may need to be operated.</b>	

# **JPM A3 RO**

**NOTE: This JPM will be performed individually.**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Evaluate Steam Generator Tube  
Leakage from R-47 ReadingJPM No.: 2020 Admin – JPM A3  
RO

K/A Reference: 2.3.5 (2.9)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X  
Classroom X Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page) of this JPM, and Handout 1.**

Initial Conditions:

- The plant is operating at 100% power.
- The Secondary EO has called and indicated that the R-47 AMBER light is blinking, and the R-47 bar graph indication, which is also AMBER, is reading 5.265E2 cpm.
- The EO reports that:
  - The R-47 WARNING alarm setpoint is 4.76E2 cpm.
  - The R-47 HIGH alarm setpoint is 9.33E2 cpm.
- The HCO reports that the PPCS point R47G is reading 4.4 gpd and stable.
- RP/Chemistry has been requested to obtain and analyze an air ejector grab sample.
- The crew is evaluating the need to enter AP-SG.1, Steam Generator Tube Leak.

Initiating Cue: The US has directed you to:

- Determine if the R-47 alarm setpoints are set properly (If NO, identify their current condition as too HIGH or LOW).

## Job Performance Measure Worksheet

- Determine the estimated Steam Generator Tube Leakrate based on the local R-47 reading.
- Determine if AP-SG.1, Steam Generator Tube Leak, should be entered based on the known information.

**Task Standard:** The operator will determine that the R-47 alarm setpoints are set lower than identified by P-9, that the leakrate is 4.5 gpd based on the R-47 reading and that this leakrate is below the entry conditions into AP-SG.1.

**Required Materials:** Calculator  
All General References must be available to the operator

**General References:** AR-RMS-R47, R-47 AIR EJECTOR NOBLE GAS MONITOR, Rev 00000  
AR-PPCS-R47AR, SGTL INDICATED, Rev 00000  
RE Ginna Curve Book, Curve 06-004, Steam Generator Tube Leak Rate vs. RM-47 Reading, Rev 7/15/19  
AP-SG.1, STEAM GENERATOR TUBE LEAK, Rev 019  
P-9, RADIATION MONITORING SYSTEM, Rev 107

**Handouts:** Handout 1: Blank copy of AP-SG.1

**Time Critical Task:** NO

**Validation Time:** 15 minutes

<b><u>Critical Step Justification</u></b>	
Step 1	This step is critical because using Attachment 1 of P-9 and comparing the required and actual HIGH and WARNING setpoints of R-47 is necessary to determine that the R-47 alarm setpoints are set lower than identified by P-9.
Step 2	This step is critical because comparing the local R-47 reading to Curve #06-004 and determining that Steam Generator Tube Leakage is $\approx 4.5$ gpd is necessary to determine that the local R-47 reading is too low to support entry into AP-SG.1.
Step 3	This step is critical because comparing the known information to the AP-SG.1 Entry Conditions and Symptoms and determining that none are met; and determining that AP-SG.1 should NOT be entered is necessary to complete the assigned task.

## Job Performance Measure Worksheet

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

.....

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page) of this JPM, and Handout 1.</b>				
<b>Examiner NOTE: When asked by the applicant for a General Reference procedure such as AR-RMS-R47, AR-PPCS-R47AR, RE Ginna Curve Book and/or P-9, provide the applicant with a copy.</b>					
1	Determine if the R-47 alarm setpoints are set properly.	The operator obtains P-9, Radiation Monitoring System.	_____	_____	_____
*		The operator uses Attachment 1 of P-9 to determine that the required R-47 HIGH alarm must be set at 9.33E6 cpm.	_____	_____	_____
*		The operator uses Attachment 1 P-9 to determine that the R-47 WARNING alarm should be set at 4.67E6 cpm.	_____	_____	_____
*		The operator compares the reported R-47 HIGH and WARNING alarm setpoints to that required by P-9 and determines that both alarm setpoints are incorrectly set too LOW and circles NO/Too Low on Cue Sheet.  <b>See Attached Key</b>	_____	_____	_____
<b>CUE</b>	<b>If the operator requests the alarm setpoints as listed on the PPCS, indicate that the WARNING alarm is set at 4.67E6 cpm, and the HIGH alarm setpoint is set at 9.33E6 cpm.</b>				
<b>Examiner Note: There is a potential that the alarm setpoints on the PPCS and the local instrument could be set differently. The PPCS alarm setpoints are set by IT personnel controlling the PPCS Software. The alarm setpoints on the local instrument are set by operators.</b>					



## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
2	Determine the estimated Steam Generator Tube Leakrate based on the local R-47 reading.	The operator obtains Curve 06-004, Steam Generator Tube Leak Rate vs. RM-47 Reading.	_____	_____	_____
*		The operator compares the local R-47 reading of 5.265E2 to Curve #06-004 and determines and documents (Cue Sheet) that Steam Generator Tube Leakage is ≈4.5 gpd.  <b>See Attached Key</b>	_____	_____	_____
<b>CUE</b>	<b>If asked, report as the Secondary EO that the Air Ejector leakoff is 3.0 SCFM.</b>				
3	Determine if AP-SG.1, Steam Generator Tube Leak, should be entered based on the known information.	The operator reviews Entry Conditions and Symptoms of AP-SG.1.	_____	_____	_____
*		The operator compares the known information to the AP-SG.1 Entry Conditions and Symptoms and determines and documents (Cue Sheet) that none are met; and determines and documents (Cue Sheet) that AP-SG.1 should NOT be entered.  <b>See Attached Key</b>	_____	_____	_____
<b>Examiner Note: The operator may indicate that AP-SG.1 could be entered based on the results of the requested Air Ejector grab sample.</b>					

JPM Stop Time: \_\_\_\_\_ Terminating Cue: **Applicant states task is complete.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Admin – JPM A3 RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## VERIFICATION OF COMPLETION

KEY:

<b>R-47 alarm setpoints are set properly</b>	<p>YES / NO</p> <p>IF NO (Otherwise NA):</p> <p>Too HIGH / Too LOW</p>
<b>Estimated Steam Generator Tube Leakrate based on the local R-47 reading.</b>	<p>4.5 gpd</p>
<b>Should AP-SG.1 be entered?</b>	<p>YES / NO</p>

## JPM CUE SHEET

## INITIAL CONDITIONS:

- The plant is operating at 100% power.
- The Secondary EO has called and indicated that the R-47 AMBER light is blinking, and the R-47 bar graph indication, which is also AMBER, is reading 5.265E2 cpm.
- The EO reports that:
  - The R-47 WARNING alarm setpoint is 4.76E2 cpm.
  - The R-47 HIGH alarm setpoint is 9.33E2 cpm.
- The HCO reports that the PPCS point R47G is reading 4.4 gpd and stable.
- RP/Chemistry has been requested to obtain and analyze an air ejector grab sample.
- The crew is evaluating the need to enter AP-SG.1, Steam Generator Tube Leak.

## INITIATING CUE:

The US has directed you to:

- Determine if the R-47 alarm setpoints are set properly (If NO, identify their current condition as too HIGH or LOW).
- Determine the estimated Steam Generator Tube Leakrate based on the local R-47 reading.
- Determine if AP-SG.1, Steam Generator Tube Leak, should be entered based on the known information.

<b>R-47 alarm setpoints are set properly</b>	<p style="text-align: center;">YES / NO</p> <p>IF NO (Otherwise NA):</p> <p style="text-align: center;">Too HIGH / Too LOW</p>
<b>Estimated Steam Generator Tube Leakrate based on the local R-47 reading.</b>	
<b>Should AP-SG.1 be entered?</b>	<p style="text-align: center;">YES / NO</p>

# **JPM A1a SRO**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Determine Time to Boil for a Loss of Shutdown CoolingJPM No.: 2020 Admin – JPM A1a SRO

K/A Reference: 2.1.25 (4.2)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_

Actual Performance: XClassroom X Simulator \_\_\_\_\_ Plant \_\_\_\_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**

Initial Conditions:

- The plant is in Mode 5 for a mid-cycle outage.
- The reactor has been shutdown for 60 hours.
- The pressurizer is solid with LTOP in service.
- RCS temperature is 100°F.
- You are the US.

Initiating Cue:

The Shift Manager has directed you to determine the Time to Boil given a Loss of RHR and the following two sets of conditions:

- For present plant conditions,  
AND
- Exactly ten (10) days from now when:
  - PRZR Level will be 13%
  - RCS temperature will be 100°F
  - PRZR Manway is OFF

## Job Performance Measure Worksheet

Task Standard: The operator will use IP-OUT-2 and determine that the Time to Boil for the present plant conditions is 3.6 hours, and for the projected conditions ten days from now is 1.65 hours.

Required Materials: Calculator

General References: IP-OUT-2, OUTAGE RISK MANAGEMENT, Rev 024

Handouts: Handout 1: Blank copy of IP-OUT-2

Time Critical Task: NO

Validation Time: 12 minutes

<b><u>Critical Step Justification</u></b>	
Step 1	This step is critical because determining that Page 5 of 11 on Attachment E, Time to Reach Saturation with Pressurizer Full and RCS Closed, most closely approximates present plant conditions, addressing this page and determining time to boil to be 3.60 hours for the present plant conditions is necessary to complete the assigned task.
Step 2	This step is critical because determining that Page 9 of 11 on Attachment E, Time to Reach Saturation with Pressurizer at 13% Level and RCS Vented, most closely approximates the predicted plant conditions, addressing this page and determining time to boil to be 1.65 hours for the predicted plant conditions is necessary to complete the assigned task.

## Job Performance Measure Worksheet

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.  
.....



## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.</b>				
1	(Directed Action) Determine time-to-boil for a loss of RHR under Present Plant conditions.	The operator reviews IP-OUT-2, proceeds to Attachment E.	—	—	—
*		The operator determines that Page 5 of 11 on Attachment E, Time to Reach Saturation with Pressurizer Full and RCS Closed, most closely approximates present plant conditions, and addresses this page.	—	—	—
*		The operator finds the intersecting cell for Time after Shutdown (hrs) - 60 and Time to Reach Saturation (hrs) w/Trcs = 100°F and determines and documents (Cue Sheet) time to boil to be 3.60 hours.  <b>See Attached Key</b>	—	—	—
2	(Directed Action) Determine time-to-boil for a loss of RHR Exactly ten (10) days from now when: <ul style="list-style-type: none"> <li>PRZR Level will be 13%</li> <li>RCS temperature will be 100°F</li> <li>PRZR Manway is OFF</li> </ul>	The operator reviews IP-OUT-2, proceeds to Attachment E.	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
2 CONT'D *		The operator determines that Page 9 of 11 on Attachment E, Time to Reach Saturation with Pressurizer at 13% Level and RCS Vented, most closely approximates the predicted plant conditions, and addresses this page.	—	—	—
*		The operator finds the intersecting cell for Time after Shutdown (hrs) - 300 and Time to Reach Saturation (hrs) w/Trcs = 100°F and determines and documents (Cue Sheet) time to boil to be 1.65 hours.  <b>See Attached Key</b>	—	—	—

JPM Stop Time: \_\_\_\_\_ Terminating Cue: **Applicant states task is complete.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Admin – JPM A1a SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## VERIFICATION OF COMPLETION

KEY:

<b>Present Plant Conditions:</b>	<b>3.60 Hours</b>
<b>Projected Plant Conditions: (Ten Days from now)</b>	<b>1.65 Hours</b>

## JPM CUE SHEET

- INITIAL CONDITIONS:
- The plant is in Mode 5 for a mid-cycle outage.
  - The reactor has been shutdown for 60 hours.
  - The pressurizer is solid with LTOP in service.
  - RCS temperature is 100°F.
  - You are the US.

INITIATING CUE: The Shift Manager has directed you to determine the Time to Boil given a Loss of RHR and the following two sets of conditions:

- For present plant conditions,

AND

- Exactly ten (10) days from now when:
  - PRZR Level will be 13%
  - RCS temperature will be 100°F
  - PRZR Manway is OFF

Record Answers Below:

<b>Present Plant Conditions:</b>	
<b>Projected Plant Conditions: (Ten Days from now)</b>	

# **JPM A1b SRO**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Determine Reportability RequirementsJPM No.: 2020 Admin – JPM A1b SRO

K/A Reference: 2.1.18 (3.8)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance:

Actual Performance: X

Classroom X Simulator

Plant

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-2.**

Initial Conditions:

- With the plant at 100% power, the following event occurred at 0900 today:
  - A failure of the A Feed Regulating Valve Controller resulted in an automatic reactor trip signal.
  - The crew entered E-0, Reactor Trip or Safety Injection, and transitioned to ES-0.1, Reactor Trip Response, and all equipment responded as expected.
- The SM has verified that this event has NOT exceeded an Emergency Action Level (EAL).
- The SM and the STA believe that this event is reportable to the NRC.
- No external persons and/or agencies have been notified of this event, nor have any actions other than those identified been taken.

Initiating Cue:

Ten minutes after the event the SM directs you to determine reportability requirements, including completion of any necessary paperwork (Provide to Examiner when ready to Transmit).

## Job Performance Measure Worksheet

**Task Standard:** The operator will identify that this issue requires a 4-hour notification to the NRC in accordance with LS-AA-1020 (Reportability Tables and Decision Trees), and complete NRC Form 361 (Reactor Plant Event Notification Worksheet) in accordance with the provided Key.

**Required Materials:** General References must be available for the operator to reference.

**General References:** LS-AA-1020, REPORTABILITY TABLES AND DECISION TREES, Rev 30  
LS-AA-1110, REPORTABILITY REFERENCE MANUAL, Rev 29  
LS-AA-1120, REPORTABILITY REFERENCE MANUAL, Rev 21  
LS-AA-1130, REPORTABILITY REFERENCE MANUAL, Rev 17  
LS-AA-1150, NRC FORM 361, Rev 001  
PI-AA-120, ISSUE IDENTIFICATION AND SCREENING PROCESS, Rev 10  
OP-AA-106-101-1001, EVENT RESPONSE GUIDELINES, Rev 31

**Handouts:** Handout 1: Blank copy of LS-AA-1020

Handout 2: Blank copy of LS-AA-1150

**Time Critical Task:** NO

**Validation Time:** 18 minutes

<b><u>Critical Step Justification</u></b>	
Step 1	This step is critical because determining that Event Number SAF 1.6 is applicable and that this event must be reported via the ENS within 4 hours of the occurrence is necessary to complete the assigned task.
Step 2	Portions of this step are critical because completing the NRC Form 361 per the provided KEY is necessary to complete the assigned task.



Job Performance Measure Worksheet

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Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.  
.....

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-2.</b>				
1	(Directed Action) The SM directs you to determine reportability requirements.	The operator reviews LS-AA-1020, Decision Trees – Operations and determines that SAF 1.5, 1.6 and 1.7 should be evaluated.	—	—	—
		The operator reviews LS-AA-1020, Reportability Reference Manual, Volume 1 – Table SAF.	—	—	—
*		The operator determines and documents on Form 361 that Event Number SAF 1.6 is applicable and that this event must be reported via the ENS within 4 hours of the occurrence.  <b>See Provided Key</b>	—	—	—
<b>Examiner Note: SAF 1.6 is “Any event or condition that results in actuation of the reactor protection system (RPS) when the reactor is critical except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation,” per 10CFR50.72(b)(2)(iv)(B).</b>					
		The operator determines and documents on Form 361 that Event Number SAF 1.7 is applicable and that this event must be reported via the ENS within 8 hours of the occurrence.	—	—	—
<b>Examiner Note: SAF 1.7 is “Any event or condition that results in valid actuation of any of the systems listed in 10CFR50.72(b)(3)(iv)(B), except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation,” per 10CFR50.72(b)(3)(iv). It is NOT considered Critical because it requires an 8-Hour Report and is bounded by the Critical 4-Hour report required because of the same event.</b>					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*2	(Directed Action) Complete any necessary paperwork for reportability.	The operator enters "Ginna" in the <b>Facility or Organization</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
*		The operator enters their name in the <b>Name of Caller/Title</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
*		The operator enters the Control Room # in the <b>Call Back #</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
*		The operator enters "0900 EST" in the <b>Event Time &amp; Zone</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
*		The operator enters the current date in the <b>Event Date</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
*		The operator enters "100%/Mode 1" in the <b>Power/Mode (At Time of Event)</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
*		The operator enters "0%/Mode 3" in the <b>Power/Mode (At Time of Notification)</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
*		The operator places a checkmark or X in the box associated with <b>4-HR.NON-EMERGENCY 10CFR 50.72(b)(2), (iv)(B) RPS Actuation (scram), ARPS</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
2 (Cont'd)		The operator places a checkmark or X in the box associated with <b>8-HR.NON-EMERGENCY 10CFR 50.72(b)(3), (iv)(A) Specified System Actuation, AESF</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
*		The operator enters "The Reactor was automatically tripped from 100% power due to a secondary system transient" or an equivalent description in the <b>Event Description (Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned etc.)</b> Block on Page 1 of Handout 2.  <b>See Provided Key</b>	—	—	—
*		The operator places a checkmark or X in the WILL BE box associated with Notification of the <b>NRC Resident</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
		The operator places a checkmark or X in the WILL BE or NO box associated with Notification of the <b>State(s)</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
		The operator places a checkmark or X in the WILL BE or NO box associated with Notification of the <b>Local</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
2 (Cont'd)		The operator places a checkmark or X in the WILL BE or NO box associated with Notification of the <b>Other Gov Agencies</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
		The operator places a checkmark or X in the WILL BE or NO box associated with Notification of the <b>Media/Press Release</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
		The operator places a checkmark or X in the NO box associated with <b>Anything Unusual or not understood?</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
		The operator places a checkmark or X in the YES box associated with <b>Did all systems function as required?</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—
		The operator enters "MODE 3" in the <b>Mode of operations until corrected (if applicable)</b> Block of Handout 2.  <b>See Provided Key</b>	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
2 (Cont'd)		<p>The operator places a checkmark or X in the NO box associated with Additional Information continued on the next page Block of Handout 2, or YES box if additional information is documented in the <b>Event Description (Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned etc.)</b> Block on Page 2 of Handout 2.</p> <p><b>See Provided Key</b></p>	—	—	—

JPM Stop Time: \_\_\_\_\_ Terminating Cue: **Applicant states task is complete.**

.....

VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Admin – JPM A1b SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## JPM CUE SHEET

## INITIAL CONDITIONS:

- With the plant at 100% power, the following event occurred at 0900 today:
  - A failure of the A Feed Regulating Valve Controller resulted in an automatic reactor trip signal.
  - The crew entered E-0, Reactor Trip or Safety Injection, and transitioned to ES-0.1, Reactor Trip Response, and all equipment responded as expected.
- The SM has verified that this event has NOT exceeded an Emergency Action Level (EAL).
- The SM and the STA believe that this event is reportable to the NRC.
- No external persons and/or agencies have been notified of this event, nor have any actions other than those identified been taken.


## INITIATING CUE:

Ten minutes after the event the SM directs you to determine reportability requirements, including completion of any necessary paperwork (Provide to Examiner when ready to Transmit).



RED = Critical

Page      of     

NRC FORM 361 (10-2019)		U.S. NUCLEAR REGULATORY COMMISSION OPERATIONS CENTER		APPROVED BY OMB: NO. 3150-0238		EXPIRES: 10/31/2022	
		<b>REACTOR PLANT EVENT NOTIFICATION WORKSHEET</b>		<small>Estimated burden per response to comply with this voluntary collection request: 30 minutes. The information provided will be used for evaluation of licensee event description, facility status and for input to the public website. Send comments regarding burden estimate to the Information Services Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to <a href="mailto:InfoCollect.Resource@nrc.gov">InfoCollect.Resource@nrc.gov</a>, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0238), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.</small>			
				EN # <u>                    </u>			
NRC OPERATIONS TELEPHONE NUMBERS: PRIMARY - 301-816-5100 or 800-532-3469*, BACKUPS - [1st] 301-951-0550 or 800-449-3694*, [2nd] 301-415-0550 and [3rd] 301-415-0553. *Licensees who maintain their own ETS are provided these telephone numbers. FAX - 301-816-5151, EMAIL - <a href="mailto:hoo.hoc@nrc.gov">hoo.hoc@nrc.gov</a>							
Notification Time	Facility or Organization	Unit	Name of Caller/Title			Call Back #	
	Ginna		Operator's Name			Control Rm #	
Event Time & Zone	Event Date	Power/Mode (At Time of Event)		Power/Mode (At Time of Notification)			
0900 EST	Today's date	100%/Mode 1		0%/Mode 3			
EVENT CLASSIFICATION		1-HR. NON-EMERGENCY 10 CFR 50.72(b)(1)		<input type="checkbox"/> (v)(A) Safe S/D Capability AINA <input type="checkbox"/> (v)(B) RHR Capability AINB			
<input type="checkbox"/> GENERAL EMERGENCY	GEN/AAEC	<input type="checkbox"/> TS Deviation ADEV		<input type="checkbox"/> (v)(C) Control of Rad Release AINC			
<input type="checkbox"/> SITE AREA EMERGENCY	SIT/AAEC	4-HR. NON-EMERGENCY 10 CFR 50.72(b)(2)		<input type="checkbox"/> (v)(D) Accident Mitigation AIND			
<input type="checkbox"/> ALERT	ALC/AAEC	<input type="checkbox"/> (I) TS Required S/D ASHU		<input type="checkbox"/> (xii) Offsite Medical AMED			
<input type="checkbox"/> UNUSUAL EVENT	UNU/AAEC	<input type="checkbox"/> (iv)(A) ECCS Discharge to RCS ACCS		<input type="checkbox"/> (xiii) Loss Comm/Asmt/Response ACOM			
<input type="checkbox"/> 50.72 NON-EMERGENCY (see next columns)		<input checked="" type="checkbox"/> (iv)(B) RPS Actuation (scram) ARPS		60-DAY OPTIONAL 10 CFR 50.73(a)(1)			
<input type="checkbox"/> PHYSICAL SECURITY (73.71)	DDDD	<input type="checkbox"/> (xi) Offsite Notification APRE		Invalid Specified System Actuation AINV			
<input type="checkbox"/> MATERIAL/EXPOSURE	B????	8-HR. NON-EMERGENCY 10 CFR 50.72(b)(3)		OTHER UNSPECIFIED REQUIREMENT (IDENTIFY)			
<input type="checkbox"/> FITNESS FOR DUTY	HFIT	<input type="checkbox"/> (II)(A) Degraded Condition ADEG		<input type="checkbox"/> NONR			
<input type="checkbox"/> OTHER UNSPECIFIED REQMT. (see last column)		<input type="checkbox"/> (II)(B) Unanalyzed Condition AJNA		<input type="checkbox"/> NONR			
<input type="checkbox"/> INFORMATION ONLY	HFIT	<input checked="" type="checkbox"/> (iv)(A) Specified System Actuation AESF		<input type="checkbox"/> NONR			
Event Description (Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned, etc.) (Continue on Page 2)							
The Reactor was automatically tripped from 100% power due to a secondary system transient (Or Equivalent).							
NOTIFICATIONS	YES	NO	WILL BE	Anything Unusual or not understood? <input type="checkbox"/> Yes (Explain above) <input checked="" type="checkbox"/> No			
NRC RESIDENT	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
STATE(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Did all systems function as required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain above)			
LOCAL	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
OTHER GOV AGENCIES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mode of operations until corrected (if applicable) <b>MODE 3</b>			
MEDIA/PRESS RELEASE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Additional Information continued on next page? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

NRC FORM 361 (10-2019)

Continued on next page

Notifications: Checking "NO" and/or "Will Be" is acceptable for State, Local, Other Gove Agencies, Media Press Release.

NRC FORM 361 (10-2019)		U.S. NUCLEAR REGULATORY COMMISSION OPERATIONS CENTER EN # <input style="width: 100px;" type="text"/>				
<b>REACTOR PLANT EVENT NOTIFICATION WORKSHEET (Continued)</b>						
<b>RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS</b> (specific details/explanations should be covered in event description)						
<input type="checkbox"/> Liquid Release	<input type="checkbox"/> Gaseous Release	<input type="checkbox"/> Unplanned Release	<input type="checkbox"/> Planned Release	<input type="checkbox"/> Ongoing	<input type="checkbox"/> Terminated	
<input type="checkbox"/> Monitored	<input type="checkbox"/> Unmonitored	<input type="checkbox"/> Offsite Release	<input type="checkbox"/> T.S. Exceeded	<input type="checkbox"/> RM Alarms	<input type="checkbox"/> Areas Evacuated	
<input type="checkbox"/> Personnel Exposed or Contaminated		<input type="checkbox"/> Offsite Protection Actions Recommended		*State release path in description		
	Release Rate (Ci/sec)	% T.S. Limit	HOO Guide	Total Activity (Ci)	% T.S. Limit	HOO Guide
Noble Gas	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	0.1 Ci/sec	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	1000 Ci
Iodine	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	10 µCi/sec	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	0.01 Ci
Particulate	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	1 µCi/sec	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	1 mCi
Liquid (excluding tritium and dissolved noble gas)	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	10 µCi/min	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	0.1 Ci
Liquid (tritium)	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	0.2 Ci/min	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	5 Ci
TOTAL	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>		<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	
	Plant Stack	Condenser/Air Ejector	Main Steam Line	SG Blowdown	Other	
RAD Monitor Readings	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	
Alarm Setpoints	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	
% T.S. Limit (if applicable)	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	
<b>RCS OR SG TUBE LEAKS: CHECK OR FILL IN APPLICABLE ITEMS:</b> (specific details/explanations should be covered in event description)						
Location of the Leak (e.g., SG #, valve, pipe, etc.) <input style="width: 300px;" type="text"/>						
Leak Rate	Units: <input style="width: 50px;" type="text"/> gpm/gpd	T. S. Limits	Sudden or Long-Term Development			
<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 300px;" type="text"/>			
Leak Start Date	Time	Coolant Activity and Units:	Primary	Secondary		
<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 100px;" type="text"/>	<input style="width: 150px;" type="text"/>		
List of Safety Related Equipment not Operational						
<input style="width: 1000px;" type="text"/>						
Event Description (Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned, etc.) (Continued from Page 1)						
<input style="width: 1000px;" type="text"/>						

# **JPM A2 SRO**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: A-52.12, Inoperability of a Fire DamperJPM No.: 2020 Admin – JPM A2 SRO

K/A Reference: 2.2.42 (4.6)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance:

Actual Performance: X

Classroom X Simulator

Plant

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-3.**

Initial Conditions:

- The plant is operating at 100% power.
- STP-E-13.26, TESTING OF FIRE DAMPERS, is in progress.
- a report from the field has indicated that Fire Damper BA-28, located in the wall separating the Turbine Building from Battery Room A, has failed its drop test and is stuck in its current OPEN position.
- No other Fire Protection/Detection System components are OOS.
- You are the US.

Initiating Cue:

- Document the failure of the Fire Damper by completing A-52.12-F-03, CONTROL OF LCO FOR FIRE SUPPRESSION, DETECTION, FIRE BARRIERS, NFPA 805 AND HIGH SAFETY SIGNIFICANT COMPONENTS (HSSC); and identify all, if any, required ACTION.
- When documenting the failure, assume all required notifications and response actions are implemented as needed.

Task Standard:

The operator will complete an A-52.12-F-03 in accordance with the provided KEY and identify that ACTION A.1.1 or A.1.2.1 and A.1.2.2; and A.2 of TRM 3.7.5 must be taken.

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Job Performance Measure Worksheet

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Required Materials: General References must be available for the operator to reference.

General References: A-52.12, NONFUNCTIONAL EQUIPMENT IMPORTANT TO SAFETY, Rev 106  
A-52.12-F-03, CONTROL OF LCO FOR FIRE SUPPRESSION, DETECTION, FIRE BARRIERS, NFPA 805 AND HIGH SAFETY SIGNIFICANT COMPONENTS (HSSC), Rev 002  
TR 3.7.5, FIRE BARRIER RATED ASSEMBLIES AND COMPONENTS, (Rev 68)  
STP-E-13.26, TESTING OF FIRE DAMPERS, Rev 004  
A-601.16, ON-LINE FIRE RISK MANAGEMENT, Rev 008

Handouts: Handout 1: Blank copy of A-52.12  
Handout 2: Blank copy of A-601.16  
Handout 3: Several blank copies of A-52.12-F-03

Time Critical Task: NO

Validation Time: 15 minutes

## Job Performance Measure Worksheet

<b><u>Critical Step Justification</u></b>	
Step 2	This step is critical because completing an A-52.12-F-03 using the instructions in Section 6.7 of A-52.12, per the KEY provided is necessary to complete the assigned task.
Step 4	This step is critical because completing an A-52.12-F-03 using the instructions in Section 6.7 of A-52.12, per the KEY provided is necessary to complete the assigned task.
Step 5	This step is critical because completing an A-52.12-F-03 using the instructions in Section 6.7 of A-52.12, per the KEY provided is necessary to complete the assigned task.
Step 6	This step is critical because completing an A-52.12-F-03 using the instructions in Section 6.7 of A-52.12, per the KEY provided is necessary to complete the assigned task.
Step 7	This step is critical because addressing TR 3.7.5, determining that Condition A is required for Fire Damper BA-28 and identifying that ACTION A.1.1 or A.1.2.1 and A.1.2.2; and A.2; must be taken; and because completing an A-52.12-F-03 using the instructions in Section 6.7 of A-52.12, per the KEY provided is necessary to complete the assigned task.
Step 8	This step is critical because completing an A-52.12-F-03 using the instructions in Section 6.7 of A-52.12, per the KEY provided is necessary to complete the assigned task.
Step 9	This step is critical because completing an A-52.12-F-03 using the instructions in Section 6.7 of A-52.12, per the KEY provided is necessary to complete the assigned task.
Step 10	This step is critical because completing an A-52.12-F-03 using the instructions in Section 6.7 of A-52.12, per the KEY provided is necessary to complete the assigned task.
Step 11	This step is critical because completing an A-52.12-F-03 using the instructions in Section 6.7 of A-52.12, per the KEY provided is necessary to complete the assigned task.

Job Performance Measure Worksheet

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Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.  
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## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-3.</b>				
1	(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.	The operator Addresses Section 6.7 of A-52.12.	—	—	—
*2	(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.  (A-52.12, Step 6.7.1) RECORD the Equipment OR System deemed nonfunctional.	The operator enters "BA-28" in the Line 1 Equipment of System (EIN) Block on Handout 3 (A-52.12-F-03).  <b>See Provided Key</b>	—	—	—
3	(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.  (A-52.12, Step 6.7.2) RECORD the Date AND Time equipment OR system became nonfunctional.	The operator enters the current date and time in the Line 1 Out of Service (Date/Time) Block on Handout 3 (A-52.12-F-03).  <b>See Provided Key</b>	—	—	—
*4	(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.  (A-52.12, Step 6.7.5) RECORD the reason the equipment is removed from service\including the procedure if removed for testing purposes.	The operator enters "Unplanned" in the Line 1 Reason Removed (Plan/Unplan, Maint/Test) Block on Handout 3 (A-52.12-F-03).  <b>See Provided Key</b>	—	—	—



## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*5	<p>(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.</p> <p>(A-52.12, Step 6.7.4) NOTIFY the Fire and Safety Watch (FASW) of the Equipment OR System deemed nonfunctional.</p>	<p>The operator enters "Y" in the Line 1 Log OOS (Y/N) Block on Handout 3 (A-52.12-F-03).</p> <p><b>See Provided Key</b></p>	—	—	—
<b>Examiner Note: JPM Step 5 for Line 1 column item "Log OOS (Y/N)" on Form A-52.12-F-03, is being addressed under A-52.12, Step 6.7.4.</b>					
*6	<p>(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.</p> <p>(A-52.12, Step 6.7.4) NOTIFY the Fire and Safety Watch (FASW) of the Equipment OR System deemed nonfunctional.</p>	<p>The operator enters "Y" in the Line 1 F&amp;SW (Y/N) Block on Handout 3 (A-52.12-F-03).</p> <p><b>See Provided Key</b></p>	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*7	<p>(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.</p> <p>(A-52.12, Step 6.7.9) RECORD the type of firewatch required, CONTINUOUS, HOURLY, OR N/A. (refer to Attachment 1 AND Attachment 2 the TRM, AND test procedure being performed for guidance.)</p> <p>1. IF a continuous OR hourly firewatch is established in order to breach TRM listed fire barriers, THEN an entry should be made that the firewatch is CONTINUOUS OR HOURLY "while breached". Under this condition the fire barrier entry on the A-52.12-F-03 may be left open until the end of the job OR work day. The firewatch is only required while the fire barrier is NOT intact (breached). [G0094]</p>	<p>The operator addresses TR 3.7.5 and Table 3.7.5-1 Function 1.b and determines that Condition A is required for Fire Damper BA-28.</p> <p>The operator identifies that either a continuous fire watch must be established on one side of Fire Damper BA-28 within 1 hour (A.1.1),</p> <p>OR</p> <p>A fire watch inspection of the affected zones must be performed within 1 hour and hourly thereafter (A.1.2.1). AND, if the hourly inspection is chosen the fire detectors on at least one side of Fire Damper BA-28 must be verified to be OPERABLE within one hour (A.1.2.2).</p> <p>AND</p> <p>Fire Damper BA-28 must be restored to OPERABLE status within 7 days (A.2).</p>	—	—	—
*		<p>The operator enters "Continuous or Hourly" in the Line 1 FIREWATCH (Continuous, Hourly, Shiftly, or NA) Block on Handout 3 (A-52.12-F-03).</p> <p><b>See Provided Key</b></p>	—	—	—
<p><b>Examiner Note: The Fire Watch may be continuous or hourly. If hourly, the operator must identify that fire detectors on at least one side of the barrier must be verified OPERABLE within 1 hour. Note also that the terms may be abbreviated (i.e. Cont. is abbreviated for of Continuous).</b></p>					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
8	(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.  (A-52.12, Step 6.7.8) HIGH Safety Significant Components (HSSC) as delineated by Attachment 7 AND/OR A-601.16 ON-LINE FIRE RISK MANAGEMENT shall be documented on A-52.12-F-03 for tracking.	The operator addresses Attachment 7 of A-52.12 and determines that BA-28 is NOT an NFPA 805 High Safety Significant Component.	—	—	—
		The operator addresses A-601.16 and determines that BA-28 is NOT an NFPA 805 High Safety Significant Component.	—	—	—
*		The operator enters "N" in the Line 1 HSSC listed in Att 7 or A-601.16 (Y/N) Block on Handout 3 (A-52.12-F-03).  <b>See Provided Key</b>	—	—	—
*9	(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.  (A-52.12, Step 6.7.10) RECORD the time limit AND date required to implement the necessary action steps. The action requirements are listed in the TRM.	The operator enters "7 Days" in the Line 1 Limits for Required Action: Time Limit Block on Handout 3 (A-52.12-F-03).  <b>See Provided Key</b>	—	—	—
<b>Examiner Note: The operator may enter "1 Hour" in the Time Limit Column to show that the action of TR 3.7.5 Action A.1.1, A.1.2.1 and A.1.2.2 must be accomplished in 1 hour.</b>					
*10	(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.  (A-52.12, Step 6.7.10) RECORD the time limit AND date required to implement the necessary action steps. The action requirements are listed in the TRM.	The operator enters the time and date for seven days future in the Line 1 Limits for Required Action: Date/Time Due Block on Handout 3 (A-52.12-F-03).  <b>See Provided Key</b>	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*11	<p>(Directed Action) Document the failure of the Fire Damper as required by A-52.12, Nonfunctional Equipment Important to Safety.</p> <p>(A-52.12, Step 6.7.11) NOTE: For fire barrier seals AND fire doors no functionality test is required.</p> <p>Shift Manager OR designated alternate will initial the Yes OR No column of PMT required.</p>	<p>The operator enters "Y" in the Line 1 PMT Required (Y/N) Block on Handout 3 (A-52.12-F-03).</p> <p><b>See Provided Key</b></p>	—	—	—

JPM Stop Time: \_\_\_\_\_ Terminating Cue: **Applicant states task is complete.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Admin – JPM A2 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The plant is operating at 100% power.
- STP-E-13.26, TESTING OF FIRE DAMPERS, is in progress.
- a report from the field has indicated that Fire Damper BA-28, located in the wall separating the Turbine Building from Battery Room A, has failed its drop test and is stuck in its current OPEN position.
- No other Fire Protection/Detection System components are OOS.
- You are the US.

## INITIATING CUE:

- Document the failure of the Fire Damper by completing A-52.12-F-03, CONTROL OF LCO FOR FIRE SUPPRESSION, DETECTION, FIRE BARRIERS, NFPA 805 AND HIGH SAFETY SIGNIFICANT COMPONENTS (HSSC); and identify all, if any, required ACTION.
- When documenting the failure, assume all required notifications and response actions are implemented as needed.

**Control of LCO for Fire Suppression, Detection, Fire Barriers, NFPA 805 and High Safety Significant Components (HSSC)**
**A-52.12-F-03  
Revision 002**

Page 1 of 1

Record ID: \_\_\_\_\_ Reviewed by: \_\_\_\_\_ Category: 3.3.40.1

Week: Current Week Sheet: 1

Line	Equipment or System (EIN)	Out of Service (Date/Time)	Reason Removed (Plan/Unplan, Maint/Test)	Log OOS (Y/N)	F&SW notified (Y/N)	FIREWATCH (Continuous, Hourly, Shiftly, or N/A)	HSSC listed in Att 7 or A-601.16 (Y/N)	Limits for Required Action		PMT Required (Y/N)	Restoration			
								Time Limit	Date/Time Due		PMT Comp	In Service (Date/Time)	Log RTS (Y/N)	F&SW (Y/N)
1	BA-28	Current	Unplanned	Y	Y	Cont or Hourly*	N	7 days**	7 days future	Y				
2														
3														
4														
5														
6														
7														

Line	Equipment or System (EIN)	NFPA 805 Monitoring Program Owner (FPE)				
		Unavailability Type (Plan/Unplan)	Total Hours Unavailable	NFPA 805 Function Number	Associated IR	Reviewing Engineer
1						
2						
3						
4						
5						
6						
7						

SM Weekly Review (Sunday): \_\_\_\_\_

SM **FORWARD** to NFPA 805 Monitoring Program Owner / Fire Program Engineer (FPE)

Admin Specialist (Engineering Building Mail Slot) SM: \_\_\_\_\_

**FORWARD** Completed Form to Operations Admin Coordinator for FCMS entry.

\*The Fire Watch may be continuous or hourly. If hourly, the operator must identify that fire detectors on at least one side of the barrier must be verified **OPERABLE** within 1 hour.

\*\* The operator may enter "1 Hour" in the Time Limit Column to show that the action of TR 3.7.5 Action A.1.2.1 and A.1.2.2 must be accomplished in 1 hour.

# **JPM A3 SRO**



## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Review and Approve Gas Decay  
Tank Release PermitJPM No.: 2020 Admin – JPM A3  
SRO

K/A Reference: 2.3.6 (3.8)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance:

Actual Performance: X

Classroom X Simulator

Plant

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-2.**

Initial Conditions:

- Plant is Operating at 100% Power.
- Gas Decay Tank D is at 90 psi.
- Gas Decay Tank D is held for release.
- Chemistry has initiated a release for Gas Decay Tank D.
- The on-shift Chemistry Technician has initiated a release for Gas Decay Tank D and brought the Gaseous Waste Release Form (Attachment 1) from CH-703 (Release of GDT's and other Gaseous Batch Releases) to the Control Room.
- The Current Date and Time: 10/4/20, 0600

Initiating Cue:

As Shift Manager, review the release permit for approval authorization and document the results on the Cue Sheet.

Task Standard:

The operator will review the release permit for Gas Decay Tank 'D' and identify the following deficiencies: (1) Chemistry Supervision signature should be signed, (2) R-14 Alarm listed setpoint is incorrect, (3) R-14 Alarm actual setpoint is incorrect, and (4) the release has to be started within 12 hours vice 24 hours. The operator will NOT sign to approve the release.

## Job Performance Measure Worksheet

Required Materials: General References must be available for the operator to reference.

General References: CH-703, RELEASE OF GDT'S AND OTHER GASEOUS BATCH RELEASES, Rev 00402  
S-4.2.5, RELEASE OF GAS DECAY TANK, Rev 01902  
P-9, RADIATION MONITORING SYSTEM, Rev 107

Handouts: Handout 1: CH-703, Attachment 1, Gaseous Waste Release Form marked up for this JPM.  
Handout 2: Blank copy of CH-703  
Handout 3: Blank copy of P-9

Time Critical Task: NO

Validation Time: 20 minutes

<b><u>Critical Step Justification</u></b>	
Step 1	This step is critical because identifying that Chemistry Supervision must approve the release permit is necessary to complete the assigned task.
Step 2	This step is critical because identifying that the listed R-14 alarm setpoint is incorrect per P-9 is necessary to complete the assigned task.
Step 3	This step is critical because identifying that the actual R-14 alarm setpoint is incorrect per P-9 is necessary to complete the assigned task.
Step 4	This step is critical because identifying that the START BEFORE time is incorrect is necessary to complete the assigned task.
Step 5	This step is critical because NOT approving by signature is necessary to complete the assigned task.

## Job Performance Measure Worksheet

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.  
.....

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1 and 2.</b>				
<b>CUE</b>	<b>Provide Applicant with Handout 3 (P-9) when requested.</b>				
*1	(Attachment 1, Gaseous Waste Release Form) Review and Approve Gaseous Waste Release Form for Gas Decay Tank 'D'	The operator recognizes and documents (On JPM Cue Sheet) that the "Authorized by Chemistry Supervision" signature should NOT be N/A'd (Step 6.7.2 of CH-703)	___	___	___
*2	(Attachment 1, Gaseous Waste Release Form) Review and Approve Gaseous Waste Release Form for Gas Decay Tank 'D'	The operator recognizes and documents (On JPM Cue Sheet) that the "R-14 Alarm Set (P9)" is INCORRECT (should be 1.3E+6, Attachment 1 of P-9).	___	___	___
*3	(Attachment 1, Gaseous Waste Release Form) Review and Approve Gaseous Waste Release Form for Gas Decay Tank 'D'	The operator recognizes and documents (On JPM Cue Sheet) that the "R-14 Alarm Set (actual)" is INCORRECT (should be 1.3E+6, Attachment 1 of P-9).	___	___	___
*4	(Attachment 1, Gaseous Waste Release Form) Review and Approve Gaseous Waste Release Form for Gas Decay Tank 'D'	The operator recognizes and documents (On JPM Cue Sheet) that the "CHEMISTRY APPROVAL REQUIRED IF RELEASE IS NOT STARTED BEFORE" is INCORRECT (should be 10/4/2020 14:33 – Note prior to Step 6.7.3 or Step 6.10.12 of CH-703).	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*5	(Attachment 1, Gaseous Waste Release Form) Authorized by Shift Manager Signature	The operator recognizes that the Release Permit contains multiple errors and does <u>NOT</u> sign as authorized.	_____	_____	_____

JPM Stop Time: \_\_\_\_\_

**Terminating Cue:**    **Applicant hands completed Handout 1 to Examiner.**

.....

VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Admin – JPM A3 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- Plant is Operating at 100% Power.
- Gas Decay Tank D is at 90 psi.
- Gas Decay Tank D is held for release.
- Chemistry has initiated a release for Gas Decay Tank D.
- The on-shift Chemistry Technician has initiated a release for Gas Decay Tank D and brought the Gaseous Waste Release Form (Attachment 1) from CH-703 (Release of GDT's and other Gaseous Batch Releases) to the Control Room.
- The Current Date and Time: 10/4/20, 0600

## INITIATING CUE:

As Shift Manager, review the release permit for approval authorization and document the results on the Cue Sheet.

Page 1 of 1

## Attachment 1, Gaseous Waste Release Form

Date: 10/4/20Permit No.: G2020035Tank: Gas Decay Tank DNG Gamma Scan #: 537964.CNFSample Date/Time: 10/4/2020 02:33Iodine Gamma Scan #: 537963.CNFCuries : 8.392E-03Recommended Release Rate: MAXEstimated R-14 Reading : 4.44E+00 CPM Above BackgroundWilliam H. FarmerNA

Analyst

Authorized by Chemistry Supervision

Date Tank Held: 9/27/2020Vent Monitors: R-13 in service: YES / NOR-14 in service: YES / NOR-14A in service: YES / NOIodine Monitors: R-10B in service: YES / NOR-14 Alarm Set (P9) 1.3E+5 CPM R-14 Alarm Set (actual): 1.3E+5 CPM

Authorized by Shift Manager

\*\*\*CHEMISTRY APPROVAL REQUIRED IF RELEASE IS **NOT** STARTED BEFORE 10/5/2020 02:33 \*\*\*

\*\*\*CHEMISTRY APPROVAL REQUIRED IF RELEASE IS INTERRUPTED FOR GREATER THAN 2 HOURS\*\*\*

	Date/Time	Pressure (PSIG)	Wind Data (MPH/Direct)	Operator Initials
Start	_____	_____	_____	_____
Stop	_____	_____	_____	_____

Shift Manager Completing Release

Date/Time



## RELEASE OF GDT'S AND OTHER GASEOUS BATCH RELEASES

CH-703  
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Page 1 of 1

## Attachment 1, Gaseous Waste Release Form

Date: 10/4/20 Permit No.: G2020035  
Tank: Gas Decay Tank D NG Gamma Scan #: 537964.CNF  
Sample Date/Time: 10/4/2020 02:33 Iodine Gamma Scan #: 537963.CNF  
Curies : 8.392E-03

Recommended Release Rate: MAXEstimated R-14 Reading : 4.44E+00 CPM Above BackgroundWilliam H. Farmer1 NA

Analyst

Authorized by Chemistry Supervision

Date Tank Held: 9/27/2020Vent Monitors: R-13 in service: YES / NOR-14 in service: YES / NOR-14A in service: YES / NOIodine Monitors: R-10B in service: YES / NOR-14 Alarm Set (P9) 1.3E+5 2 CPM R-14 Alarm Set (actual): 1.3E+5 3 CPM

Authorized by Shift Manager

\*\*\*CHEMISTRY APPROVAL REQUIRED IF RELEASE IS NOT STARTED BEFORE 10/5/2020 02:33 \*\*\*

\*\*\*CHEMISTRY APPROVAL REQUIRED IF RELEASE IS INTERRUPTED FOR GREATER THAN 2 HOURS\*\*\*

	Date/Time	Pressure (PSIG)	Wind Data (MPH/Direct)	Operator Initials
Start	_____	_____	_____	_____
Stop	_____	_____	_____	_____

Shift Manager Completing Release

Date/Time

# **JPM A4 SRO**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Determine if Emergency Dose Limits and Thyroid Blocking Agents (Potassium Iodide [KI]) Should be Approved for Use

JPM No.: 2020 Admin – JPM A4 SRO

K/A Reference: 2.4.38 (4.4)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance:

Actual Performance: X

Classroom X Simulator

Plant

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**

Initial Conditions:

- Following an emergency event, a General Emergency has been declared at Ginna based on FG1, Loss of ANY two barriers AND Loss or Potential Loss of the third barrier.
- You are the Shift Emergency Director and you are implementing EP-AA-112-100-F-01, SHIFT EMERGENCY DIRECTOR CHECKLIST.
- The Technical Support Center is NOT manned.
- You need to send a two-person rescue team of qualified radiation workers into an area where the dose rate is 32 Rem/Hour and the presence of radioactive iodine is suspected.
- Both individuals are in good physical condition, between 46-49 years old, volunteer to go and have a current annual exposure of <100 mrem.
- It is expected that rescue activities will take a MAXIMUM of 10 minutes.
- You are considering the approval of emergency exposure > 5 Rem TEDE and the use of Thyroid Blocking Agents per Step 2.7 of the SHIFT EMERGENCY DIRECTOR CHECKLIST.

## Job Performance Measure Worksheet

- Initiating Cue:
- Determine if Emergency Exposure Limits need to be approved for the rescue individuals.
  - Determine if the use of Thyroid Blocking Agents must be recommended for the rescue individuals, and if so, identify recommended dosage and duration.
  - Prepare any paperwork that needs to be completed.

Task Standard: The operator will determine that the rescuers need to be approved to receive Emergency Exposure Limits > 5 REM TEDE and the Thyroid Blocking Agent must be recommended such that one (1) 130 mg KI tablet (or (2) 65 mg KI tablets) is issued to each rescuer per day for 10 consecutive days or until directed that the risk no longer exists; and prepare an EP-AA-113-F-02 for each rescuer and EP-AA-113-F-03 per the attached KEY.

Required Materials: General References must be available for the operator to reference including several blank copies of the Forms.

General References: EP-AA-112-100-F-01, SHIFT EMERGENCY DIRECTOR CHECKLIST, Rev AB  
EP-AA-113, PERSONNEL PROTECTIVE ACTIONS, Rev 15  
EP-AA-113-F-02, AUTHORIZATION FOR EMERGENCY EXPOSURE, Rev B  
EP-AA-113-F-03, THYROID BLOCKING AGENT AUTHORIZATION, Rev G  
RP-AA-203, EXPOSURE CONTROL AND AUTHORIZATION, Rev 5

Handouts: Handout 1: EP-AA-112-100-F-01 marked up for this JPM.

Time Critical Task: NO

Validation Time: 20 minutes

## Job Performance Measure Worksheet

<b><u>Critical Step Justification</u></b>	
Step 1	This step is critical because determining that based on the known data each rescuer will receive in excess of 5 REM upon completing the rescue and that Emergency Dose Limits will need to be approved is necessary to complete the assigned task.
Step 2	This step is critical because determining that it is recommended that each rescuer be issued one (1) 130 mg KI tablet (or (2) 65 mg KI tablets) per day for 10 consecutive days or until directed that the risk no longer exists is necessary to complete the assigned task.
Step 3	This step is critical because preparing an EP-AA-113-F-02 for each rescuer and an EP-AA-113-F-03 per the attached KEY is necessary to complete the assigned task.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.  
 .....

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.</b>				
*1	(Directed Action 1) Determine if Emergency Exposure Limits need to be approved for the rescue individuals.	The operator determines that based on the known data each rescuer will receive in excess of 5 REM upon completing the rescue. <i>(32R/hr x 1hr/60min x 10 min = 5.33 Rem to each rescuer)</i>	___	___	___
*		The operator addresses Section 4.3.1 of EP-AA-113 and determines and documents (Circles YES on Cue Sheet) that since each rescuer will receive more than 5 Rem TEDE Emergency Dose Limits will need to be approved.  <b>See Attached Key</b>	___	___	___
*2	(Directed Action 2) Determine if the use of Thyroid Blocking Agents must be recommended for the rescue individuals, and if so, identify recommended dosage.	The operator addresses Section 4.4.1 of EP-AA-113 and determines and documents (Circles YES on Cue Sheet) that since a General Emergency has been declared it is recommended that each rescuer be issued one (1) 130 mg KI tablet (or (2) 65 mg KI tablets) per day for 10 consecutive days or until directed that the risk no longer exists and documents the dosage on the Cue Sheet.  <b>See Attached Key</b>	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
3	(Directed Action 3) Prepare any paperwork that needs to be completed.	The operator addresses Section 4.3.2.1 of EP-AA-113 and determines that each rescuer must complete EP-AA-113-F-02.	___	___	___
*		The operator prepares an EP-AA-113-F-02 per the provided KEY (Separate Document) for each rescuer.	___	___	___
		The operator addresses Section 4.4.2.1 of EP-AA-113 and determines that an EP-AA-113-F-03 must be completed.	___	___	___
*		The operator prepares an EP-AA-113-F-03 per the provided KEY (Separate Document) KEY.	___	___	___

JPM Stop Time: \_\_\_\_\_ Terminating Cue: **Applicant states task is complete.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Admin – JPM A4 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## VERIFICATION OF COMPLETION

KEY:

Emergency Exposure Limits need to be approved for the rescue individuals:	<div><div>YES</div> / NO</div>
Thyroid Blocking Agents must be recommended for the rescue individuals, and if so, identify recommended dosage/duration:	<div><div>YES</div> / NO</div> <p>IF YES, recommended dosage (Otherwise NA):</p> <p>Each rescuer be issued one (1) 130 mg KI tablet (or (2) 65 mg KI tablets) per day for 10 consecutive days or until directed that the risk no longer exists.</p>
PROVIDE ANY Paperwork Prepared to the Examiner	

## JPM CUE SHEET

## INITIAL CONDITIONS:

- Following an emergency event, a General Emergency has been declared at Ginna based on FG1, Loss of ANY two barriers AND Loss or Potential Loss of the third barrier.
- You are the Shift Emergency Director and you are implementing EP-AA-112-100-F-01, SHIFT EMERGENCY DIRECTOR CHECKLIST.
- The Technical Support Center is NOT manned.
- You need to send a two-person rescue team of qualified radiation workers into an area where the dose rate is 32 Rem/Hour and the presence of radioactive iodine is suspected.
- Both individuals are in good physical condition, between 46-49 years old, volunteer to go and have a current annual exposure of <100 mrem.
- It is expected that rescue activities will take a MAXIMUM of 10 minutes.
- You are considering the approval of emergency exposure > 5 Rem TEDE and the use of Thyroid Blocking Agents per Step 2.7 of the SHIFT EMERGENCY DIRECTOR CHECKLIST.

## INITIATING CUE:

- Determine if Emergency Exposure Limits need to be approved for the rescue individuals.
- Determine if the use of Thyroid Blocking Agents must be recommended for the rescue individuals, and if so, identify recommended dosage and duration.
- Prepare any paperwork that needs to be completed.

## Record Answers Below:

<b>Emergency Exposure Limits need to be approved for the rescue individuals:</b>	<b>YES / NO</b>
<b>Thyroid Blocking Agents must be recommended for the rescue individuals, and if so, identify recommended dosage/duration:</b>	<b>YES / NO</b>  <b>IF YES, recommended dosage (Otherwise NA):</b>
<b>PROVIDE ANY Paperwork Prepared to the Examiner</b>	



Nuclear

EP-AA-113-F-02

Revision B

Page 1 of 1

**AUTHORIZATION FOR EMERGENCY EXPOSURE**Name: Rescuer #1Date / Time: Current / Current

Employee ID Number: \_\_\_\_\_

Current Annual Exposure: <100 mRem

Reason For Request:

Emergency Life-Saving Activities (Or Equivalent)**REQUESTING AUTHORIZATION TO EXCEED:**

5 Rem TEDE

(Authorized to receive greater than 5 Rem TEDE but less than 10 Rem TEDE)



10 Rem TEDE

(Authorized to receive greater than 10 Rem TEDE but less than 25 Rem TEDE)



25 Rem TEDE

(Authorized to receive greater than 25 Rem TEDE)

\_\_\_\_\_  
\* Emergency Worker Signature\_\_\_\_\_  
Date / Time

\* Emergency Worker Exposure Limits and Associated Risks (EP-AA-113 Attachment 1) have been reviewed and the potential health affects are understood.

\_\_\_\_\_  
Rad. Protection Management (Review)\_\_\_\_\_  
Date / Time\_\_\_\_\_  
# Station Emergency Director (Authorization)\_\_\_\_\_  
Date / Time

# The Shift Manager (Shift Emergency Director) may approve prior to transferring Command and Control to the Station Emergency Director.

## AUTHORIZATION FOR EMERGENCY EXPOSURE

Name: Rescuer #2

Date / Time: Current / Current

Employee ID Number: \_\_\_\_\_

Current Annual Exposure: <100 mRem

Reason For Request:

Emergency Life-Saving Activities (Or Equivalent)

### REQUESTING AUTHORIZATION TO EXCEED:



5 Rem TEDE

(Authorized to receive greater than 5 Rem TEDE but less than 10 Rem TEDE)



10 Rem TEDE

(Authorized to receive greater than 10 Rem TEDE but less than 25 Rem TEDE)



25 Rem TEDE

(Authorized to receive greater than 25 Rem TEDE)

\_\_\_\_\_  
\* Emergency Worker Signature

\_\_\_\_\_  
Date / Time

\* Emergency Worker Exposure Limits and Associated Risks (EP-AA-113 Attachment 1) have been reviewed and the potential health affects are understood.

\_\_\_\_\_  
Rad. Protection Management (Review)

\_\_\_\_\_  
Date / Time

\_\_\_\_\_  
# Station Emergency Director (Authorization)

\_\_\_\_\_  
Date / Time

# The Shift Manager (Shift Emergency Director) may approve prior to transferring Command and Control to the Station Emergency Director.

**THYROID BLOCKING AGENT AUTHORIZATION**

OR ELECTRONIC FACSIMILE

**Potassium Iodide (KI) Brief Verification / Authorization**

NAME: <b>Rescuer #1</b>	Employee ID Number: _____
NAME: <b>Rescuer #2</b>	Employee ID Number: _____
NAME: _____	Employee ID Number: _____
NAME: _____	Employee ID Number: _____
NAME: _____	Employee ID Number: _____
NAME: _____	Employee ID Number: _____
NAME: _____	Employee ID Number: _____
NAME: _____	Employee ID Number: _____
NAME: _____	Employee ID Number: _____

The above-named personnel are hereby authorized to take Potassium Iodide (KI) for the purpose of protection against the inhalation/ingestion of radioactive I-131. The applicable dosage (see back of this form for recommended dosage) shall be taken for 10 consecutive days or until directed that the risk **no** longer exists.

\_\_\_\_\_  
\* Radiation Protection Manager (Reviewed)\_\_\_\_\_  
Date / Time

\* Acknowledges review of evaluation for need to use KI and that emergency worker(s) have been briefed on the potential health risks associated with KI. (see back of this form for briefing details)

\_\_\_\_\_  
Emergency Director responsible for authorization  
of emergency exposure controls (Authorization)\_\_\_\_\_  
Date / Time

---

**KI Issuance Verification**\_\_\_\_\_  
\*\* Radiation Protection Manager (Confirmation of KI issuance)\_\_\_\_\_  
KI Issuance Date / Time

\*\* Confirm that individuals listed on this authorization form have been issued a supply of KI and instructed to take appropriate dosage.

## **THYROID BLOCKING AGENT AUTHORIZATION**

### **INFORMATION ON USE OF THYROID BLOCKING AGENT**

#### **WARNING**

People who are allergic to iodine, have dermatitis herpetiformis or hypocomplementemic vasculitis, or have nodular thyroid disease with heart disease should not take KI. Keep out of the reach of children. In case of an allergic reaction (difficulty breathing, speaking or swallowing; wheezing; shortness of breath or swelling of the mouth or throat), contact a physician.

#### **How does Potassium Iodide work?**

Certain forms of iodine help your thyroid gland work right. Most get the iodine they need from foods like iodized salt or fish. They thyroid can "store" or hold only a certain amount of iodine.

In a nuclear radiation emergency, radioactive iodine may be release in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably not show itself for years. Children are most likely to have thyroid damage. If you take KI, it will block or reduce the chances that radioactive iodine will enter your thyroid gland.

#### **Who should not take potassium iodide (KI) or have restricted use?**

The only people who should not take potassium iodide are people who know they are allergic to iodine. You may take potassium iodide even if you are taking medications for a thyroid problem (for example, a thyroid hormone or anti-thyroid drug). Pregnant and nursing women and babies and children may al take the drug.

#### **How long should potassium iodide (KI) be taken?**

Since KI protects for approximately 24 hours, it should be dosed daily until the risk no longer exists. Priority with regard to evacuation and sheltering should be given to pregnant females and neonates because of the potential for KI to suppress thyroid function in the fetus and neonate. Unless other protective measures are not available, we do not recommend repeat dosing in pregnant females and neonates.

#### **What are the side effects?**

Side effects are unlikely when KI is used at the recommended dose and for a short time. The following are possible side effects:

- Skin rashes
- Swelling of the salivary glands
- "Iodism" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes upset stomach and diarrhea)

An allergic reaction can have more serious symptoms. These include fever and joint pains; swelling of parts of the body (face, lips, tongue, throat, hands, or feet); trouble breathing, speaking, or swallowing; wheezing or shortness of breath. Severe shortness of breath requires immediate medical attention.

#### **What dosages of potassium iodide (KI) should be taken for specific exposure levels?**

FDA recommends the following dosing of KI for thyroid blocking:

**Table 2.1**

**Recommended Doses of KI for Different Risk Groups**

	KI dose (mg)	Number or fraction of 130 mg tablets	Number or fraction of 65 mg tablets	Milliliters (mL) of oral solution, 65 mg/mL
<b>Adults over 40 years</b>	130	1	2	2 mL
<b>Adults over 18 through 40 years</b>	130	1	2	2 mL
<b>Pregnant or Lactating Women</b>	130	1	2	2 mL
<b>Adolescents, 12 through 18 years*</b>	65	½	1	1 mL
<b>Children over 3 years through 12 years</b>	65	½	1	1 mL
<b>Children 1 month through 3 years</b>	32	Use KI oral solution**	½	0.5 mL
<b>Infants birth through 1 month</b>	16	Use KI oral solution**	Use KI oral solution**	0.25 mL

\* Adolescents approaching adult size ( $\geq 150$  lbs) should receive the full adult dose (130 mg)

\*\* Potassium iodide oral solution is supplied in 1 oz (30 mL) bottles with a dropper marked for 1, 0.5, and 0.25 mL dosing. each mL contains 65 mg potassium iodide.

#### **What do I do if side effects occur?**

If the side effects are severe or if you have an allergic reaction, stop taking potassium iodide. Then, if possible, call a doctor or public health authority for instructions.

# **SIM JPM A**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Borate for one rod not fully inserted following trip per ES-0.1JPM No.: 2020 Systems - Control Room JPM A (Alternate Path)

K/A Reference: 004 A4.07 (3.9/3.7)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X  
Classroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.**

Initial Conditions:

- The plant has experienced a reactor trip.
- The crew has completed ES-0.1, REACTOR TRIP RESPONSE, through step 3.

Initiating Cue:

- The US has directed you to perform Step 4 of ES-0.1.
- Another operator will handle all other MCB operations and alarms not associated with the assigned task.

Task Standard: The operator will determine that one control rod has not fully inserted in accordance with Step 4 of ES-0.1 and attempt to initiate boration via the normal method. When it is discovered that boration cannot be started in accordance with step 4 RNO of ES-0.1, the operator will initiate RCS boration in accordance with ER-CVCS.1, Section 6.2.1.

Required Materials: None



## Job Performance Measure Worksheet

General References: ES-0.1, REACTOR TRIP RESPONSE, Rev 032  
 ER-CVCS.1, REACTOR MAKEUP CONTROL MALFUNCTION, Rev 00802  
 A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE, Rev 053

Handouts: Handout 1: Marked up copy of ES-0.1 through step 3  
 Handout 2: Blank copy of ER-CVCS.1

Time Critical Task: NO

Validation Time: 5 minutes

<b><u>Critical Step Justification</u></b>	
Step 1	This step is critical, even though NOT a verifiable action (See Section B.3 of Appendix C of NUREG-1021), because observing MRPI and recognizing that control rod D4 is not fully inserted and addressing the Step 4 RNO is necessary to determine that one control rod has not fully inserted in accordance with Step 4 of ES-0.1.
Step 3	This step is critical because placing the RMW Mode Selector switch to BORATE is necessary to attempt to initiate boration via the normal method.
Step 6	This step is critical because placing the RMW Control switch to START is necessary to attempt to initiate boration via the normal method and determine that boration cannot be started in accordance with step 4 RNO of ES-0.1.
<b><u>Alternate Path Critical Step Justification</u></b>	
Step 8	This step is critical because placing the AOV-110B control switch to OPEN is necessary to initiate RCS boration in accordance with ER-CVCS.1, Section 6.2.1.
Step 9	This step is critical because placing the BORIC ACID TRANSFER PUMP A and/or B control switch to START is necessary to initiate RCS boration in accordance with ER-CVCS.1, Section 6.2.1.
Step 10	This step is critical because placing the HCV-110A controller to MAN and adjusting the HCV-110A manual knob to OPEN is necessary to initiate RCS boration in accordance with ER-CVCS.1, Section 6.2.1.

Job Performance Measure Worksheet

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Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

.....

## Job Performance Measure Worksheet

**SIMULATOR OPERATIONAL GUIDELINES**

1. Initiate to **any 100% MOL IC (IC-19)**.

<b>NOTE:</b>	<b>It is permissible to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently. {Delete this NOTE if not applicable.}</b>
--------------	---

2. Insert **Override OVR-CVC08A = FALSE** (Failure of BORATE Signal REACTOR MAKEUP MODE).
3. Insert **Override OVR-CVC08B = FALSE** (Failure of AUTO Signal REACTOR MAKEUP MODE).
4. Insert **Override OVR-CVC08C = FALSE** (Failure of DILUTE Signal REACTOR MAKEUP MODE).
5. Insert **Override OVR-CVC08D = FALSE** (Failure of ALT DIL Signal REACTOR MAKEUP MODE).
6. Insert **Malfunction ROD 03-D4 = UNTRIPPABLE** (Stuck Rod D4).
7. Insert **Override OVR-CVC34D = FALSE** (MOV-350 OPEN Signal IMMEDIATE BORATION VALVE).
8. Place Simulator in RUN.
9. Trip the reactor.
10. Perform actions of E-0 and transition to ES-0.1.
11. Perform ES-0.1 actions through Step 3.
12. Place Simulator in FREEZE.
13. Reset to IC-161 (March 2020)
14. Ensure PPCS Variable Boration Dilution screen is clear.
15. Placekeep the Control Room copy of ES-0.1 up to (but not including) Step 4 and place it on the HCO's desk.
16. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
17. This completes the setup for this JPM.
18. Place Simulator in RUN when directed by examiner.

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.</b>				
1	(ES-0.1 Step 4) Verify MRPI Indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM	The operator observes MRPI and recognizes that control rod D4 is not fully inserted.	___	___	___
*		The operator proceeds to the Step 4 RNO.	___	___	___
<b>Examiner Note: If the operator proceeds to ES-0.1 Step 5 (Not Scripted) provide an opportunity for the operator to correct the mistake (Twice Validated Time).</b>					
2	(ES-0.1 Step 4 RNO, Bullet 1) IF three or more control rods NOT fully inserted, THEN....	The operator recognizes that only one control rod has NOT fully inserted, recognizes that this step is NA and proceeds.	___	___	___
3	(ES-0.1 Step 4 RNO, Bullet 2/a) IF one or two control rods NOT fully inserted, THEN perform the following:	The operator recognizes that only one control rod has NOT fully inserted.	___	___	___
*	a. Place RMW mode selector switch to BORATE.	The operator places the RMW Mode Selector switch to BORATE.	___	___	___
		The operator observes the RMW Control Green status light is LIT, and the Red status light is OFF.	___	___	___
4	(ES-0.1 Step 4 RNO, Bullet 2/b) IF one or two control rods NOT fully inserted, THEN perform the following: b. Adjust boric acid flow control valve, HCV-110A, for desired flowrate.	The operator rotates the upper control knob on the HCV-110A Controller until the Black Diamond is pointing towards the desired setting on the control knob.	___	___	___
<b>CUE</b>	<b>IF the operator questions “What is the desired flowrate?” respond with “US has directed you to borate at the maximum rate.” (a setting of “&gt; 9 gpm” on the HCV-110A controller).</b>				
<b>Examiner Note: The HCV-110A Control Knob permits adjustment between 0-10 gpm. The operator is free to choose the desired flowrate.</b>					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
5	(ES-0.1 Step 4 RNO, Bullet 2/c) IF one or two control rods NOT fully inserted, THEN perform the following:  c. Set boric acid integrator to the following: <ul style="list-style-type: none"> <li>900 gallons for 1 stuck rod</li> <li>1800 gallons for 2 stuck rods</li> </ul>	<p>The operator recognizes that only one control rod has NOT fully inserted.</p> <p>The operator sets the boric acid integrator, YIC-110, to 900.0 gallons.</p>	_____	_____	_____
<b>Examiner Note: To set the BA COUNTER:</b> <ul style="list-style-type: none"> <li>Push 'SEL' Button to move the number column to be adjusted.</li> <li>Raise or Lower the column value by depressing the '+' or '-' Button. There is a decimal point between the last two (2) columns.</li> <li>Depress the 'ENT' Button to enter (Lock-in) the selected amount to be added.</li> <li>The 'C' Line is a running total for BA additions.</li> </ul>					
<b>EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP</b>					
*6	(ES-0.1 Step 4 RNO, Bullet 2/d) IF one or two control rods NOT fully inserted, THEN perform the following:  d. Place RMW control to start and verify flow. IF flow can NOT be established, THEN refer to ER-CVCS.1, REACTOR MAKEUP CONTROL MALFUNCTION.	<ul style="list-style-type: none"> <li>The operator places the RMW Control switch to START.</li> </ul>	_____	_____	_____
		<ul style="list-style-type: none"> <li>The operator observes the Red status light is LIT, Green status light is OFF; and then immediately becomes Green status light is LIT, Red status light is OFF.</li> </ul>	_____	_____	_____
		<ul style="list-style-type: none"> <li>The operator observes the following and recognizes that BA flow has NOT been established: <ul style="list-style-type: none"> <li>RK-10 Yokogawa recorder does NOT indicate flow</li> <li>BA Counter, YIC-110, NOT counting ('C' row number remains the same)</li> <li>Boric Acid audible device NOT "clicking"</li> </ul> </li> </ul>	_____	_____	_____

## PERFORMANCE INFORMATION

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6 (Cont'd)		<ul style="list-style-type: none"><li>The operator refers to ER-CVCS.1.</li></ul>			
CUE	WHEN the operator seeks to find ER-CVCS.1, Provide Handout 2.				
CUE	IF the operator seeks US guidance on how to proceed, ASK the operator for recommended action.				
PRECAUTIONS AND LIMITATIONS					
<ul style="list-style-type: none"><li>(4.1) Charging pump suction automatically switches to RWST (LCV 112B Open, LCV 112C Closed) when VCT level lowers to 5% on BOTH LT-112 AND LT-139.</li><li>(4.2) The use of MOV-350 for normal boration at power should be avoided as valve must stroke fully open before it may be reclosed, making it difficult to control amount of boric acid being added.</li><li>(4.3) IF boric acid filter D/P exceeds 20 psid, THEN filter should be bypassed and a CR should be submitted.</li><li>(4.4) IF seal injection is the only path of boron addition, CCW FROM RCP A (B) THERMAL BARRIER VALVES AOV-754A AND AOV-754B should be closed.</li></ul>					
CUE	IF the operator contacts the EO for boric acid filter D/P reading in response to the PRECAUTION above, THEN report as the EO that “Local boric acid filter D/P is ____ psid.” (8 psid if 1 BA Pump is running or 12 psid if 2 BA Pumps are running)				
7	(ER-CVCS.1 Step 6.1) NORMAL BORATION <ul style="list-style-type: none"><li>(6.1.1) PLACE RMW Mode selector switch to BORATE.</li><li>(6.1.2) ADJUST boric acid flow control valve, HCV-110A to desired flowrate in AUTO.</li><li>(6.1.3) SET Boric Acid Integrator to desired amount.</li><li>(6.1.4) PLACE RMW Control switch to START.</li><li>(6.1.5) VERIFY RMW control – ARMED. (Red light lit above RMW Control switch)</li></ul>	The operator reads the Precautions and Limitations and proceeds.  The operator recognizes that Normal Boration was already attempted unsuccessfully in ES-0.1 and continues with Section 6.2.  The operator proceeds to Step 6.2.1, Manual Method for Boration.			
CUE	IF the operator attempts to implement other boration methods via Section 6.2.3 of ER-CVCS.1, indicate that the Equipment Operator in the field is NOT available.				

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>Examiner Note: If the operator attempts to implement the Emergency Boration of Section 6.2.2 of ER-CVCS.1, MOV-350 will fail to open and the operator will need to choose another method. The JPM is designed such that the only method available is the method of Section 6.2.1.</b>					
*8	(ER-CVCS.1 Step 6.2.1.1/1.a) Manual Method for Boration	The operator places the AOV-110B control switch to OPEN.	___	___	___
	IF makeup system does NOT operate properly in BORATE, THEN PERFORM the following: a. OPEN Blender Outlet to Charging Pump Suction, AOV-110B.	The operator observes the AOV-110B Red status light is LIT, and the Green status light is OFF.	___	___	___
*9	(ER-CVCS.1 Step 6.2.1.1/1.b) Manual Method for Boration	The operator places the BORIC ACID TRANSFER PUMP A control switch to START.	___	___	___
	IF makeup system does NOT operate properly in BORATE, THEN PERFORM the following: b. START at least one boric acid pump.	The operator observes the BORIC ACID TRANSFER PUMP A Red status light is LIT, and the Green status light is OFF.	___	___	___
		OR	___	___	___
*		The operator places the BORIC ACID TRANSFER PUMP B control switch to START.	___	___	___
		The operator observes the BORIC ACID TRANSFER PUMP B Red status light is LIT, and the Green status light is OFF.	___	___	___
<b>Examiner Note: Only ONE Boric Acid Pump is required to be started.</b>					
*10	(ER-CVCS.1 Step 6.2.1.1/1.c) Manual Method for Boration	The operator places BA TO BA BLENDER FLOW CONTROL VLV HCV-110A controller to MAN.	___	___	___
*	IF makeup system does NOT operate properly in BORATE, THEN PERFORM the following: c. PLACE Boric Acid Flow Control Valve, HCV-110A, to MANUAL	The operator adjusts the manual knob to OPEN HCV-110A.	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
10 (Cont'd)	and OPEN to establish desired flow.	The operator observes the following and recognizes that BA flow has been established: <ul style="list-style-type: none"> <li>• RK-10 Yokogawa recorder indicates flow</li> <li>• BA Counter, YIC-110, counting ('C' row number increasing)</li> <li>• Boric Acid audible device "clicking"</li> </ul>	_____	_____	_____
		The operator continues to monitor flowrate and amount added until the required amount is added.	_____	_____	_____

JPM Stop Time: \_\_\_\_\_

**CUE: This terminates the JPM.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems - Control Room JPM A

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The plant has experienced a reactor trip.
- The crew has completed ES-0.1, REACTOR TRIP RESPONSE, through step 3.

## INITIATING CUE:

- The US has directed you to perform Step 4 of ES-0.1.
- Another operator will handle all other MCB operations and alarms not associated with the assigned task.

# **SIM JPM B**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Initiating a Plant Heatup on RHR  
w/Subsequent Failure of CCW  
PumpJPM No.: 2020 Systems - Control  
Room JPM B  
(Alternate Path)

K/A Reference: 008 A2.01 (3.3\3.6)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:   X    
Classroom \_\_\_\_\_ Simulator   X   Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.**

Initial Conditions:

- The plant is in Mode 5.
- The crew has completed Section 6.5 of O-1.1, PLANT HEATUP FROM COLD SHUTDOWN TO HOT SHUTDOWN.
- The current RCS heatup rate is 13°F/hour.
- Chemistry has completed all required RCS sampling and has added Hydrazine.
- Another operator is standing by to monitor and plot heatup rate.
- You are the HCO.

Initiating Cue:

- The US has directed you to initiate an RCS heatup at maximum rate not to exceed 50°F/Hour with a maximum RHR System Total Flow of 1500 gpm by performing steps 6.6.1 through 6.6.3 of Section 6.6 of O-1.1.
- Another operator will handle all other MCB operations and alarms not associated with the assigned task.

Job Performance Measure Worksheet

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Task Standard: The operator will raise the RCS heatup rate in accordance with section 6.6 of O-1.1 to between 20-50°F/hour, and then respond to a loss of CCW by attempting to start the B CCW Pump and stopping the RCPs prior to Motor Bearing Temperature reaching 266°F when this fails in accordance with AP-CCW.3.

Required Materials: None

General References: O-1.1, PLANT HEATUP FROM COLD SHUTDOWN TO HOT SHUTDOWN, Rev 176  
AP-CCW.3, LOSS OF CCW- PLANT SHUTDOWN, Rev 01902  
HU-AA-104-101, PROCEDURE USE AND ADHERENCE, Rev 7  
A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE, Rev 053  
TECO-Westinghouse VTD-W0120-6968, Recommended Settings for Bearing RTD Trip and Alarms, Rev 000

Handouts: Handout 1: Blank copy of Section 6.6 of O-1.1  
Handout 2: Blank copy of AP-CCW.3

Time Critical Task: NO

Validation Time: 15 minutes

Note: This JPM will be pre-Briefed in the Briefing Room. A full copy of O-1.1, PLANT HEATUP FROM COLD SHUTDOWN TO HOT SHUTDOWN, should be available to the operator.

## Job Performance Measure Worksheet

<b><u>Critical Step Justification</u></b>	
Step 2	This step is critical because rotating the HCV-624 and HCV-625 Controllers adjust knob in the counterclockwise direction such that the controller output moves towards 100% (Full Closed) while ensuring that RCS pressure remains 300-360 psig is necessary to raise the RCS heatup rate to 20-50°F/hour in accordance with section 6.6 of O-1.1.
<b><u>Alternate Path Critical Step Justification</u></b>	
Step 4	This step is critical because if CCW flow has been lost to the RCPs for > 2 minutes or the RCP Motor Bearing temperature is >200°F, placing the A and B RCP control switch to STOP prior to Motor Bearing Temperature reaching 266°F is necessary to respond to a loss of CCW using AP-CCW.3. (Conditional Critical Step)

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## Job Performance Measure Worksheet

**SIMULATOR OPERATIONAL GUIDELINES**

1. Reset to **IC-009** (Mode 5 RCP Start Solid)

<p><b>NOTE:</b> It is permissible to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently. {Delete this NOTE if not applicable.}</p>
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2. Adjust plant conditions so that O-1.1 is completed through Section 6.5 (RCS temperature  $\approx 160^{\circ}\text{F}$ ).
3. Stabilize RCS pressure and ensure FCV-626 set at 1200 gpm.
4. Insert Malfunction CLG10 (Failure of the CCW Pump to Auto Start).
5. Place simulator in RUN.
6. Display LTOP Page on Upper Simulator PPCS Monitor.
7. Setup 2plot display on HCO Desk Monitor for T0409B and T0410B (Loop T Cold).
8. Limit unnecessary CCW Loads.
9. Remove B CCW Pump from service, and place in Standby.
10. Insert Malfunction CLG02B (Trip B CCW Pump – will prevent manual start of B CCW Pump).
11. Establish Malfunction CLG02A (Trip A CCW Pump) on Trigger #1.
12. Place simulator in FREEZE.
13. Reset to IC-165 (June, 2020).
14. Swap Shutdown Annunciator Windows (C-5, F-29, A-20).
15. Place simulator in RUN when directed by examiner.
16. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
17. This completes the setup for this JPM.

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.</b>				
<p style="text-align: center;"><b>CAUTION</b></p> <ul style="list-style-type: none"> <li>RCS temperature SHALL NOT be allowed to go above 180°F until hydrazine has been added.</li> <li>It may be necessary to manually throttle CCW inlets to RHR HXs using MOV-738A and MOV-738B to start heatup of RCS. CCW inlet valves on either RHR HX SHALL NOT be throttled to the point where CCW begins to boil. This is indicated by a drastic rise in CCW surge tank level and possible loud banging in Aux Building basement.</li> <li>It may be necessary to stop the operating RHR Pump AND CLOSE one RHR loop stop valve (MOV-720 or MOV-721) to enhance RCS heatup.</li> <li>IF both RHR Pumps are secured, THEN loop requirements of Tech Spec 3.4.7 SHALL be maintained.</li> <li>IF RCS is solid AND RCS temperature is to be raised, PCV-135, LOW PRESS LTDN PRESS PI-135 AND Charging flow adjustments will be required to control RCS pressure.</li> </ul>					
1	(O-1.1, Step 6.6.1) PRIOR to exceeding RCS temperature of 180°F, VERIFY hydrazine has been added to the RCS.	The operator reads the Cautions and proceeds.	—	—	—
		The operator recognizes that hydrazine has been added and proceeds (Initial Conditions).	—	—	—
<b>Examiner Note: In the following step the operator will operate HCV-624 and HCV-625 such that the valves are closed together, rather than consecutively.</b>					



## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*2	(O-1.1, Step 6.6.2) RAISE RCS temperature while maintaining less than 200°F by adjusting RHR Flow, using the following valves as necessary to bypass RHR Heat Exchangers: <ul style="list-style-type: none"><li>• HCV-626, RHR HX BYPASS</li><li>• HCV-624, RHR HX OUTLET 1B</li><li>• HCV-625, RHR HX OUTLET 1A</li></ul>	While monitoring RCS pressure (PI-420 and/or PPCS LTOP Page), the operator slowly rotates the HCV-624 Controller adjust knob in the counterclockwise direction such that the controller output moves towards 100% (Full Closed) while ensuring that RCS pressure remains 300-360 psig.	—	—	—
		The operator monitors the PPCS Tcold temperature plot and total RHR System Flow (FI-626/689)	—	—	—
*		While monitoring RCS pressure (PI-420 and/or PPCS LTOP Page), the operator slowly rotates the HCV-625 Controller adjust knob in the counterclockwise direction such that the controller output moves towards 100% (Full Closed) while ensuring that RCS pressure remains 300-360 psig.	—	—	—
		The operator monitors the PPCS Tcold temperature plot and total RHR System Flow (FI-626/689)	—	—	—
		The operator observes FI-626/689 indicating that total RHR System flow is ≈1200 gpm.	—	—	—
		The operator determines that the RCS heatup rate is rising and is between 20-50°F/hour.	—	—	—
SIM DRIVER: WHEN Heatup Rate is 20-50°F/Hour OPERATE Trigger #1.					
Examiner Note: When Trigger #1 is operated the A CCW Pump will trip, the B CCW Pump will NOT start and MCB Annunciators A-6, 7, 9, 14, 15 and 22 will alarm.					
EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number					
3	(O-1.1, Step 6.6.3) CONTINUE to plot pressures AND temperatures every 30 minutes.	The operator uses MCB Annunciators and indications to recognize trip of A CCW Pump with a failure of B CCW Pump to auto start, and enters AP.CCW.3, Loss of CCW – Plant Shutdown.	—	—	—					
<b>Examiner NOTE: The operator may attempt to manually start the B CCW Pump based on Step 5.3.D of A-503.1. The standby Pump will NOT start.</b>										
<b>CUE</b>	<b>When the operator seeks to find AP-CCW.3, provide the operator with Handout 2.</b>									
<p align="center"><b>CAUTION:</b></p> <p>IF CCW FLOW TO A RCP IS INTERRUPTED FOR GREATER THAN 2 MINUTES OR IF EITHER RCP MOTOR BEARING TEMPERATURE EXCEEDS 200°F, THEN TRIP THE AFFECTED RCP.</p> <p>IF CCW IS LOST, THEN SEAL INJECTION SHOULD BE MAINTAINED TO THE RCP(S) UNTIL RCS TEMPERATURE IS LESS THAN 150°F, OR UNTIL CCW IS RESTORED.</p> <p>IF DECAY HEAT REMOVAL CAPABILITY HAS BEEN LOST WHILE IN LOWERED INVENTORY OR IN REDUCED INVENTORY THEN ACTIONS TO ENSURE CONTAINMENT CLOSURE WITHIN THE TIME TO BOIL SHALL NOT BE DELAYED.</p>										
<p align="center"><b>NOTE</b></p> <p>IF CCW is lost to operating CS, RHR, or SI pumps, they may be left running for brief periods while isolating a CCW leak.</p>										
4	(AP-CCW.3, Caution prior to Step 1)	The operator reads the Cautions and Note and proceeds.	—	—	—					
	IF CCW FLOW TO A RCP IS INTERRUPTED FOR GREATER THAN 2 MINUTES OR IF EITHER RCP MOTOR BEARING TEMPERATURE EXCEEDS	The operator notes the time that CCW flow to the RCPs was lost.	—	—	—					
	200°F, THEN TRIP THE AFFECTED RCP.	The operator observes the RCP Motor Bearing Temperatures.	—	—	—					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*4 (Cont'd)		If CCW flow has been lost to the RCPs for > 2 minutes or the A RCP Motor Bearing temperature is >200°F, the operator places the A RCP control switch to STOP prior to Motor Bearing Temperature reaching 266°F.	—	—	—
		The operator observes the A RCP Green status light is LIT, and the Red status light is OFF.	—	—	—
*		If CCW flow has been lost to the RCPs for > 2 minutes or the B RCP Motor Bearing temperature is >200°F, the operator places the B RCP control switch to STOP prior to Motor Bearing Temperature reaching 266°F.	—	—	—
		The operator observes the B RCP Green status light is LIT and the Red status light is OFF.	—	—	—
Examiner Note: The RCPs can be tripped in any order.					
5	(AP-CCW.3, Step 1) Check CCW Pump Status: <ul style="list-style-type: none"><li>Both CCW pump breaker white lights – EXTINGUISHED</li><li>Annunciator A-17, MOTOR OFF, RCP CCWP – EXTINGUISHED</li></ul>	The operator observes the White status light is LIT for the A CCW Pump, and proceeds to the RNO.	—	—	—
6	(AP-CCW.3, Step 1 RNO a) IF a CCW pump has tripped, THEN perform the following:  Ensure standby CCW pump running.	The operator observes that the B CCW Pump Green status light is LIT, and the Red status light is OFF; and recognizes that the B CCW Pump did not start.	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
Examiner Note: The operator may have already attempted to start the B CCW unsuccessfully based on Step 5.3.D of A-503.1.					

JPM Stop Time: \_\_\_\_\_

CUE: This terminates the JPM.

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems - Control Room JPM B

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The plant is in Mode 5.
- The crew has completed Section 6.5 of O-1.1, PLANT HEATUP FROM COLD SHUTDOWN TO HOT SHUTDOWN.
- The current RCS heatup rate is 13°F/hour.
- Chemistry has completed all required RCS sampling and has added Hydrazine.
- Another operator is standing by to monitor and plot heatup rate.
- You are the HCO.

## INITIATING CUE:

- The US has directed you to initiate an RCS heatup at maximum rate not to exceed 50°F/Hour with a maximum RHR System Total Flow of 1500 gpm by performing steps 6.6.1 through 6.6.3 of Section 6.6 of O-1.1.
- Another operator will handle all other MCB operations and alarms not associated with the assigned task.

# **SIM JPM C**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Makeup to the B Accumulator from the RWSTJPM No.: 2020 Systems - Control Room JPM C

K/A Reference: 006 A1.13 (3.5/3.7)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_

Actual Performance: XClassroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.**

Initial Conditions:

- AR-C-4, ACCUMULATOR 1B (LOOP A) LEVEL 60 % 75, has alarmed.
- The SI Accumulator Makeup Pump is OOS.
- An Equipment Operator is standing by to support startup of the C SI Pump and will report the status of the C SI pump when started.

Initiating Cue: The US has directed you to refill the "B" Accumulator to 69% using the "C" SI Pump in accordance with S-16.13, RWST WATER MAKEUP TO THE ACCUMULATORS.

Task Standard: The operator will start the C SI Pump and raise the level of the B Accumulator to ≈69% in accordance with Section 6.2 of S-16.13, RWST WATER MAKEUP TO THE ACCUMULATORS, without the B Accumulator Level rising to greater than 75%.

Required Materials: None



## Job Performance Measure Worksheet

General References: AR-C-4, ACCUMULATOR 1B (LOOP A) LEVEL 60 % 75, Rev 01100  
S-16.13, RWST WATER MAKEUP TO THE ACCUMULATORS, Rev 40  
HU-AA-104-101, PROCEDURE USE AND ADHERENCE, Rev 7

Handouts: Handout 1: Blank copy of S-16.13

Time Critical Task: NO

Validation Time: 12 minutes

Note: This JPM will be Pre-Briefed in the Briefing Room.

<b><u>Critical Step Justification</u></b>	
Step 2	This step is critical because placing the AOV-835B Control Switch to the OPEN position is necessary to raise the level of the B Accumulator to 69% in accordance with Section 6.2 of S-16.13.
Step 8	This step is critical because placing the C SI Pump control switch to the START position is necessary to raise the level of the B Accumulator to 69% in accordance with Section 6.2 of S-16.13.
Step 11	This step is critical because observing LI-934 to be ≈69% and placing the C SI Pump control switch to the STOP position and allowing it to spring return to AUTO is necessary to raise the level of the B Accumulator to 69% in accordance with Section 6.2 of S-16.13 without the B Accumulator Level rising to greater than 75%.
Step 12	This step is critical because placing the AOV-835B Control Switch to the CLOSE position is necessary to raise the level of the B Accumulator to 69% in accordance with Section 6.2 of S-16.13.

Job Performance Measure Worksheet

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Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## Job Performance Measure Worksheet

**SIMULATOR OPERATIONAL GUIDELINES**

1. Initiate to **any 100% IC (IC-19)**.

<b>NOTE:</b>	<b>It is permissible to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently. {Delete this NOTE if not applicable.}</b>
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2. Insert **Malfunction SIS05B = 100** (ACCUMULATOR 1B LEAK).
3. Place Simulator in RUN.
4. When AR-C-4, ACCUMULATOR 1B (LOOP A) LEVEL 60 % 75 is LIT, check that the B Accumulator Level is at 58%, and DELETE **Malfunction SIS05B**.
5. Place Simulator in FREEZE.
6. Reset to IC-163 (March 2020)
7. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
8. This completes the setup for this JPM.
9. Place Simulator in RUN when directed by examiner.

## VERIFICATION OF COMPLETION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.</b>				
1	(S-16.13, Step 6/6.2.1) Filling SI Accumulator 1B/ ENSURE OPEN the following valves: <ul style="list-style-type: none"> <li>• SI PUMP SUCTION FROM RWST, MOV 825A</li> <li>• SI PUMP SUCTION FROM RWST, MOV 825B</li> <li>• SI PUMP RECIRC TO RWST, MOV 897</li> <li>• SI PUMP RECIRC TO RWST, MOV 898</li> </ul>	The operator observes the MOV 825A Red status light is LIT and the Green status light is OFF.	___	___	___
		The operator observes the MOV 825B Red status light is LIT and the Green status light is OFF.	___	___	___
		The operator observes the MOV 897 Red status light is LIT and the Green status light is OFF.	___	___	___
		The operator observes the MOV 898 Red status light is LIT and the Green status light is OFF.	___	___	___
<b>CAUTION</b> To prevent cross-tying of SI Accumulators via fill path, only one fill valve at a time can be opened.					
2	(S-16.13, Step 6.2.2) OPEN SI ACCUM 1B FILL VALVE, AOV-835B.	The operator reads the Caution and proceeds.	___	___	___
*		The operator places the AOV-835B Control Switch to the OPEN position.	___	___	___
		The operator observes the AOV-835B Red status light is LIT and the Green status light is OFF.	___	___	___
3	(S-16.13, Step 6.2.3) RECORD initial SI ACCUM 1B Level. [G0215] <ul style="list-style-type: none"> <li>• LI-934 _____ %</li> </ul>	The operator observes LI-934 and records the reading in the space provided.	___	___	___
4	(S-16.13, Step 6.2.4) IF the SI Pump is being used to fill the SI Accumulator, THEN NOTIFY the Equipment Operator of impending SI Pump start. OTHERWISE, MARK this Step N/A.	The operator acknowledges the report of the EO.	___	___	___
<b>CUE</b>	<b>As Equipment Operator, acknowledge "Standing by for start of the C SI Pump."</b>				

## VERIFICATION OF COMPLETION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
5	(S-16.13, Step 6.2.5) IF RCS is less than 350°F, THEN PERFORM the following: OTHERWISE, MARK this Step N/A.	The operator recognizes that the plant is at 100% power, that this step is NA, and proceeds.	___	___	___
<p align="center"><b>NOTE</b></p> <p>IF SI Pump C were used in this section, THEN the A Train SI would be inoperable while MOV-871A is closed. Additionally, the B Train SI would be inoperable because it would also be necessary to close MOV-878D. Therefore, use of the SI Pump C is NOT permitted in this section.</p>					
6	(S-16.13, Step 6.2.6) IF RCS is greater than 350°F AND less than 1600 psig, THEN PERFORM the following: OTHERWISE, MARK this Step N/A.	<p>The operator reads the Note and proceeds.</p> <p>The operator recognizes that the plant is at 100% power, that this step is NA, and proceeds.</p>	___	___	___
7	<p>(S-16.13, Step 6.2.7/6.2.7.1) IF RCS is greater than 350°F AND greater than or equal to 1600 psig, THEN PERFORM the following: OTHERWISE, MARK this Step N/A.</p> <p>1. IF the SI Accumulator Makeup Pump is to be used to fill the SI Accumulator, THEN PERFORM Attachment 1, SI Accumulator Makeup Pump Operation, AND MARK Steps 6.2.7.2 through 6.2.7.6 N/A. OTHERWISE, MARK this Step N/A.</p>	The operator recognizes that the direction was to use the C SI Pump, that this step is NA, and proceeds.	___	___	___
*8	(S-16.13, Step 6.2.7.2) START ONE of the following SI Pumps AND MARK pump NOT started N/A.	The operator places the C SI Pump control switch to the START position.	___	___	___
	<ul style="list-style-type: none"> <li>SI PUMP B</li> <li>SI PUMP C</li> </ul>	The operator observes the C SI Pump Red status light is LIT and the Green status light is OFF.	___	___	___

## VERIFICATION OF COMPLETION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
9	(S-16.13, Step 6.2.7.3) CHECK running pump for mechanical performance to ensure that no unusual noise, vibrations or excessive temperatures exist.	The operator contacts the Equipment Operator and indicates that the C SI Pump has been started and directs that the pump be locally monitored for performance.	___	___	___
<b>CUE</b>	<b>As Equipment Operator, report "Conditions Normal on C SI Pump start."</b>				
10	(S-16.13, Step 6.2.7.4) VERIFY pump discharge pressure of approximately 1500 psi on PI-923.	The operator observes PI-923 and determines that the C SI Pump discharge pressure is ≈1500 psig.	___	___	___
<b>CAUTION</b> SI Accumulator level of 75% SHALL NOT be exceeded during filling.					
11	(S-16.13, Step 6.2.7.5) WHEN desired level is obtained, THEN PERFORM the following: STOP the operating SI pump. PLACE the SI pump that was stopped in AUTO.	The operator reads the Caution and proceeds.	___	___	___
*		The operator observes LI-934 to be ≈69% and places the C SI Pump control switch to the STOP position prior to LI-934 rising to > 75% and allows the control switch to spring-return to AUTO.	___	___	___
		The operator observes the C SI Pump Green status light is LIT and the Red status light is OFF.	___	___	___
*12		The operator places the AOV-835B Control Switch to the CLOSE position.	___	___	___
		The operator observes the AOV-835B Green status light is LIT and the Red status light is OFF.	___	___	___
13	(S-16.13, Step 6.2.8) RECORD final SI ACCUM 1B Level. [G0215] • LI-934 _____ %	The operator observes LI-934 and records the reading in the space provided.	___	___	___

JPM Stop Time: \_\_\_\_\_

**CUE: This terminates the JPM.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems - Control Room JPM C

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- AR-C-4, ACCUMULATOR 1B (LOOP A) LEVEL 60 % 75, has alarmed.
- The SI Accumulator Makeup Pump is OOS.
- An Equipment Operator is standing by to support startup of the C SI Pump and will report the status of the C SI pump when started.

## INITIATING CUE:

The US has directed you to refill the "B" Accumulator to 69% using the "C" SI Pump in accordance with S-16.13, RWST WATER MAKEUP TO THE ACCUMULATORS.



# **SIM JPM D**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Vent RCS for Accumulator/RHR InjectionJPM No.: 2020 Systems - Control Room JPM D (Alternate Path)

K/A Reference: 074 EA1.05 (3.9 / 4.1)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X  
Classroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.**

Initial Conditions:

- The plant has experienced a LOCA.
- In addition, Bus 15 has tripped. No cause for the Bus 15 trip has been identified.
- Due to malfunctions associated with the ARVs and Safety Injection, the ability to cool the core has been lost. Operating crew efforts to establish core cooling in accordance with FR-C.1, RESPONSE TO INADEQUATE CORE COOLING, have so far been unsuccessful.
- The operating crew is at Step 23 of FR-C.1.

Initiating Cue:

- The US has directed you to continue efforts to establish core cooling in accordance with FR-C.1.
- Another operator will handle all other MCB operations and alarms not associated with the assigned task.

Task Standard: The operator will attempt to establish Instrument Air to the Containment and when this fails, use ATT-12.0, ATTACHMENT N2 PORVS, to vent the RCS using both PORVs and the Reactor Vessel Head Vent Valves.

## Job Performance Measure Worksheet

Required Materials: Key for Overpressure Accumulator

General References: FR-C.1, RESPONSE TO INADEQUATE CORE COOLING, Rev 029  
E-0, REACTOR TRIP OR SAFETY INJECTION, Rev 049  
E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Rev 043  
ATT-12.0, ATTACHMENT N2 PORVS, Rev 6  
A-503.1, EMERGENCY AND ABNORMAL OPERATING  
PROCEDURES USERS GUIDE, Rev 052

Handouts: Handout 1: Marked up copy of FR-C.1  
Handout 2: Blank copy of ATT-12.0

Time Critical Task: NO

Validation Time: 10 minutes

<b><u>Critical Step Justification</u></b>	
Step 6	This step is critical because depressing the Y RLY X RLY IAIV AOV5392 pushbutton is necessary to attempt to establish Instrument Air to the Containment.
<b><u>Alternate Path Critical Step Justification</u></b>	
Step 8	This step is critical because inserting the key and rotating the SOV-8616A & B key switches to OPEN is necessary to vent the RCS using both PORVs.
Step 9	This step is critical because inserting the key and rotating the SOV-8619A & B key switches to OPEN is necessary to vent the RCS using both PORVs.
Step 10	This step is critical because inserting the key and rotating the SOV-590, SOV-591, SOV-592 and SOV-593 key switches to OPEN is necessary to vent the RCS using the Reactor Vessel Head Vent Valves.

Job Performance Measure Worksheet

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Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## Job Performance Measure Worksheet

**SIMULATOR OPERATIONAL GUIDELINES**

1. Initiate to **IC-24**.

**NOTE:** It is permissible to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently. {Delete this NOTE if not applicable.}

2. Insert **Malfunction SIS03A** (SI Pump 1A Trip).
3. Insert **Malfunction SIS03B** (SI Pump 1B Trip).
4. Insert **Malfunction SIS03C** (SI Pump 1C Trip).
5. Insert **Malfunction STM04B = 0** (Atmospheric Relief Valve Failure: VLV 3411 (NO MAN)).
6. Insert **Malfunction STM04D = 0** (Atmospheric Relief Valve Failure: VLV 3410 (NO MAN)).
7. Insert **Malfunction RHR01A** (RHR Pump 1A Trip).
8. Insert **Malfunction RHR01B** (RHR Pump 1B Trip).
9. Insert **Malfunction FDW12 = 0** (AFW Turbine Driven Pump Speed Control Failure).
10. Insert **Malfunction FDW11A** (Aux Feedwater Pump Failure: Motor Driven Pump 1A).
11. Insert **Malfunction FDW11B** (Aux Feedwater Pump Failure: Motor Driven Pump 1B).
12. Insert **Malfunction RPS05A = Manual Available** (Reactor Trip Bkr A Failure).
13. Insert **Malfunction RPS05B = Manual Available** (Reactor Trip Bkr B Failure).
14. Insert **Malfunction FDW02A on Trigger #1 – 10 Second Delay** (Feedwater Pump 1A Trip).
15. Insert **Malfunction FDW02B on Trigger #1 – 10 Second Delay** (Feedwater Pump 1B Trip).
16. Insert **Malfunction RCS02D = 3000 on Trigger #1 – Delay 30 Seconds** (RCS Leak into CNMT: Loop B Cold Leg) [Throttle as necessary to maintain RCS pressure > 950 psig].
17. Insert **Malfunction EDS02C on Trigger #1 – 60 Second Delay** (Loss of Station Service Transformer 15)
18. Insert **Malfunction RPS11-A1 = Fails As Is on Trigger #1 – 2 Minute Delay** (CI Failure – AOV-5392).
19. Place Simulator in RUN.
20. Stop both RCPs after E-0 immediate actions are completed (Facilitate getting to FR-C.1).
21. Perform actions of E-0, E-1 and FR-C.1 (Up to Step 23), as necessary.
22. ENSURE CETs are greater than 1200°F.
23. Place Simulator in FREEZE.
24. Reset to IC-164 (May 2020)
25. Placekeep a copy of FR-C.1 up to Step 23 and place on HCO's desk.
26. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
27. This completes the setup for this JPM.
28. Place Simulator in RUN when directed by Examiner.

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.</b>				
<b>NOTE</b> Normal conditions are desired but not required for starting the RCPs.					
1	(FR-C.1, Step 23/23.a) Check If RCPs Should Be Started: a. Core Exit T/Cs – GREATER THAN 1200°F	The operator reads the Note and proceeds.  The operator observes CETs / PPCS indicate greater than 1200°F.	___	___	___
<b>Examiner Note: In the next Step, the operator may recognize RCPs are not available (loss of power to RCP Oil Lift Pumps); however, it is acceptable for the operator to attempt to start RCP Oil Lift Pump, then return to FR-C.1, Step 23.a. RCP Oil Lift Pumps will indicate running if attempted to start (Red light LIT, Green light OFF). However, the White light will not come on indicating NO lift oil pressure.</b>					
2	(FR-C.1, Step 23/23.b) Check If RCPs Should Be Started: b. Check if an idle RCS cooling loop is available <ul style="list-style-type: none"><li>Narrow range S/G level – GREATER THAN 7% [25% adverse CNMT]</li><li>RCP in associated loop – AVAILABLE AND NOT OPERATING</li></ul>	The operator observes S/G narrow range levels are less than 25%.	___	___	___
3	(FR-C.1, Step 23.b RNO 1) Perform the following: 1) Reset SI.	The operator depresses SAFETY INJECTION RESET pushbutton.	___	___	___
		The operator observes Annunciator K-6, THERMAL OVERLOAD RELAY BYPASSED is extinguished.	___	___	___
4	(FR-C.1, Step 23.b RNO 2) Perform the following: 2) Reset CI.	The operator depresses CNMT ISOLATION RESET pushbutton.	___	___	___
		The operator observes Annunciator A-26, CONTAINMENT ISOLATION is extinguished.	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
5	(FR-C.1, Step 23.b RNO 3) Perform the following: 3) Ensure adequate air compressor(s) running.	The operator observes the A Instrument Air Compressor Red status light is LIT and the Green status light is OFF.	___	___	___
		The operator places the Service Air Compressor Control Switch to START.	___	___	___
		The operator observes the Service Air Compressor Red status light is LIT and the Green status light is OFF.	___	___	___
*6	(FR-C.1, Step 23.b RNO 4) Perform the following: 4) Establish IA to CNMT.	The operator depresses Y RLY X RLY IAIV AOV5392 pushbutton: <ul style="list-style-type: none"><li>• TRAIN A</li><li>• TRAIN B</li></ul>	___	___	___
		The operator observes INSTR AIR TO CNMT ISOL AOV-5392 is closed (Green light LIT, Red light OFF).	___	___	___
EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP					
7	(FR-C.1, Step 23.b RNO 5) 5) Open all PRZR PORVs and block valves a) <u>IF</u> any block valve can <u>NOT</u> be opened, <u>THEN</u> .....  b) <u>IF</u> IA <u>NOT</u> available, <u>THEN</u> refer to ATT-12.0, ATTACHMENT N2 PORVS.	The operator places the PCV-431C Control Switch to OPEN and observes the Green status light is LIT and Red status light is OFF.	___	___	___
		The operator places the PCV-430 Control Switch to OPEN and observes the Green status light is LIT and Red status light is OFF.	___	___	___
		The operator observes the MOV-515 Red status light is LIT, and the Green status light is OFF.	___	___	___
		The operator observes the MOV-516 Red status light is LIT, and the Green status light is OFF.	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
7 (Cont'd)		The operator recognizes that Instrument Air is NOT available and proceeds to ATT-12.0, Attachment N2 PORVs.	___	___	___
CUE	Provide operator with Handout 2, Blank copy of ATT-12.0 and the Key for the Overpressure Accumulator.				
Examiner NOTE: Knowing that there is no Instrument Air to the Containment, the operator may or may NOT take PORV control switches to OPEN					
WHEN IA to CNMT NOT available, THEN perform the following to operate one (or both) PRZR PORV(s) in accordance with guidance provided by the procedure step:					
NOTE					
<ul style="list-style-type: none"><li>IF RCS overpressurization accumulator pressure lowers to less than 200 psig, then recharge accumulators using S-29.2, CHARGING THE REACTOR VESSEL OVERPRESSURE PROTECTION SYSTEM ACCUMULATORS WITH N2. This will require reset of CI and XY relays for the N2 supply valve to CNMT, AOV-846.</li><li>For FR-H.1, Bleed and Feed the PORV block valve is not required to be operable.</li></ul>					
8	(ATT-12.0, Step A) Select a PORV with an operable block valve, obtain a key for the RCS overpressurization system, and perform the appropriate step below: <ul style="list-style-type: none"><li>PCV-431C:<ul style="list-style-type: none"><li>Verify block valve MOV-515 – OPEN AND OPERABLE</li><li>Place ACCUM TO SURGE TK VLV SOV-8616B to OPEN</li></ul></li><li>PCV-430:<ul style="list-style-type: none"><li>Verify block valve MOV-516 – OPEN AND OPERABLE</li><li>Place ACCUM TO SURGE TK VLV SOV-8616A to OPEN</li></ul></li></ul>	The operator reads the conditional step and Notes, and proceeds.	___	___	___
		The operator observes the MOV-515 Red status light is LIT, and Green status light is OFF and is OPERABLE.	___	___	___
*		The operator inserts key and rotates the SOV-8616B key switch to OPEN.	___	___	___
		The operator observes the MOV-516 Red status light is LIT, and Green status light is OFF and is OPERABLE.	___	___	___
*		The operator inserts key and rotates the SOV-8616A key switch to OPEN.	___	___	___



## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*9	(ATT-12.0, Step B) To depressurize the RCS in accordance with the guidance provided by the EOP step, perform the following: <ul style="list-style-type: none"> <li>○ For PCV-431C, place overpressurization system arming switch, N2 ARMING VLV SOV-8619B, to ARM</li> <li>○ For PCV-430, place overpressurization system arming switch, N2 ARMING VLV SOV-8619A, to ARM</li> </ul>	The operator inserts key and rotates the SOV-8619B key switch to ARM.	_____	_____	_____
*		The operator inserts key and rotates the SOV-8619A key switch to ARM.	_____	_____	_____
		The operator observes PCV-430 Red status light is LIT, and the Green status light is OFF.  The operator observes PCV-431C Red status light is LIT and the Green status light is OFF.  The operator returns to Step 23 RNO of FR-C.1.	_____	_____	_____
<b>Examiner Note: Dependent on operator time to perform actions, JPM Performance Step 10 may NOT be performed since CETs/PPCS indicate less than 1200°F, in which case JPM Performance Step 10 is NOT critical and should be marked N/A.</b>					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
10	(FR-C.1, Step 23.b RNO 6) Perform the following: 6) <u>IF</u> core exit T/Cs remain greater than 1200°F, <u>THEN</u> open Rx vessel head vent valves.	The operator observes CETs/PPCS indicate greater than 1200°F.	___	___	___
*	• SOV-590	The operator inserts the key and rotates the SOV-590 key switch clockwise.	___	___	___
*	• SOV-591	The operator inserts the key and rotates the SOV-591 key switch clockwise.	___	___	___
*	• SOV-592	The operator inserts the key and rotates the SOV-592 key switch clockwise.	___	___	___
*	• SOV-593	The operator inserts the key and rotates the SOV-593 key switch clockwise.	___	___	___
		The operator observes the Red status light is LIT and the Green status light is OFF for the following: • SOV-590 • SOV-591 • SOV-592 • SOV-593	___	___	___

JPM Stop Time: \_\_\_\_\_

**CUE: This terminates the JPM.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems - Control Room JPM D

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The plant has experienced a LOCA.
- In addition, Bus 15 has tripped. No cause for the Bus 15 trip has been identified.
- Due to malfunctions associated with the ARVs and Safety Injection, the ability to cool the core has been lost. Operating crew efforts to establish core cooling in accordance with FR-C.1, RESPONSE TO INADEQUATE CORE COOLING, have so far been unsuccessful.
- The operating crew is at Step 23 of FR-C.1.

## INITIATING CUE:

- The US has directed you to continue efforts to establish core cooling in accordance with FR-C.1.
- Another operator will handle all other MCB operations and alarms not associated with the assigned task.

# **SIM JPM E**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Synchronize Generator On-Line with  
Improper Load PickupJPM No.: 2020 Systems - Control  
Room JPM E  
(Alternate Path)

K/A Reference: 045 A2.17 (2.7\*/2.9\*)

Examinee:

Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_

Actual Performance: XClassroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-2.**

Initial Conditions:

- The generator is being started following a refueling outage.
- The generator is at 1800 rpm and the turbine is fully warmed up.
- The generator output voltage is 19 KV.
- MTC is negative for this Startup.
- You are the CO.

Initiating Cue:

- The US has directed you to synchronize the generator on-line per O-1.2, PLANT STARTUP FROM HOT SHUTDOWN TO FULL LOAD, steps 6.13.1 through 6.13.11.7.
- The HCO will control the primary plant.

Task Standard:

The operator will synchronize the Main Generator to the Electrical Grid, and when it is recognized that the Automatic Load Pickup has failed to function, the operator will manually load the Turbine to 40 to 60 MW, without reverse powering the Main Generator.

## Job Performance Measure Worksheet

Required Materials: None

General References: O-1.2, PLANT STARTUP FROM HOT SHUTDOWN TO FULL LOAD, Rev 220  
 FIG-13.0, FIGURE BACK PRESSURE, Rev 0  
 HU-AA-104-101, PROCEDURE USE AND ADHERENCE, Rev 7

Handouts: Handout 1: O-1.2 (Pages 1-13, 56, and 67-76)  
 Handout 2: Attachment 2 of O-1.2 (No Load Excitation Limits for #1 and #11 Transformers)

Time Critical Task: NO

Validation Time: 16 minutes

Note: This JPM will be pre-briefed in the Briefing Room. A full copy of O-1.2, PLANT STARTUP FROM HOT SHUTDOWN TO FULL LOAD, should be available to the operator.

<b><u>Critical Step Justification</u></b>	
Step 3	This step is critical because rotating CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch to the ON position is necessary to synchronize the Main Generator to the Electrical Grid.
Step 4	This step is critical because adjusting Turbine Control setter up or down 1 rpm and depressing the GO pushbutton until the synchroscope is rotating slowly in the FAST direction is necessary to synchronize the Main Generator to the Electrical Grid.
Step 6	This step is critical because placing the BASE ADJUSTER to RAISE until INCOMING VOLTMETER (GENERATOR) voltage is slightly higher than RUNNING VOLTMETER (SYSTEM) voltage is necessary to synchronize the Main Generator to the Electrical Grid.
Step 12	This step is critical because rotating the CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch to ON is necessary to synchronize the Main Generator to the Electrical Grid.
Step 16	This step is critical because rotating the 1G 13A72 breaker pistol-grip switch clockwise to the CLOSE position when the synchroscope is approaching 12 o'clock is necessary to synchronize the Main Generator to the Electrical Grid.
<b><u>Alternate Path Critical Step Justification</u></b>	
Step 18	This step is critical because depressing the TURB MANUAL pushbutton and then intermittently depressing the MANUAL CONTROL VALVE RAISE pushbutton to adjust generator gross load is necessary to manually load the Turbine to 40 to 60 MW, without reverse powering the Main Generator.

Job Performance Measure Worksheet

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Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## Job Performance Measure Worksheet

**SIMULATOR OPERATIONAL GUIDELINES**

1. Reset to **IC-16** (Turbine 1800 rpm)

<p><b>NOTE:</b> It is permissible to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently. {Delete this NOTE if not applicable.}</p>
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2. Withdraw control rods to ensure reactor power > 15% but < 20%
3. Ensure FRVs in Auto
4. Ensure generator output voltage at 19 KV
5. Insert **MALF TUR18, 1 MW** (Failure of Turbine Auto Load Pickup)
6. Ensure Grid frequency [**Remote E-MIS11**] is adjusted so that when the examinee places the Synchroscope to ON it is moving slowly in the SLOW direction (e.g. 60.02 Hz).
7. Ensure Grid voltage [**Remote E-MIS10 = 114**] is low enough to allow the examinee to adjust incoming voltage to slightly greater than system voltage, while maintaining generator voltage < 19.3 KV (Step 6.13.4)
8. Set **REM EDS017** to **Closed** (Sta 13A Man Disconnect 1G13A73)
9. Set **REM EDS016** to **Closed** (Sta 13A Man Disconnect 9X13A71)
10. Select PBACK on the PPCS Screen in front of the Turbine Control Station.
11. Place simulator in FREEZE.
12. Reset to IC 150 (March, 2020)
13. Place simulator in RUN when directed by examiner.
14. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
15. This completes the setup for this JPM.

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-2.</b>				
1	(O-1.2 Step 6.13.1) PLACE Hotwell Level Control, LC-107, in MANUAL AND CONTROL hotwell level at approximately 27 inches or as directed by US.	The operator places LC-107 in MANUAL and adjusts such that Hotwell level is at ≈ 26 inches.	—	—	—
2	(O-1.2 Step 6.13.2) PLACE synchroscope switch handle in CIRCUIT BKR 1G 13A72 SYNCHROSCOPE.	The operator places synchroscope switch handle in CIRCUIT BKR 1G 13A72 SYNCHROSCOPE.	—	—	—
<b>Examiner Note: There is a single switch handle that may be placed in either CIRCUIT BKR 1G 13A72 SYNCHROSCOPE, or CIRCUIT BKR 9X 13A72 SYNCHROSCOPE.</b>					
<p style="text-align: center;"><b>NOTE</b></p> <p>WHEN next step is performed, THEN MCB Alarm J-5, #11 OR #12 TRANSFORMER OUT OF SYNCH, will cycle in and out of alarm as the Generator phases in and out of sync with the grid.</p>					
3	(O-1.2 Step 6.13.3) PLACE CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch to ON.	The operator reads the Note, and proceeds.	—	—	—
*		The operator rotates CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch clockwise to the ON position.	—	—	—
<b>Examiner Note: Alarm J-5 may cycle in and out of alarm per the note.</b>					
<b>CUE</b>	<b>(If Alarm J-5 is cycling in and out of alarm): “The US gives you permission to allow alarm J-5 to flash.”</b>				
<p style="text-align: center;"><b>NOTE</b></p> <p>Synchroscope should be rotating <u>slow</u> in the FAST (clockwise) direction in the next step. IF Turbine Generator frequency is slightly higher than system frequency, THEN synchroscope should be rotating in the FAST (clockwise) direction. IF rotating counter clockwise, THEN a raise in speed will be required.</p>					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
4	(O-1.2 Step 6.13.4/4.1-3) IF Turbine Generator speed adjustment must be made, THEN PERFORM the following:	The operator reads the Note, and proceeds.	—	—	—
	OTHERWISE, MARK this Step N/A.	The operator observes the SYNCHROSCOPE (MCB right section) moving slowly in the SLOW direction.	—	—	—
*	1. ADJUST SETTER up OR down 1 rpm. (Turbine EH Control Panel) 2. DEPRESS GO pushbutton. (Turbine EH Control Panel) 3. REPEAT Steps 6.13.4.1 AND 6.13.4.2 UNTIL synchroscope is rotating <u>slow</u> in the FAST (clockwise) direction.	The operator adjusts the Turbine Control setter up or down 1 rpm and depresses the GO pushbutton until synchroscope is rotating slow in the FAST direction (Repeated as needed).	—	—	—
<b>Examiner Notes:</b> <ul style="list-style-type: none"> <li>Up, down, and GO pushbuttons are located on EH control panel.</li> <li>Digital REFERENCE and SETTER indication is located above the EH control panel.</li> <li>It is likely that the operator will need to perform this action 6-7 times.</li> </ul>					
5	(O-1.2 Step 6.13.5/5.1) WHEN Turbine is at synchronous speed, THEN REPEAT the following as necessary to ensure generator INCOMING VOLTMETER (GENERATOR) voltage is slightly higher than system RUNNING VOLTMETER (SYSTEM) voltage: <ul style="list-style-type: none"> <li>CHECK voltage on all three phases.</li> </ul>	The operator rotates the GENERATOR VOLTMETER switch to each phase position and compares: INCOMING VOLTMETER (GENERATOR) voltage to the RUNNING VOLTMETER (SYSTEM) voltage A-B phase B-C phase C-A phase	—	—	—
<b>Examiner Notes:</b> <ul style="list-style-type: none"> <li>INCOMING VOLTMETER (GENERATOR) is located to the left of the SYNCHROSCOPE.</li> <li>RUNNING VOLTMETER (SYSTEM) is located to the right of the SYNCHROSCOPE.</li> </ul>					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
6	(O-1.2 Step 6.13.5.2) WHILE maintaining voltage within the acceptable operating region of Attachment 2, No Load Excitation Limits for #1 and #11 Transformers, TRY to adjust BASE ADJUSTER to make INCOMING VOLTMETER (GENERATOR) voltage slightly higher than RUNNING VOLTMETER (SYSTEM) voltage.	The operator refers to Attachment 2.	—	—	—
		The operator observes the INCOMING VOLTMETER (GENERATOR) voltage and RUNNING VOLTMETER (SYSTEM) voltage.	—	—	—
*		The operator places the BASE ADJUSTER to RAISE until INCOMING VOLTMETER (GENERATOR) voltage is slightly higher than RUNNING VOLTMETER (SYSTEM) voltage.	—	—	—
		The operator does NOT allow GENERATOR voltage to exceed approximately 19.3 KV (per Attachment 2).	—	—	—
<b>Examiner Note: Voltage will remain within the acceptable operating region of Attachment 2 if the operator keeps the GENERATOR voltage &lt; approximately 19.3 KV.</b>					
7	(O-1.2 Step 6.13.5.3) IF INCOMING VOLTMETER (GENERATOR) voltage CANNOT be made slightly higher than RUNNING VOLTMETER (SYSTEM) voltage, THEN PERFORM the following: OTHERWISE, MARK this Step N/A.	The operator marks this step NA, and proceeds.	—	—	—
8	(O-1.2 Step 6.13.6) PLACE CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch to OFF.	The operator Rotates CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch counter-clockwise to OFF.	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>NOTE</b> Disconnects are operated per GME-13-02-HVDISC, Operation Of High Voltage Disconnects.					
9	(O-1.2 Step 6.13.7) WHEN disconnects are closed at 13A, THEN OBSERVE the following (red) CLOSED lights ILLUMINATED: <ul style="list-style-type: none"> <li>GENERATOR DISCONNECT 1G13A71</li> <li>GENERATOR DISCONNECT 9X13A73</li> </ul>	The operator reads the Note, and proceeds.	—	—	—
		The operator observes the 1G13A71 Red status light is LIT and the Green status light is OFF.	—	—	—
		The operator observes the 9X13A73 Red status light is LIT and the Green status light is OFF.	—	—	—
10	(O-1.2 Step 6.13.8) ENSURE Reactor power is between 15% to 20%.	The operator observes Power Range channels NI-41C, NI-42C, NI-43C, and NI-44C between 15% and 20% (Or equivalent).	—	—	—
<b>CUE</b>	<b>(If asked to report power level): As the HCO, “Power level is 19% (current power level)”.</b>				
11	(O-1.2 Step 6.13.9) REVIEW CAUTION at beginning of Subsection 6.9.	The operator reads Caution prior to Step 6.9.1, and proceeds.	—	—	—
*12	(O-1.2 Step 6.13.10) PLACE CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch to ON.	The operator rotates the CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch clockwise to ON.	—	—	—
<b>CUE</b>	<b>(If Alarm J-5 is cycling in and out of alarm): “The US gives you permission to allow alarm J-5 to flash.”</b>				

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<p style="text-align: center;"><b>CAUTION</b></p> <p>At low MWe output, Turbine loading requirements SHALL be observed PER EOP, FIG-13.0, Figure Back Pressure</p> <ul style="list-style-type: none"> <li>• Operation in the Avoid Region SHOULD be minimized.</li> <li>• Operation in the DO NOT OPERATE region SHALL be limited to 5 minutes.</li> </ul>					
13	(O-1.2 Step 6.13.11/11.1) PERFORM the following to CLOSE CIRCUIT BKR 1G 13A72 BUS 1 115KV:	The operator reads the Caution, and proceeds.	—	—	—
	WITH RG&E Energy Control Center concurrence, TRY to adjust BASE ADJUSTER so generator INCOMING VOLTMETER (GENERATOR) voltage is slightly higher than system RUNNING VOLTMETER (SYSTEM) voltage as indicated on all three phases.	The operator refers to FIG-13.0 or calls up PBACK on the PPCS.	—	—	—
		The operator observes the INCOMING VOLTMETER (GENERATOR) voltage and RUNNING VOLTMETER (SYSTEM) voltage and determines that no adjustment is needed.	—	—	—
<p><b>Examiner Note: This action was completed previously. Further adjustment should not be required.</b></p>					
14	(O-1.2 Step 6.13.11.2) IF INCOMING VOLTMETER (GENERATOR) voltage CANNOT be adjusted slightly higher than system RUNNING VOLTMETER (SYSTEM) voltage, THEN PERFORM the following: OTHERWISE, MARK this Step N/A.	The operator marks Step 6.13.11.2. a and b N/A.	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
15	(O-1.2 Step 6.13.11.3) REVIEW Steps 6.13.11.4 thru 6.13.11.6 prior to closing CIRCUIT BKR 1G 13A72 BUS 1 115KV to ensure timely actions are taken for automatic load pickup to preclude a generator trip from reverse power.	The operator reviews Steps 6.13.11.4 thru 6.13.11.6.	—	—	—
<b>Examiner Note: The operator may place a CCV identifier on the MCB below the Turbine MANUAL pushbutton.</b>					
<p style="text-align: center;"><b>NOTE</b></p> <p>MCB Alarm J-5, #11 or #12 TRANSFORMER OUT OF SYNCH, will stay EXTINGUISHED during performance of next step.</p>					
16	(O-1.2 Step 6.13.11.4) WHEN synchroscope rotating slow in the FAST (clockwise) direction AND approaching 12 o'clock position, THEN CLOSE CIRCUIT BKR 1G 13A72 BUS 1 115KV so breaker closes at the approximate point of synchronism (12 o'clock).	The operator reads the Note, and proceeds.	—	—	—
		The operator observes the synchroscope rotating slowly in the FAST direction.	—	—	—
*	<ul style="list-style-type: none"> <li>RECORD time of closure</li> </ul>	The operator rotates the 1G 13A72 breaker pistol-grip switch clockwise to the CLOSE position when the synchroscope is approaching 12 o'clock.	—	—	—
		The operator observes the 1G 13A72 Red status light LIT, Green status light OFF.	—	—	—
		The operator records time of closure.	—	—	—
<b>Examiner Note: Operator may not record breaker closure time until after automatic load pickup is verified. This is acceptable to ensure timely actions are taken for automatic load pickup to preclude a generator trip from reverse power.</b>					
<b>CUE</b>	<b>IF the operator communicates actions to the US, as US, acknowledge.</b>				
<b>EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP</b>					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
NOTE					
Load is to be maintained between 40 to 60 MW UNTIL hold time in Step 6.14.5.2 is completed.					
17	(O-1.2 Step 6.13.11.5) VERIFY Automatic load pickup occurs within approximately 10 seconds.	The operator reads the Note, and proceeds.	—	—	—
		The operator observes Generator load and determines that automatic load pickup is NOT raising load to the expected range.	—	—	—
*18	(O-1.2 Step 6.13.11.6) IF automatic load pickup does NOT occur within approximately 10 seconds, THEN PERFORM the following: OTHERWISE, MARK this Step N/A.  a. DEPRESS TURB. MANUAL pushbutton. (Turbine EH Control Panel)  b. INTERMITTENTLY DEPRESS the following pushbuttons as necessary to adjust generator gross load between 40 to 60 MW: <ul style="list-style-type: none"><li>MANUAL CONTROL VALVE LOWER</li><li>MANUAL CONTROL VALVE RAISE</li></ul>	The operator depresses TURB MANUAL pushbutton.	—	—	—
		The operator observes OPER PAN light off and TURB MANUAL light is LIT.	—	—	—
		The operator observes digital Generator Gross MW indication.	—	—	—
*		The operator intermittently depresses the MANUAL CONTROL VALVE RAISE pushbutton to adjust generator gross load to between 40 to 60 MW before the Main Generator trips on Reverse Power.	—	—	—
CUE	IF the operator communicates actions to the US, as US, acknowledge.				
Examiner Note: The Main Generator will Reverse Power in about 55-60 seconds if the operator does NOT take this action (i.e. JPM Failure).					



## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
19	(O-1.2 Step 6.13.11.7) PLACE CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch to OFF.	The operator rotates CIRCUIT BKR 1G 13A72 SYNCHROSCOPE control switch counter-clockwise to the OFF position.	—	—	—

JPM Stop Time: \_\_\_\_\_

**CUE: This terminates the JPM.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems - Control Room JPM E

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The generator is being started following a refueling outage.
- The generator is at 1800 rpm and the turbine is fully warmed up.
- The generator output voltage is 19 KV.
- MTC is negative for this Startup.
- You are the CO.

## INITIATING CUE:

- The US has directed you to synchronize the generator on-line per O-1.2, PLANT STARTUP FROM HOT SHUTDOWN TO FULL LOAD, steps 6.13.1 through 6.13.11.7.
- The HCO will control the primary plant.

# **SIM JPM F**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Verify Containment Isolation and Heat RemovalJPM No.: 2020 Systems - Control Room JPM F

K/A Reference: EPE E14 EA1.1 (3.7/3.7)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:   X    
Classroom \_\_\_\_\_ Simulator   X   Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.**

- Initial Conditions:
- The plant tripped from 100% power and Safety Injection has actuated.
  - The crew entered E-0, REACTOR TRIP OR SAFETY INJECTION, and then transitioned to E-2, FAULTED STEAM GENERATOR ISOLATION.
  - Due to a degrading transient, an Orange Path now exists on the Containment Critical Safety Function Status Tree.
  - You are the HCO.

- Initiating Cue:
- The US has directed you to perform FR-Z.1, RESPONSE TO HIGH CONTAINMENT PRESSURE, starting at Step 1.
  - Another operator will handle all other MCB operations and alarms not associated with the assigned task.

Task Standard: The operator will establish Containment Spray flow including flow from the Sodium Hydroxide Tank from at least one train of Containment Spray and manually start the C CNMT Recirculation Fan Cooler.

## Job Performance Measure Worksheet

Required Materials: None

General References: AR-A-27, CONTAINMENT SPRAY 2/3 + 2/3 > 28 PSI, Rev 9  
AR-A-28, CONTAINMENT SPRAY CHANNEL ALERT 2/3 > 28 PSI, Rev 8  
F-0.5, CONTAINMENT CSFST, Rev 00200  
FR-Z.1, RESPONSE TO HIGH CONTAINMENT PRESSURE, Rev 013  
P-7, SAFETY INJECTION AND CONTAINMENT SPRAY SYSTEMS, Rev 23  
OP-AA-101-111-1001, OPERATIONS STANDARDS AND EXPECTATIONS, Rev 25  
A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE, Rev 052

Handouts: Handout 1: Blank copy of FR-Z.1

Time Critical Task: NO

Validation Time: 16 minutes

<b><u>Critical Step Justification</u></b>	
Step 4	This step is critical because placing the A & B Containment Spray Pump Control Switch to START is necessary to establish Containment Spray flow including flow from the Sodium Hydroxide Tank from at least one train of Containment Spray.
Step 6	This step is critical because placing the Control Switch for AOV-836A or B in the OPEN position is necessary to establish Containment Spray flow including flow from the Sodium Hydroxide Tank from at least one train of Containment Spray.
Step 8	This step is critical because placing the Control Switch for MOV-860A or B and C or D Control Switch in OPEN position is necessary to establish Containment Spray flow including flow from the Sodium Hydroxide Tank from at least one train of Containment Spray.
Step 10	This step is critical because placing the C CNMT RECIRC Fan control switch in the START position is necessary to manually start the C CNMT Recirculation Fan Cooler.

Job Performance Measure Worksheet

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Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

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**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## Job Performance Measure Worksheet

**SIMULATOR OPERATIONAL GUIDELINES**

1. Initiate to **any 100% IC (IC-19)**.

<p><b>NOTE:</b> It is permissible to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently. {Delete this NOTE if not applicable.}</p>
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2. Insert **Malfunctions RPS08A and RPS08B, No Manual** (Failure of CS Automatic Actuation/No Manual, Both Trains).
3. Insert **Malfunction RPS07I** (C CRFC fails to AUTO Start).
4. Place Simulator in RUN.
5. Insert **Malfunction STM11A, 1.7e+05** (Steam Line Break Inside Containment, A S/G).
6. Carry out actions of E-0 and transition to E-2 (Do Not Start the C CRFC in ATT-27).
7. Upon transition to E-2, **raise** malfunction **STM11A to 1.7e+07** (Steam Rupture Inside Containment, A S/G). This will create an ORANGE Path on Containment that needs to be addressed with E-0 exited.
8. Ensure Annunciator A-28 is LIT, that Containment Pressure is > 28 psig, and that CS has NOT automatically actuated.
9. Place Simulator in FREEZE.
10. Reset to IC-166 (March, 2020)
11. Place Simulator in RUN when directed by examiner.
12. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
13. This completes the setup for this JPM.



## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.</b>				
<p style="text-align: center;"><b>NOTE</b></p> <p style="text-align: center;">FOLDOUT Page should be open and monitored periodically.</p>					
1	(FR-Z.1 Step 1) Verify All CI And CVI Valve Status Lights - BRIGHT	<p>The operator reads the NOTE and proceeds.</p> <p>The operator observes all CI and CVI Valve Status Lights are BRIGHT.</p>	___	___	___
<p><b>Examiner Note: At any time during this JPM, the operator may recognize that automatic actions have failed, and take manual action as needed to operate equipment as needed (See A-503.1, Step 5.3.D, Manual Backup). While the operator <i>may</i> take this action, and it is permitted by procedures, and expected; if the action is not taken the operator will still be successful by adherence to the procedure assigned.</b></p>					
<p><b>Examiner Note: Any attempt by the operator to actuate CS by depressing two MCB pushbuttons simultaneously will not be successful (pushbutton operation has failed).</b></p>					
<p style="text-align: center;"><b>CAUTION</b></p> <p><u>IF</u> ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, IS IN EFFECT, <u>THEN</u> CNMT SPRAY SHOULD BE OPERATED AS DIRECTED IN ECA-1.1, RATHER THAN STEP 2 BELOW.</p> <p><u>IF</u> E-1, LOSS OF REACTOR OR SECONDARY COOLANT, IS IN EFFECT, <u>THEN</u> CNMT SPRAY SHOULD BE OPERATED AS DIRECTED IN E-1, LOSS OF REACTOR OR SECONDARY COOLANT, RATHER THAN STEP 2 BELOW.</p>					
2	(FR-Z.1 Step 2/2.a) Verify CNMT Spray Actuated:  Verify RWST outlet to SI and CNMT spray pumps – OPEN <ul style="list-style-type: none"> <li>• MOV-896A</li> <li>• MOV-896B</li> </ul>	The operator reads the Cautions and proceeds.	___	___	___
		The operator observes the MOV-896A Red status light is LIT and the Green status light is OFF.	___	___	___
		The operator observes the MOV-896B Red status light is LIT and the Green status light is OFF.	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
3	(FR-Z.1 Step 2.b) Verify CNMT spray pumps - RUNNING	The operator observes the A Containment Spray Pump Green status light is LIT, and the Red status light is OFF.	___	___	___
		The operator observes the B Containment Spray Pump Green status light is LIT, and the Red status light is OFF.	___	___	___
		The operator observes Containment pressure to be ≈40-50 psig.	___	___	___
		The operator proceeds to the Step 2.b RNO.	___	___	___
*4	(FR-Z.1 Step 2.b RNO) Manually start pumps.	The operator places the A Containment Spray Pump Control Switch to START.	___	___	___
		The operator observes the A Containment Spray Pump Red status light is LIT, and the Green status light is OFF.	___	___	___
*		The operator places the B Containment Spray Pump Control Switch to START.	___	___	___
		The operator observes the B Containment Spray Pump Red status light is LIT, and the Green status light is OFF.	___	___	___
5	(FR-Z.1 Step 2.c) Verify NaOH flow (FI-930)	The operator observes FI-930 and notes flow at "0."	___	___	___
		The operator proceeds to the Step 2.c RNO.	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*6	(FR-Z.1 Step 2.c RNO) IF NaOH flow NOT indicated, THEN place switches for NaOH tank outlet valves to OPEN.	The operator places the Control Switch for AOV-836A in OPEN.	___	___	___
*	<ul style="list-style-type: none"> <li>• AOV-836A</li> <li>• AOV-836B</li> </ul>	The operator places the Control Switch for AOV-836B in OPEN.	___	___	___
<b>Examiner Note: One of the two valve Control Switches must be in the OPEN position to satisfy the Critical Step.</b>					
<b>Flow on FI-930 will NOT be observed until Performance Step 8. When the Containment Spray Pump Discharge Valves are OPEN.</b>					
7	(FR-Z.1 Step 2.d) Verify CNMT spray pump discharge valves – OPEN <ul style="list-style-type: none"> <li>• MOV-860A</li> <li>• MOV-860B</li> <li>• MOV-860C</li> <li>• MOV-860D</li> </ul>	The operator observes the MOV-860A Green status light is LIT, and the Red status light is OFF.	___	___	___
		The operator observes the MOV-860B Green status light is LIT, and the Red status light is OFF.	___	___	___
		The operator observes the MOV-860C Green status light is LIT, and the Red status light is OFF.	___	___	___
		The operator observes the MOV-860D Green status light is LIT, and the Red status light is OFF.	___	___	___
		The operator proceeds to the Step 2.d RNO.	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number	
*8	<div>(FR-Z.1 Step 2.d RNO) Ensure at least one in each set open.</div> <div><div></div><div><div>•</div>MOV-860A or MOV-860B</div><div><div>•</div>MOV-860C or MOV-860D</div></div>	The operator places the MOV-860A Control Switch in OPEN.	___	___	___	
		The operator observes the MOV-860A Red status light is LIT, and the Green status light is OFF.	___	___	___	
		AND/OR				
*		The operator places the MOV-860B Control Switch in OPEN.	___	___	___	
		The operator observes the MOV-860B Red status light is LIT, and the Green status light is OFF.	___	___	___	
*		The operator places the MOV-860C Control Switch in OPEN.	___	___	___	
		The operator observes the MOV-860C Red status light is LIT, and the Green status light is OFF.	___	___	___	
		AND/OR				
*		The operator places the MOV-860D Control Switch in OPEN.	___	___	___	
		The operator observes the MOV-860D Red status light is LIT, and the Green status light is OFF.	___	___	___	
		The operator observes flow on FI-930.	___	___	___	
Examiner Note: The operator may OPEN all four valves; however, at least one valve in each set must be OPEN to satisfy the Critical Nature of this Step.						

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
9	(FR-Z.1 Step 3/3.a) Verify CNMT RECIRC Fans Running: All fans - RUNNING	The operator observes the A CNMT RECIRC Fan Red status light is LIT, and the Green status light is OFF.	—	—	—
		The operator observes the B CNMT RECIRC Fan Red status light is LIT, and the Green status light is OFF.	—	—	—
		The operator observes the C CNMT RECIRC Fan Green status light is LIT, and the Red status light is OFF.	—	—	—
		The operator observes the D CNMT RECIRC Fan Red status light is LIT, and the Green status light is OFF.	—	—	—
*10	(FR-Z.1 Step 3.a RNO) Manually start fans.	The operator places the C CNMT RECIRC Fan control switch in the START position.	—	—	—
		The operator observes the C CNMT RECIRC Fan Red status light is LIT and the Green status light is OFF.	—	—	—

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
11	(FR-Z.1 Step 3.b) Charcoal filter dampers green status lights - EXTINGUISHED	The operator observes the A CNMT RECIRC Fan Charcoal Filter Damper Green status light is OFF.	___	___	___
		The operator observes the C CNMT RECIRC Fan Charcoal Filter Damper Green status light is OFF.	___	___	___

JPM Stop Time: \_\_\_\_\_

**CUE: This terminates the JPM.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems - Control Room JPM F

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The plant tripped from 100% power and Safety Injection has actuated.
- The crew entered E-0, REACTOR TRIP OR SAFETY INJECTION, and then transitioned to E-2, FAULTED STEAM GENERATOR ISOLATION.
- Due to a degrading transient, an Orange Path now exists on the Containment Critical Safety Function Status Tree.
- You are the HCO.

## INITIATING CUE:

- The US has directed you to perform FR-Z.1, RESPONSE TO HIGH CONTAINMENT PRESSURE, starting at Step 1.
- Another operator will handle all other MCB operations and alarms not associated with the assigned task.



# **SIM JPM G**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Establish 100/0 Electric Lineup on  
Circuit 767JPM No.: 2020 Systems - Control  
Room JPM G

K/A Reference: 062 A4.01 (3.3/3.1)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:   X    
Classroom \_\_\_\_\_ Simulator   X   Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.**

- Initial Conditions:
- The plant is operating at 100% power.
  - The Electric Plant is currently in a 50/50 NORMAL lineup.
  - RG&E ECC has requested that the plant be placed in a 100/0 lineup on Circuit 767 for scheduled maintenance on offsite Circuit 7T later today.
  - An A-52.12 for removal of Circuit 7T has been prepared.
  - You are the CO.

- Initiating Cue:
- The US has directed you to establish a 100/0 Electric Plant alignment and de-energize the 12A Station Aux Transformer per O-6.9.2, ESTABLISHING AND/OR TRANSFERRING OFFSITE POWER TO BUS 12A / BUS 12B, by performing Section 6.3.1 and 6.3.3.
  - The SM and RG&E ECC have approved performance of this bus re-alignment.

## Job Performance Measure Worksheet

Task Standard: The operator will transfer 4160V buses from a 50/50 NORMAL Lineup to 100/0 Lineup on Circuit 767 and de-energize the 12A Station Aux Transformer per Section 6.3.1 and 6.3.3 of O-6.9.2.

Required Materials: None

General References: O-6.9.2, ESTABLISHING AND/OR TRANSFERRING OFFSITE POWER TO BUS 12A/12B, Rev 030  
HU-AA-104-101, PROCEDURE USE AND ADHERENCE, Rev 7

Handouts: Handout 1: Copy of O-6.9.2 marked up for place-keeping for this JPM.

Time Critical Task: NO

Validation Time: 15 minutes

Note: This JPM will be pre-briefed in the Briefing Room.

<b><u>Critical Step Justification</u></b>	
Step 3	This step is critical because placing the synchroscope switch for Bus 12A ALT Feed from 767 to ON is necessary to transfer 4160V buses from a 50/50 NORMAL Lineup to a 100/0 Lineup on Circuit 767 per Section 6.3.1 of O-6.9.2.
Step 4	This step is critical because placing the 52/12BY control switch in the CLOSE position is necessary to transfer 4160V buses from a 50/50 NORMAL Lineup to a 100/0 Lineup on Circuit 767 per Section 6.3.1 of O-6.9.2.
Step 7	This step is critical because placing the 52/12AY control switch to TRIP and then to AUTO is necessary to transfer 4160V buses from a 50/50 NORMAL Lineup to a 100/0 Lineup on Circuit 767 per Section 6.3.1 of O-6.9.2.
Step 15	This step is critical because placing the CIRCUIT BKR 7T1352 Control Switch in the OPEN position is necessary to de-energize the 12A Station Aux Transformer per Section 6.3.1 and 6.3.3 of O-6.9.2.

Job Performance Measure Worksheet

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Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## Job Performance Measure Worksheet

**SIMULATOR OPERATIONAL GUIDELINES**

1. Reset to **IC-19** (Or any appropriate 100% power IC)

<p><b>NOTE:</b> It is permissible to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently. {Delete this NOTE if not applicable.}</p>
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2. Ensure the electric plant is in a Normal 50/50 electric plant lineup
3. Place Simulator in FREEZE.
4. Reset to IC-167 (March, 2020)
5. Place Simulator in RUN when directed by Examiner.

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<b><u>STEP</u></b>	<b><u>ELEMENT</u></b>	<b><u>STANDARD</u></b>	<b>SAT</b>	<b>UNSAT</b>	<b>Comment Number</b>
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.</b>				
1	(O-6.9.2, Step 6.3.1/6.3.1.1) ESTABLISH Offsite Power to 12A Bus using Circuit 767 as follows:  MARK BUS 12A NORMAL FEED FROM 7T, 52/12AY, breaker initial position: • OPEN • CLOSED	The operator observes the 52/12AY Red status light is LIT and the Green status light is OFF.  The operator checks the CLOSED box.	____	____	____
2	(O-6.9.2, Step 6.3.1.2) VERIFY CLOSED CIRCUIT BKR 76702 34 KV BUS.	The operator observes the Breaker 76702 Red status light is LIT and the Green status light is OFF.	____	____	____
*3	(O-6.9.2, Step 6.3.1.3) TURN ON BUS 12A ALT FEED FROM 767, 52/12BY, SYNCHROSCOPE.	The operator places the synch switch for Bus 12A ALT Feed from 767 to ON.	____	____	____
<b>NOTE</b> <ul style="list-style-type: none"> <li>Next Step will cause the following MCB Alarms to ILLUMINATE: <ul style="list-style-type: none"> <li>J-6, 4KV MAIN OR TIE BREAKER TRIP</li> <li>L-20, 12A XFMR OR 12A BUS TROUBLE</li> </ul> </li> <li>The next step may cause PPCS Alarm 12AOPDST due to 7T LINE LOAD falling below the minimum load (MINLOAD) setpoint of the 46L/12A Relay.</li> <li>Steps 6.3.1.5 through 6.3.1.7 SHALL be performed without delay following completion of Step 6.3.1.4.</li> </ul>					
4	(O-6.9.2, Step 6.3.1.4) CLOSE BUS 12A ALT FEED FROM 767 52/12BY.	The operator reads the NOTES and proceeds.	____	____	____
*		The operator places the 52/12BY control switch in the CLOSE position.	____	____	____
		The operator observes the 52/12BY Red status light is LIT and the Green status light is OFF.	____	____	____

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
5	(O-6.9.2, Step 6.3.1.5) IF BUS 12A NORMAL FEED FROM 7T, 52/12AY, was initially OPEN, THEN VERIFY breaker is OPEN AND RESET (Green light ILLUMINATED, White light EXTINGUISHED). OTHERWISE, MARK this Step N/A.	The operator recognizes that 52/12AY was initially CLOSED, and marks this Step N/A.	___	___	___
6	(O-6.9.2, Step 6.3.1.6/6.a) IF BUS 12A NORMAL FEED FROM 7T, 52/12AY, was initially CLOSED, THEN PERFORM the following: OTHERWISE, MARK this Step N/A.  VERIFY breaker OPENED (Green light ILLUMINATED, White light ILLUMINATED). IF green light is NOT lit, THEN MARK this Step N/A AND CONTINUE with Step 6.3.1.6.b.	The operator observes that the 52/12AY Green and White status lights are LIT and the Red status light is OFF.	___	___	___
*7	(O-6.9.2, Step 6.3.1.6/6.b) PLACE BUS 12A NORMAL FEED FROM 7T, 52/12AY, control switch to TRIP AND THEN to AUTO.	The operator places the 52/12AY control switch to TRIP and then to AUTO.	___	___	___
8	(O-6.9.2, Step 6.3.1.6/6.c) VERIFY breaker is OPEN AND RESET (Green light ILLUMINATED, White light EXTINGUISHED).	The operator observes that the 52/12AY Green status light is LIT, and the Red and White status lights are OFF.	___	___	___
9	(O-6.9.2, Step 6.3.1.7) IF BUS 12A NORMAL FEED FROM 7T, 52/12AY, is NOT OPEN, THEN IMMEDIATELY PERFORM Attachment 1, 7T/Bus 12A Circulating Current Contingency Action. OTHERWISE, MARK this Step N/A.	The operator observes that the 52/12AY Green status light is LIT, and the Red status and White lights are OFF, recognizes that this step is NA, and proceeds.	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
10	(O-6.9.2, Step 6.3.1.8) VERIFY BUS 12A VOLTMETER 4160 V indicates approximately 4000 VOLTS on all 3 phases. [G0431]	The operator observes that the BUS 12A VOLTMETER 4160 V indicates approximately 4000 VOLTS on all 3 phases.	___	___	___
11	(O-6.9.2, Step 6.3.1.9) VERIFY Bus 14 and Bus 18 voltmeter indicates greater than 440 volts on all 3 phases. [G0431]	The operator observes that Bus 14 and Bus 18 voltmeter indicates greater than 440 volts on all 3 phases.	___	___	___
12	(O-6.9.2, Step 6.3.1.10) TURN OFF BUS 12A ALT FEED FROM 767, 52/12BY, SYNCHROSCOPE.	The operator places the synch switch for Bus 12A ALT Feed from 767 to OFF.	___	___	___
13	(O-6.9.2, Step 6.3.3/6.3.3.1) IF Station Aux Transformer (SAT) 12A, is to be DE-ENERGIZED, THEN PERFORM the following: OTHERWISE, MARK this Step N/A.  1. SUBMIT an A-52.12 on Circuit 7T.	The operator recognizes that an A-52.12 on Circuit 7T has already been submitted (Initial Conditions).	___	___	___
14	(O-6.9.2, Step 6.3.3/6.3.3.2) NOTIFY RG&E ECC that CIRCUIT BKR 7T1352 34 KV BUS will be opened.	The operator recognizes that RG&E ECC already aware that CIRCUIT BKR 7T1352 34 KV BUS will be OPENED (Initial Conditions).	___	___	___



## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>NOTE</b> The next step may cause PPCS Alarm 12AOPDST due to LOSS of 34K AND 4KV PT VOLTAGE without a corresponding change in current.					
15	(O-6.9.2, Step 6.3.3/6.3.3.3) OPEN CIRCUIT BKR 7T1352 34 KV BUS.	The operator reads the NOTE and proceeds.	___	___	___
*		The operator places the CIRCUIT BKR 7T1352 Control Switch in the OPEN position.	___	___	___
		The operator observes the CIRCUIT BKR 7T1352 Green status light is LIT and the Red status light is OFF.	___	___	___

JPM Stop Time: \_\_\_\_\_

**CUE: This terminates the JPM.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems - Control Room JPM G

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The plant is operating at 100% power.
- The Electric Plant is currently in a 50/50 NORMAL lineup.
- RG&E ECC has requested that the plant be placed in a 100/0 lineup on Circuit 767 for scheduled maintenance on offsite Circuit 7T later today.
- An A-52.12 for removal of Circuit 7T has been prepared.
- You are the CO.

## INITIATING CUE:

- The US has directed you to establish a 100/0 Electric Plant alignment and de-energize the 12A Station Aux Transformer per O-6.9.2, ESTABLISHING AND/OR TRANSFERRING OFFSITE POWER TO BUS 12A / BUS 12B, by performing Section 6.3.1 and 6.3.3.
- The SM and RG&E ECC have approved performance of this bus re-alignment.

# **SIM JPM H**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Depressurize the RCS During a SGTRJPM No.: 2020 Systems - Control Room JPM H

K/A Reference: 010 A4.01 (3.7/3.5)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_

Actual Performance: XClassroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handouts 1-2.**

- Initial Conditions:
- The plant has experienced a Steam Generator Tube Rupture in the B S/G.
  - The crew has completed E-3, Steam Generator Tube Rupture, through Step 17.
  - The crew is ready to commence RCS depressurization.

- Initiating Cue:
- The US has directed you to depressurize the RCS to minimize break flow and refill the Pressurizer starting with Step 18.
  - Another operator will handle all other MCB operations and alarms not associated with the assigned task.

Task Standard: The operator will depressurize the RCS using maximum Pressurizer Spray and terminate the depressurization once one of the four criteria listed in E-3, Step 18.b, are met.

Required Materials: None

## Job Performance Measure Worksheet

General References: E-0, REACTOR TRIP OR SAFETY INJECTION, Rev 049  
E-3, STEAM GENERATOR TUBE RUPTURE, Rev 051  
FIG-1.0, FIGURE MIN SUBCOOLING, Rev 00200  
A-503.1, EMERGENCY AND ABNORMAL OPERATING  
PROCEDURES USERS GUIDE, Rev 052

Handouts: Handout 1: Pages 1-20 of E-3, Steam Generator Tube Rupture marked  
up for this JPM  
Handout 2: FIG-1.0, FIGURE MIN SUBCOOLING

Time Critical Task: NO

Validation Time: 14 minutes

NOTE: Even though this is a JPM using an EOP, this task would not be  
performed without the Unit Supervisor conducting a Pre-Job Brief.  
Consequently, this JPM will be Pre-Briefed in the Briefing Room.

<b><u>Critical Step Justification</u></b>	
Step 2	This step is critical because placing the PCV-431A/B Controller in MAN and adjusting output so that the Pzr Spray Valves are fully OPEN (Or PK-431K as an alternative) is necessary to depressurize the RCS using maximum Pressurizer Spray.
Step 3	This step is critical because determining that one of the depressurization termination criteria listed in Step 18.b is met and adjusting the PCV-431A/B Controller output so that the Pzr Spray Valves are CLOSED (Or PK-431K as an alternative) is necessary to terminate the depressurization once one of the four criteria listed in E-3, Step 18.b, are met.

Job Performance Measure Worksheet

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Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## Job Performance Measure Worksheet

**SIMULATOR OPERATIONAL GUIDELINES**

1. Reset the Simulator to **any 100% power IC**. (IC-19)

<p><b>NOTE:</b> It is permissible to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently. {Delete this NOTE if not applicable.}</p>
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2. Insert **Malf SGN04B, 500 gpm** (SGTR on "B" S/G).
3. Perform Steps 1-17 of E-3.
4. Adjust **Malf SGN04B = 200 gpm**.
5. Ensure PPCS is available.
6. Ensure the following:
  - RCPs are RUNNING
  - Feed flow is adjusted properly to both Steam Generators
  - IA is available to the Containment
  - Ruptured SG Level is < 90% (As Low as Possible)
7. Place simulator in FREEZE.
8. Reset to IC-168 (March 2020)
9. Place simulator in RUN when directed by examiner.
10. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
11. This completes the setup for this JPM.



## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
CUE	Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1-2.				
NOTE					
SI ACCUMs may inject during RCS depressurization					
1	(E-3, Step 18/18.a) Depressurize RCS To Minimize Break Flow And Refill PRZR:  Check the following: <ul style="list-style-type: none"><li>Ruptured S/G level - LESS THAN 90% [80% adverse CNMT]</li><li>Any RCP - RUNNING</li><li>IA to CNMT - AVAILABLE</li></ul>	The operator reads the Note and proceeds.	___	___	___
		The operator observes Narrow Range level in the B S/G to be ≈66% and rising.	___	___	___
		The operator observes that the A RCP Red status lit is LIT and the Green status light is OFF.	___	___	___
		The operator observes that the B RCP Red status lit is LIT and the Green status light is OFF.	___	___	___
		The operator observes the AOV-5392 Red status light is LIT, and the Green status light is OFF.	___	___	___
*2	(E-3, Step 18.b) Spray PRZR with maximum available spray until ANY of the following conditions satisfied:	The operator moves the PCV-431A controller slide switch to the MAN position and rotates the manual adjust knob clockwise such that the controller output indicates 100% (OPEN).	___	___	___
		The operator observes the PCV-431A Red status light is LIT and the Green status light is OFF.	___	___	___
*		The operator moves the PCV-431B controller slide switch to the MAN position and rotates the manual adjust knob clockwise such that the controller output indicates 100% (OPEN).	___	___	___

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
2 (Cont'd)		The operator observes the PCV-431A Red status light is LIT and the Green status light is OFF.	___	___	___
<b>Examiner NOTE: The operator may elect to open the Pressurizer Spray valves by using Master Pressure Controller 431K to OPEN both Spray Valves. In this case, the operator moves the PCV-431K controller slide switch to the MAN position and rotates the manual adjust knob clockwise such that the controller output indicates 100% (SPRAYS).</b>					
	<ul style="list-style-type: none"> <li>PRZR level - GREATER THAN 75% [65% adverse CNMT]</li> </ul>	The operator observes pressurizer level (LI-426, 427, 428).	___	___	___
	OR		___	___	___
	<ul style="list-style-type: none"> <li>RCS pressure - LESS THAN SATURATION USING FIG-1.0, FIGURE MIN SUBCOOLING</li> </ul>	The operator observes RCS pressure (PI-420-2/420A) and CETs and uses FIG-1.0 to determine RCS saturation pressure is ≈850 psig.	___	___	___
	OR		___	___	___
	BOTH of the following: <ul style="list-style-type: none"> <li>RCS pressure - LESS THAN RUPTURED S/G PRESSURE</li> <li>PRZR level - GREATER THAN 10% [30% adverse CNMT]</li> </ul>	The operator observes RCS pressure (PI-420-2/420A) and the B SG pressure (PI-478, 479, 483A). The operator observes pressurizer level (LI-426, 427, 428).	___	___	___
	OR		___	___	___
	BOTH of the following: <ul style="list-style-type: none"> <li>RCS pressure – WITHIN 300 PSI OF RUPTURED S/G PRESS</li> <li>PRZR level – GREATER THAN 40% [50% adverse CNMT]</li> </ul>	The operator observes RCS pressure (PI-420-2/420A) and ruptured SG pressure (PI-478, 479, 483A). The operator observes pressurizer level (LI-426, 427, 428).	___	___	___
<b>Examiner NOTE: The Critical nature of stopping the depressurization is that when one of the four criteria are met, the depressurization is stopped. It is expected that the last criteria will be used to stop the depressurization.</b>					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*3	(E-3, Step 18.c) Close normal PRZR spray valves:  Adjust normal spray valve controller to 0% DEMAND Verify PRZR spray valves – CLOSED <ul style="list-style-type: none"><li>PCV-431A</li><li>PCV-431B</li></ul>	When operator determines that one of the depressurization termination criteria listed in Step 18.b is met, the operator rotates the PCV-431A manual adjust knob counter-clockwise such that the controller output indicates 0% (CLOSED).	____	____	____
		The operator observes the Green status light is LIT and the Red status light is OFF and determines that PCV-431A is CLOSED.	____	____	____
*		When operator determines that one of the depressurization termination criteria listed in Step 18.b is met, the operator rotates the PCV-431B manual adjust knob counter-clockwise such that the controller output indicates 0% (CLOSED).	____	____	____
		The operator observes the Green status light is LIT and the Red status light is OFF and determines that PCV-431B is CLOSED.	____	____	____
<b>Examiner NOTE: IF the operator previously used the Master Pressure Controller 431K to OPEN both Spray Valves, the operator will close both Spray valves by rotating the manual adjust knob counter-clockwise such that the controller output indicates &lt;50% (HEATERS).</b>					

JPM Stop Time: \_\_\_\_\_

**CUE: This terminates the JPM.**

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems - Control Room JPM H

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The plant has experienced a Steam Generator Tube Rupture in the B S/G.
- The crew has completed E-3, Steam Generator Tube Rupture, through Step 17.
- The crew is ready to commence RCS depressurization.

## INITIATING CUE:

- The US has directed you to depressurize the RCS to minimize break flow and refill the Pressurizer starting with Step 18.
- Another operator will handle all other MCB operations and alarms not associated with the assigned task.

# **IN-PLANT JPM I**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Release D Gas Decay TankJPM No.: 2020 Systems – In-Plant JPM I  
(Alternate Path)

K/A Reference: 071 A3.03 (3.6/3.8)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:Simulated Performance:   X  Actual Performance:           Classroom            Simulator            Plant   X  **READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.**

- Initial Conditions:
- The 'D' Gas Decay Tank (GDT) is full and approved for release.
  - The 'D' GDT does NOT have elevated activity and the contents are not from VCT gas.
  - Procedure S-4.2.5, Release of Gas Decay Tank, is in progress with the procedure signed off through Section 5.0.

- Initiating Cue:
- The US has directed you to release the 'D' GDT in accordance with S-4.2.5, Release of Gas Decay Tank.
  - The Extra EO has removed the required tagout and completed the necessary paperwork.

**NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.**

Task Standard: The operator will lineup and release the 'D' GDT in accordance with S-4.2.5, Section 6.4 and then stop the release in accordance with S-4.2.5, Step 4.2 upon an alarm condition on R-14.

## Job Performance Measure Worksheet

Required Materials: PPE (Hardhat, Safety Glasses, Hearing Protection, Safety Shoes etc.)  
Dosimetry

General References: S-4.2.5, RELEASE OF GAS DECAY TANK, Rev 01902  
CH-703, RELEASE OF GDTs AND OTHER GASEOUS BATCH  
RELEASES, Rev 402  
HU-AA-104-101, PROCEDURE USE AND ADHERENCE, Rev 7

Handouts: Handout 1: S-4.2.5 completed through Section 5.0.

Time Critical Task: No

Validation Time: 15 minutes

<b><u>Critical Step Justification</u></b>	
Step 10	This step is critical because unlocking the V-1620 locking device and rotating the V-1620 handwheel in the counter-clockwise direction is necessary to lineup and release the 'D' GDT in accordance with S-4.2.5, Section 6.4.
Step 13	This step is critical because rotating 014H1 IA PCV to AOV 14 clockwise observing the RCV-014 control air pressure rising and observing the RCV-014 Red and Green status lights is necessary to lineup and release the 'D' GDT in accordance with S-4.2.5, Section 6.4.
<b><u>Alternate Path Critical Step Justification</u></b>	
Step 15	This step is critical because determining that the RCV-014 has failed to CLOSE and then rotating 014H1 IA PCV to AOV 14 counter-clockwise observing the RCV-014 control air pressure lowering and observing the RCV-014 Green status light is LIT and the Red status light is OFF is necessary to stop the release in accordance with S-4.2.5, Step 4.2 upon an alarm condition on R-14.



## Job Performance Measure Worksheet

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

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**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.</b>				
1	(S-4.2.5, Sections 1.0 through 5.0) Operator reviews Sections 1.0 through 5.0 of S-4.2.5	The operator reviews S-4.2.5, Sections 1.0 through 5.0 and proceeds.	___	___	___
<b>CAUTION</b>  Only one gas decay tank may be released at one time.					
2	(S-4.2.5, Section 6.0) CAUTION	The operator reads the Caution and proceeds.	___	___	___
3	(S-4.2.5, Step 6.4.1) IF GDT D contains VCT gas, THEN REQUEST Shift Manager authorize removal of Operator Aid Tag. OTHERWISE, MARK this Step N/A.	The operator recognizes that this is not applicable and marks the Step N/A (Initial Conditions).	___	___	___
<b>CUE</b>	<b>Inform operator: "For the purposes of this JPM, there are no caution tags or operator aids. Mark the Step N/A."</b>				
4	(S-4.2.5, Step 6.4.2) CLOSE INLET AOV TO GAS DECAY TANK D, PCV-1039A.	The operator observes the PCV-1039A Green status light is LIT and the Red status light is OFF.	___	___	___
<b>CUE</b>	<b>After the switch is located (on Waste Panel): "Green light for PCV-1039A is LIT".</b>				
5	(S-4.2.5, Step 6.4.3) CLOSE GAS DECAY TANK D REUSE CONTROL AOV, AOV-1632.	The operator observes the AOV-1632 control switch is in CLOSE and the Green status light is LIT.	___	___	___
<b>CUE</b>	<b>After the switch is located (on Waste Panel): "Green light for AOV-1632 is LIT".</b>				
6	(S-4.2.5, Step 6.4.4) CLOSE GAS DECAY TANK D OUTLET AOV TO GAS ANALYZER, PCV-1039B.	The operator observes the PCV-1039B Green status light is LIT and the Red status light is OFF.	___	___	___
<b>CUE</b>	<b>After the switch is located (on Waste Panel): "Green light for PCV-1039B is LIT".</b>				

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
7	(S-4.2.5, Step 6.4.5) LOCK CLOSED GDT manual outlet valves on all tanks: <ul style="list-style-type: none"> <li>GAS DECAY TANK A MANUAL OUTLET VLV, V-1617</li> <li>GAS DECAY TANK B MANUAL OUTLET VLV, V-1618</li> <li>GAS DECAY TANK C MANUAL OUTLET VLV, V-1619</li> <li>GAS DECAY TANK D MANUAL OUTLET VLV, V-1620</li> </ul>	For each valve: <ul style="list-style-type: none"> <li>The operator attempts to rotate the handwheel in the clockwise direction.</li> <li>The operator observes the Locking Device to be installed and locked.</li> </ul>	___	___	___
<b>CUE</b>	<b>For each valve: “The handwheel does not rotate in the clockwise direction,” and “The Locking Device is installed and locked.”</b>				
<b>CUE</b>	<b>If asked, the eSoms location for these valves are AUX BLDG Intermediate Level GDT Alley 5’ (V-1617 and 1618) and 1’ (V-1619 and 1620) elevation.</b>				
8	(S-4.2.5, Step 6.4.6) CLOSE GAS DECAY TANK RELEASE AOV TO PLANT VENT VIA CHARCOAL FILTER, RCV-014	<ul style="list-style-type: none"> <li>The operator rotates 014H1 IA PCV to AOV 14 in the counter-clockwise direction.</li> <li>The operator observes the RCV-014 Green status light is LIT.</li> <li>The operator observes the RCV-014 Control Air Pressure Gage reads 0 psig.</li> </ul>	___	___	___
<b>CUE</b>	<b>After the knob is located (on Waste Panel): “The knob does NOT rotate in the counter-clockwise direction”.</b>				
<b>CUE</b>	<b>After the RCV-014 status lights are located (on Waste Panel): “The Green status light is LIT”.</b>				
<b>CUE</b>	<b>After the RCV-014 Control Air pressure Gage is located, POINT to 0 psig.</b>				
9	(S-4.2.5, Step 6.4.7) REMOVE eSOMS Tag from V-1620.	The operator verifies the hold on V-1620 is removed (Initiating Cue).	___	___	___
<b>CUE</b>	<b>“An Extra EO has removed the Tag and completed the necessary paperwork” (Initial Conditions).</b>				

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*10	(S-4.2.5, Step 6.4.8) UNLOCK AND OPEN GAS DECAY TANK D MANUAL OUTLET VLV, V-1620.	<ul style="list-style-type: none"> <li>The operator unlocks the V-1620 locking device.</li> <li>The operator rotates the V-1620 handwheel in the counter-clockwise direction.</li> </ul>	_____	_____	_____
<b>CUE</b>	<b>After the Applicant describes lock removal: "The lock is removed." "The valve no longer rotates in that direction."</b>				
<p style="text-align: center;"><b>CAUTION</b></p> <ul style="list-style-type: none"> <li>WHEN moving water or gas in the Waste Handling Systems with elevated activity present, THEN COORDINATE with RP to monitor local radiation levels. [G0168]</li> <li>WHEN releasing gas from tanks with elevated activity, THEN INITIATE the release slowly and allow time for the Rad Monitor to stabilize. Raise the release rate, if necessary, in small increments, realizing that it may take several minutes for the Rad Monitor to react to the elevated activity level being released. [G0168]</li> <li>SECURE gas decay tank from release when approximately 5 psig, to prevent vacuum on the NSA Gas Analyzed (when the GDT is placed in service).</li> </ul>					
11	(S-4.2.5, Step 6.4.9) CAUTIONs prior to Step 6.4.9	The operator reads and place keeps CAUTIONs and proceeds.	_____	_____	_____
12	(S-4.2.5, Step 6.4.9) PERFORM the following to begin release: 1. RECORD the following: <ul style="list-style-type: none"> <li>GDT D Initial Pressure:</li> <li>Time GDT D release initiated:</li> </ul>	The operator observes PI-1039 and records initial tank pressure and time.	_____	_____	_____
<b>CUE</b>	<b>After the PI-1039 is located (on Waste Panel), POINT to 90 psig.</b>				

## PERFORMANCE INFORMATION

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*13	(S-4.2.5, Step 6.4.9) PERFORM the following to begin release: 2. THROTTLE OPEN (may be full open) GAS DECAY TANK RELEASE AOV TO PLANT VENT VIA CHARCOAL FILTER, RCV-014, to desired release rate.	The operator rotates 014H1 IA PCV to AOV 14 clockwise.	___	___	___
		The operator observes RCV-014 control air pressure rising.	___	___	___
		The operator observes RCV-014 Red and Green status lights.	___	___	___
		The operator observes the R-14 indication rising.	___	___	___
CUE	Once operator begins rotating 014H1 IA PCV to AOV 14: <ul style="list-style-type: none"><li>POINT to the RCV-014 Control Air Pressure Gage to show air pressure RISING.</li><li>As RCV-014 is being opened: “Both Red and Green lights are LIT.”</li><li>Once RCV-014 is fully OPEN: “Red light is LIT, Green light is OFF.”</li><li>After R-14 indication is located (on Waste Panel), POINT to counts RISING.</li></ul>				
EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP					
14	(S-4.2.5, Step 6.4.9) PERFORM the following to begin release: 3. NOTIFY Control Room of time GDT D release was initiated and the initial pressure.	The operator contacts the Control Room and reports initial tank pressure and time that the release was initiated.	___	___	___
CUE	When the operator contacts the Control Room, acknowledge radio communications.				
CUE	After RCV-014 is OPEN for approximately 10 to 15 seconds: <ul style="list-style-type: none"><li>As Control Room inform the operator “R-14 reads 2 X 10<sup>5</sup> CPM and rising slowly.</li><li>After R-14 indication is located (on Waste Panel): “R-14 indicates 2 X 10<sup>5</sup> CPM and rising.”</li><li>IF necessary, as Control Room inform operator “R-14 is in HIGH ALARM”.</li></ul>				

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
15	(S-4.2.5, Step 4.2) ENSURE RCV-014 closes if a high alarm occurs on R-14.	The operator observes the RCV-014 Red status light is LIT, and the Green status light is OFF, and determines that RCV-014 has failed to CLOSE.	___	___	___
*		The operator rotates 014H1 IA PCV to AOV 14 counter-clockwise.	___	___	___
		The operator observes RCV-014 control air pressure lowering.	___	___	___
		The operator observes RCV-014 Green status light is LIT, and the Red status light is OFF.	___	___	___
		The operator observes the R-14 indication lowering.	___	___	___
<b>CUE</b>	<b>Once operator begins rotating 014H1 IA PCV to AOV 14:</b> <ul style="list-style-type: none"> <li><b>POINT to the RCV-014 Control Air Pressure Gage to show air pressure LOWERING.</b></li> <li><b>As RCV-014 is being closed: “Both Red and Green lights are LIT”.</b></li> <li><b>Once RCV-014 is fully CLOSED: “Green light is LIT, Red light is OFF”.</b></li> <li><b>After R-14 indication is located (on Waste Panel), POINT to counts LOWERING.</b></li> </ul>				
<b>CUE</b>	<b>Once RCV-014 is CLOSED, state: “This JPM is complete”.</b>				

JPM Stop Time: \_\_\_\_\_

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems – In-Plant JPM I

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The 'D' Gas Decay Tank (GDT) is full and approved for release.
- The 'D' GDT does NOT have elevated activity and the contents are not from VCT gas.
- Procedure S-4.2.5, Release of Gas Decay Tank, is in progress with the procedure signed off through Section 5.0.

## INITIATING CUE:

- The US has directed you to release the 'D' GDT in accordance with S-4.2.5, Release of Gas Decay Tank.
- The Extra EO has removed the required tagout and completed the necessary paperwork.

**NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.**



# **IN-PLANT JPM J**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Perform SFP-RWST AttachmentJPM No.: 2020 Systems – In-Plant JPM J

K/A Reference: E04 EA2.2 (3.6/4.2)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:Simulated Performance:   X  Actual Performance:           Classroom            Simulator            Plant   X  **READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.**

- Initial Conditions:
- The plant experienced a LOCA outside of Containment, and entered E-0, REACTOR TRIP OR SAFETY INJECTION.
  - The crew transitioned to ECA-1.2, LOCA OUTSIDE CONTAINMENT, however, the LOCA could not be isolated.
  - The crew transitioned from ECA-1.2 to ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION.
  - RWST Purification is not in progress.
  - The A SFP Cooling Pump is in service aligned to the high suction.
  - The Standby SFP Cooling System is OOS.
  - You are an extra Control Operator.

Initiating Cue: The US has directed you to transfer water from SFP to the RWST using Attachment ATT-18.0, SFP-RWST, bypassing the SFP DI and Filter.

**NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.**

## Job Performance Measure Worksheet

Task Standard: The operator will initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.

Required Materials: PPE (Hardhat, Safety Glasses, Hearing Protection, Safety Shoes etc.)  
Dosimetry  
Locked Valve Key (Simulated)  
SFP Filter Key (Simulated)  
Laser Pointer

General References: E-0, REACTOR TRIP OR SAFETY INJECTION, Rev 049  
ECA-1.2, LOCA OUTSIDE CONTAINMENT, Rev 00800  
ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Rev 030  
ATT-18.0, ATTACHMENT SFP-RWST, Rev. 008  
A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE, Rev 052  
S-9, SFP COOLING SYSTEM OPERATION, Rev 014

Handouts: Handout 1: Blank copy of ATT-18.0

Time Critical Task: No

Validation Time: 11 minutes

## Job Performance Measure Worksheet

<b><u>Critical Step Justification</u></b>	
Step 3	This step is critical because opening V-782 is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 4	This step is critical because closing V-781 is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 6	This step is critical because closing V-804 is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 7	This step is critical because opening V-789 is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 8	This step is critical because closing V-790 is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 9	This step is critical because closing V-796 is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 10	This step is critical because opening V-797 is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 11	This step is critical because closing V-798A is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 12	This step is critical because closing V-802 is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 13	This step is critical because opening V-897C is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.
Step 14	This step is critical because throttling open V-803 is necessary to initiate a transfer of water between the Spent Fuel Pool and the RWST bypassing the SFP DI and Filter in accordance with ATT-18.0.

## Job Performance Measure Worksheet

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

.....

## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.</b>				
<p align="center"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>Performing this attachment will transfer SFP water to RWST.</li> <li>Locked valve key AND SFP filter key are required.</li> </ul>					
1	(ATT-18.0, Step 1) IF RWST purification is in progress, THEN.....	The operator reads the NOTES, and proceeds.	—	—	—
		The operator recognizes that RWST purification is NOT in progress, and proceeds (Initial Conditions).	—	—	—
<p align="center"><b>NOTE</b></p> <p>IF placing the Standby SFP Pump or the A SFP Cooling System in service per S-9, THEN align only the lower suction.</p>					
2	(ATT-18.0, Step 2) Ensure the Standby SFP Pump or the SFP cooling system A in service or align per S- 9, SFP COOLING SYSTEM OPERATION. (SFP filter locked area key required).	The operator reads the NOTE, and proceeds.	—	—	—
		The operator recognizes that SFP Cooling System A is in service, and proceeds (Initial Conditions).	—	—	—
*3	(ATT-18.0, Step 3/3.a) Ensure the SFP suctions are aligned as follows: a. Open V-782, LOW SUCTION ISOL VLV TO SPENT FUEL POOL RECIRC PUMPS (ALT)	The operator rotates the V-782 Handwheel in the Counter-Clockwise direction.	—	—	—
<b>CUE</b>	<b>The Valve handwheel rotates freely, the stem rises, and then stops.</b>				
*4	(ATT-18.0, Step 3.b) Close V-781, HIGH SUCTION ISOL VLV TO SPENT FUEL POOL RECIRC PUMPS (NORMAL)	The operator rotates the V-781 Handwheel in the Clockwise direction.	—	—	—
<b>CUE</b>	<b>The Valve handwheel rotates freely, the stem lowers, and then stops.</b>				

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<p style="text-align: center;"><b>NOTE</b></p> <p>A transfer flow rate of approximately 400 gpm is expected if the SFP DI and filter are bypassed.</p>					
5	(ATT-18.0, Step 4) IF the standby SFP Pump is aligned to SFP Hx B, THEN.....	The operator reads the NOTE, and proceeds.	—	—	—
		The operator recognizes that the Standby SFP Pump is OOS, and proceeds (Initial Conditions).	—	—	—
*6	(ATT-18.0, Step 5/5.a) IF a transfer flow rate greater than 60 gpm is desired, THEN bypass the SFP DI and filter as follows:	The operator unlocks the locking device.	—	—	—
*	Close SFP filter discharge to SFP V- 804	The operator rotates the V-804 Handwheel in the Clockwise direction.	—	—	—
CUE	The locking device is unlocked.				
CUE	The Valve handwheel rotates freely, the stem lowers, and then stops.				
*7	(ATT-18.0, Step 5.b) Open SFP DI bypass V- 789	The operator rotates the V-789 Handwheel in the Counter-Clockwise direction.	—	—	—
CUE	The Valve handwheel rotates freely, the stem rises, and then stops.				
*8	(ATT-18.0, Step 5.c) Close SFP DI inlet V-790	The operator rotates the V-790 Handwheel in the Clockwise direction.	—	—	—
CUE	The Valve handwheel rotates freely, the stem lowers, and then stops.				
*9	(ATT-18.0, Step 5.d) Close SFP DI outlet V-796	The operator rotates the V-796 Handwheel in the Clockwise direction.	—	—	—
CUE	The Valve handwheel rotates freely, the stem lowers, and then stops.				
Examiner Note: Each of the next three valves are in Locked High Radiation Areas; and can be seen from outside the area. Have the operator point to each valve using a Laser Pointer.					

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*10	(ATT-18.0, Step 5.e) Open SFP filter bypass V-797	The operator rotates the V-797 Handwheel in the Counter-Clockwise direction.	—	—	—
CUE	The Valve handwheel rotates freely, the stem rises, and then stops.				
*11	(ATT-18.0, Step 5.f) Close SFP filter inlet V-798A	The operator rotates the V-798A Handwheel in the Clockwise direction.	—	—	—
CUE	The Valve handwheel rotates freely, the stem lowers, and then stops.				
*12	(ATT-18.0, Step 5.g) Close SFP filter outlet V- 802	The operator rotates the V-802 Handwheel in the Clockwise direction.	—	—	—
CUE	The Valve handwheel rotates freely, the stem lowers, and then stops.				
*13	(ATT-18.0, Step 6) Open RWST REFILL LINE ISOLATION VALVE, V-897C.	The operator rotates the 897C Handwheel in the Counter-Clockwise direction.	—	—	—
CUE	The Valve handwheel rotates freely, the stem rises, and then stops.				
CAUTION					
IF THE SFP DI AND FILTER ARE IN SERVICE, THEN DO NOT EXCEED 60 GPM (FI -636). DO NOT REDUCE SFP LEVEL BELOW THE 261 FT. ELEVATION (APPROXIMATELY 16 FEET BELOW THE NORMAL SFP LEVEL. SEE ATTACHED DRAWING)					
NOTE					
SFP volume is approximately 6350 gals (2% RWST level) per foot.					
14	(ATT-18.0, Step 7) Initiate transfer by slowly opening SFP filter discharge to RWST, V-803, and closing SFP filter discharge to SFP, V-804 (valves located below west stairs middle floor).	The operator reads the CAUTIONs, and proceeds.	—	—	—
		The operator reads the NOTE, and proceeds.	—	—	—
*		The operator slowly rotates the V-803 Handwheel in the Counter-Clockwise direction.	—	—	—



## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
CUE	The Valve handwheel rotates freely, the stem rises, and then stops. The sound of flow in the piping system is heard.				
Examiner Note: V-804 was closed and locked previously as part of this procedure.					
15	(ATT-18.0, Step 8) IF the STBY SFP Pump is in-service....	The operator recognizes that the Standby SFP Pump is OOS (Initial Conditions), and proceeds.	—	—	—
16	(ATT-18.0, Step 9) When transfer is complete,.....	The operator reports to the Control Room that the transfer of water from SFP to the RWST using Attachment ATT-18.0 has been initiated.	—	—	—
CUE	Control Room acknowledges.				

JPM Stop Time: \_\_\_\_\_

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems – In-Plant JPM J

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- The plant experienced a LOCA outside of Containment, and entered E-0, REACTOR TRIP OR SAFETY INJECTION.
- The crew transitioned to ECA-1.2, LOCA OUTSIDE CONTAINMENT, however, the LOCA could not be isolated.
- The crew transitioned from ECA-1.2 to ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION.
- RWST Purification is not in progress.
- The A SFP Cooling Pump is in service aligned to the high suction.
- The Standby SFP Cooling System is OOS.
- You are an extra Control Operator.

## INITIATING CUE:

The US has directed you to transfer water from SFP to the RWST using Attachment ATT-18.0, SFP-RWST, bypassing the SFP DI and Filter.

**NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.**

# **IN-PLANT JPM K**

## Job Performance Measure Worksheet

Facility: Ginna

Task No.:

Task Title: Align Self-Cooling to the TDAFW PumpJPM No.: 2020 Systems – In-Plant JPM K

K/A Reference: 061 K4.13 (2.7/2.9)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:Simulated Performance:   X  Actual Performance:           Classroom            Simulator            Plant   X  **READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.**

- Initial Conditions:
- There has been a loss of the 480V safeguards buses.
  - The crew is currently in ECA-0.0, Loss of All AC Power.
  - Fire Water is NOT available.
  - The TDAFW has been running for one and a half hours with fire water not available.

Initiating Cue: The US has directed you to align self-cooling to the TDAFW pump per ATT-5.2, ALTERNATE COOLING TO TDAFW PUMP, Part B.

**This is a Time Critical JPM.****NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.**

Task Standard: The operator will align self-cooling to the TDAFW pump in accordance with ATT-5.2, ATTACHMENT ALTERNATE COOLING TO TDAFW PUMP within 30 minutes.

## Job Performance Measure Worksheet

Required Materials: PPE (Hardhat, Safety Glasses, Hearing Protection, Safety Shoes etc.)  
Locked Valve Key (Simulated)

General References: ECA-0.0, LOSS OF ALL AC POWER, Rev 044  
ATT-5.2, ATTACHMENT ALTERNATE COOLING TO TDAFW PUMP, Rev 00601  
A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE, Rev 052  
OP-GI-102-106, OPERATOR RESPONSE TIME PROGRAM AT GINNA STATION, Rev 010

Handouts: Handout 1: Blank copy of ATT-5.2.

Time Critical Task: YES. According to Attachment 1 of OP-GI-102-106, TCA-1004A requires that the operator align Diesel Driven Fire Pump output to TDAFW Pump lube oil cooler within 2 hours because it has been demonstrated that the TDAFW Pump can operate for up to 2 hours without any cooling. According to the ATT-5.2, use of Self-Cooling for the TDAFW Pump depletes the CST inventory and should be delayed as long as possible, but is not to exceed a TDAFW Pump run time of 2 hours with no cooling.

Validation Time: 10 minutes

<b><u>Critical Step Justification</u></b>	
Step 3	This step is critical because closing SW valve to the TDAFW Pump thrust bearing and lube oil cooler, V-4087D, is necessary to align self-cooling to the TDAFW pump in accordance with ATT-5.2, ATTACHMENT ALTERNATE COOLING TO TDAFW PUMP within 30 minutes.
Step 7	This step is critical because unlocking and opening the TDAFW Pump self-cooling outer isolation valve, V-4299K, is necessary to align self-cooling to the TDAFW pump in accordance with ATT-5.2, ATTACHMENT ALTERNATE COOLING TO TDAFW PUMP within 30 minutes.
Step 8	This step is critical because unlocking and opening the TDAFW Pump self-cooling inner isolation valve, V-4299L, is necessary to align self-cooling to the TDAFW pump in accordance with ATT-5.2, ATTACHMENT ALTERNATE COOLING TO TDAFW PUMP within 30 minutes.

## Job Performance Measure Worksheet

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

.....  
**Information For Evaluator's Use:**

UNSAT requires written comments on respective step.

\* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the Control Room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the Applicant to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the Applicant acknowledges the Initiating Cue.

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## PERFORMANCE INFORMATION

JPM Start Time: \_\_\_\_\_

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number					
<b>CUE</b>	<b>Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.</b>									
<b>Examiner Note: After identifying that the operator will obtain a Locked valve Key from SM Office, indicate that the Locked Valve Key will be simulated.</b>										
<b>CAUTION</b>										
MAXIMUM ALLOWED TDAFW PUMP OPERATION WITH NO COOLING IS 2 hours.										
<b>NOTE</b>										
<ul style="list-style-type: none"> <li>IF fire water is available for TDAFW pump cooling, THEN perform Part A.</li> <li>IF fire water is NOT available, THEN perform Part B.</li> </ul>										
1	(ATT-5.2) CAUTION/NOTES	The operator reads the Caution and NOTES and proceeds to Part B.	___	___	___					
<b>CAUTION</b>										
THIS ALTERNATE COOLING METHOD DEPLETES CST INVENTORY. THEREFORE, THIS METHOD OF COOLING SHOULD BE DELAYED AS LONG AS POSSIBLE, BUT NOT TO EXCEED A TDAFW RUN TIME OF 2 HOURS WITH NO COOLING.										
<b>NOTE</b>										
Locked valve key is required.										
2	(ATT-5.2, Step B.1) Ensure service water root valve to the TDAFW pump thrust bearing and lube oil cooler, V-4087C, is CLOSED (south side of pump below MOV-4013).	<p>The operator reads the Caution and NOTE and proceeds.</p> <p>The operator attempts to rotate the V-4087C Handwheel in the Clockwise direction.</p>	___	___	___					
<b>CUE</b>	<b>The handwheel does not move.</b>									
*3	(ATT-5.2, Step B.2) Close service water valve to the TDAFW pump thrust bearing and lube oil cooler V-4087D (located on the south side of the pump below MOV-4013).	The operator attempts to rotate the V-4087D operating in the Clockwise direction.	___	___	___					
<b>CUE</b>	<b>The valve handle rotates 90 degrees and then stops perpendicular to fluid flow.</b>									



## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
4	(ATT-5.2, Step B.3) Ensure open SW inlet block valve to TDAFW pump lube oil cooler, V-4085.	The operator observes the V-4085 Handle in the in-line (i.e. parallel) position with the piping.	___	___	___
<b>CUE</b>	<b>The Handle is in the in-line position (i.e. parallel) with the piping.</b>				
5	(ATT-5.2, Step B.4) Ensure closed SW bypass isol from TDAFW pump lube oil cooler, V-4085B.	The operator observes the V-4085B Handle in the cross-line position (i.e. perpendicular) with the piping.	___	___	___
<b>CUE</b>	<b>The Handle is in the cross-line position (i.e. perpendicular) with the piping.</b>				
6	(ATT-5.2, Step B.5) Ensure closed V-4299D, TDAFW pump casing drain valve.	The operator attempts to rotate the V-4299D Handwheel in the Clockwise direction.	___	___	___
<b>CUE</b>	<b>The handwheel does not move.</b>				
*7	(ATT-5.2, Step B.6) Open V-4299K, TDAFW pump self-cooling outer isolation valve.	<p>The operator unlocks the locking device.</p> <p>The operator attempts to rotate the V-4299K Handwheel in the Counter-Clockwise direction.</p>	___	___	___
<b>CUE</b>	<b>The locking device is unlocked.</b>				
<b>CUE</b>	<b>The Valve handwheel rotates freely and then stops.</b>				
*8	(ATT-5.2, Step B.7) Open V-4299L, TDAFW pump self-cooling inner isolation valve.	<p>The operator unlocks the locking device.</p> <p>The operator attempts to rotate the V-4299L Handwheel in the Counter-Clockwise direction.</p>	___	___	___
<b>CUE</b>	<b>The locking device is unlocked.</b>				
<b>CUE</b>	<b>The Valve handwheel rotates freely and then stops.</b>				

## PERFORMANCE INFORMATION

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
9	(ATT-5.2, Step B.8) Notify the Control Room that the TDAFW pump is in the self-cooling alignment.	The operator contacts the Control Room and informs them that the TDAFW pump is in the self-cooling alignment.	_____	_____	_____
<b>CUE</b>	<b>Acknowledge radio communications.</b>				

JPM Stop Time: \_\_\_\_\_

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VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2020 Systems – In-Plant JPM K

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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JPM CUE SHEET

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## INITIAL CONDITIONS:

- There has been a loss of the 480V safeguards buses.
- The crew is currently in ECA-0.0, Loss of All AC Power.
- Fire Water is NOT available.
- The TDAFW has been running for one and a half hours with fire water not available.

## INITIATING CUE:

The US has directed you to align self-cooling to the TDAFW pump per ATT-5.2, ALTERNATE COOLING TO TDAFW PUMP, Part B.

**This is a Time Critical JPM.**

**NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.**

PROGRAM: Ginna Operations Training

MODULE: Initial License Operator Training Class 19-1

TOPIC: NRC Simulator Exam

**Scenario N20-1-1**

**REFERENCES:**

1. Technical Specification LCO 3.5.2, "ECCS - MODES 1, 2, and 3" (Amendment 118)
2. Technical Specification LCO 3.6.6, "Containment Spray (CS) Containment Recirculation Fan Cooler (CRFC), and NaOH Systems" (Amendment 118)
3. AR-K-31, FIRE SYSTEM ALARM PANEL, (Rev 017)
4. Technical Requirements Manual TR-3.7.1, "Fire Suppression Water Sources" (Rev 71)
5. STP-O-2.2-COMP-A, "Residual Heat Removal Pump A Comprehensive Test" (Rev 018)
6. AR-A-9, "RHR PUMP COOLING WATER OUTLET LO FLOW 15 GPM" (Rev 00701)
7. AP-CCW.2, "Loss of CCW During Power Operation" (Rev 024)
8. A-503.1, "Emergency and Abnormal Operating Procedures Users Guide" (Rev 053)
9. ATT-1.0, "Attachment At Power CCW Alignment," (Rev 3)
10. AR-F-10, "PRESSURIZER LO PRESS 2205 PSI" (Rev 10)
11. AR-F-2, "PRESSURIZER HI PRESS 2310 PSI" (Rev 11)
12. AP-PRZR.1, "Abnormal Pressurizer Pressure" (Rev 01700)
13. ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure" (Rev 40)
14. Technical Specification LCO 3.4.1, "RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits" (Amendment 122)
15. Technical Specification LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation" (Amendment 112)
16. Technical Requirements Manual TR-3.4.3, "Anticipated Transients Without Scram (ATWS) Mitigation" (Rev 67)
17. AP-FW.2, "Secondary Coolant Leak" (Rev 00100)
18. AR-J-28, "STATION 13A TROUBLE" (Rev 011)
19. O-6.9, "Ginna Station Operating Limits for Station 13A Transmission" (Rev 041)
20. AP-TURB.5, "Rapid Load Reduction" (Rev 020)
21. S-3.1, "Boron Concentration Control," (Rev 033)
22. AR-G-5, "S/G/ B LEVEL DEVIATION  $\pm 7\%$ " (Rev 00701)
23. E-0, "Reactor Trip or Safety Injection," (Rev 049)
24. ATT-27.0, "Attachment Automatic Action Verification" (Rev 00400)
25. E-1, "Loss of Reactor or Secondary Coolant" (Rev 043)
26. ECA-1.1, "Loss of Emergency Coolant Recirculation" (Rev 030)
27. ATT-8.1, "Attachment D/G Stop" (Rev 6)

Validation Time: 108 minutes

Author: David Lazarony, Essential Training & Consulting, LLC

Facility Review: \_\_\_\_\_

Rev. 090920

## **Ginna 2020 NRC Scenario #1 Objectives:**

Given the simulator at an initial condition of 100% power evaluate:

1. the SRO's ability to supervise the control room team during the normal, abnormal, and emergency situations that arise, including compliance with all facility procedures, Technical Specifications, and other commitments.
2. each crew member's ability to effectively communicate as part of a control room team during the normal, abnormal, and emergency situations that arise.
3. each crew member's ability to effectively diagnose and the RO's ability to mitigate the consequences of a Seal Water Cooler failure on an operating RHR Pump in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and AP-CCW.2, "Loss of CCW During Power Operation."
4. each crew member's ability to effectively diagnose and the RO's ability to mitigate the consequences of a failed high Pressurizer Pressure Instrument (PT-449) in accordance with AP-PRZR.1, "Abnormal PZR Pressure."
5. the BOP's ability to remove a failed Pressurizer Pressure Instrument (PT-449) from service in accordance with ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure."
6. each crew member's ability to effectively diagnose and the BOP's ability to mitigate the consequences of a failed open Atmospheric Relief Valve in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and/or AP-FW.2, "Secondary Coolant Leak."
7. each crew member's ability to effectively diagnose and mitigate the consequences of a failure of electrical grid circuits 908 and subsequently 913 in accordance with site procedures.
8. each crew member's ability to conduct a rapid downpower in accordance with AP-TURB.5, "Rapid Load Reduction," whenever plant conditions dictate the need to do so.
9. each crew member's ability to effectively diagnose and the BOP's ability to mitigate the consequences of a failed Main Feedwater Regulating Valve Controller in accordance with Annunciator Response Procedures.
10. each crew member's ability to effectively diagnose an ejected control rod and the RO and BOP's ability to respond to such an event in accordance with E-0, "Reactor Trip or Safety Injection," and E-1, "Loss of Reactor or Secondary Coolant."
11. the BOP's ability to determine that the Main Turbine has failed to automatically trip during a reactor trip from power and take action to manually trip the Main Turbine.
12. the RO's ability to determine that the SI Pumps have failed to automatically start during a Safety Injection actuation and take action to manually start the pumps.
13. each crew member's ability to effectively diagnose and respond to the loss of all RHR Pumps during a LOCA in accordance with ECA-1.1, "Loss of Emergency Coolant Recirculation."

Scenario Event Description  
NRC Scenario 1

Facility: <b>Ginna</b>		Scenario No.: <b>1</b>		Op Test No.: <b>N20-1</b>	
Examiners: _____		Operators: _____		(SRO)	
_____		_____		(RO)	
_____		_____		(BOP)	
Initial Conditions:		The plant is at 100% power (EOL). The area has experienced unseasonably hot weather with no precipitation. It is expected to maintain power stable at the current power level throughout the shift.			
Turnover:		The following equipment is Out-Of-Service: Containment Recirculation Fan Cooler C (TS 3.6.6 Condition D Action D.1) is OOS for breaker maintenance, and the Condensate Booster Pump A is OOS for thrust bearing replacement. The A RHR Pump has been taken out of service for testing. (TS 3.5.2 Condition A Action A.1).			
Critical Tasks:		See Below			
Event No.	Malf. No.	Event Type*	Event Description		
1	MAL CLG05 ANNARHR 02	C-RO C-SRO TS	Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump		
2	MAL PZR02D	I-RO I-BOP I-SRO TS	Pressurizer Pressure (PT-449) fails HIGH (CT-1)		
3	MAL STM04A	C-BOP C-SRO	A ARV Fails OPEN (3411)		
4	REM Various Circuit Bkrs	R-RO C-BOP C-SRO	Unscheduled Trip of Transmission Circuits/Downpower		
5	MAL FDW07C	C-BOP C-SRO	B FRV fails AS-IS (Manual Control Available) (CT-2)		
6	MAL ROD05-K9	M-RO M-BOP M-SRO	Ejected Control Rod		
7	MAL TUR02	C-BOP C-SRO	Failure of Turbine to Trip on Rx Trip		
8	MAL RPS07A RPS07B	C-RO C-SRO	Failure of A and B SI Pumps to Auto Start (CT-3)		
9	MAL RHR01B	C-RO C-SRO	B RHR Pumps trips		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

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Scenario Event Description  
NRC Scenario 1

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**Ginna 2020 NRC Scenario #1**

The plant is at 100% power (EOL). The area has experienced unseasonably hot weather with no precipitation. It is expected to maintain power stable at the current power level throughout the shift.

The following equipment is Out-Of-Service: Containment Recirculation Fan Cooler C (TS 3.6.6 Condition D Action D.1) is OOS for breaker maintenance, and the Condensate Booster Pump A is OOS for thrust bearing replacement. The A RHR Pump has been taken out of service for testing. (TS 3.5.2 Condition A Action A.1).

Shortly after taking the watch, the operator will start the A RHR Pump per STP-O-2.2.-COMP-A, "Residual Heat Removal Pump A Comprehensive Test," and then stop the pump due to a pump seal water cooler failure using the guidance of A-503.1, "Emergency and Abnormal Operating Procedures User's Guide." The operator will respond using AP-CCW.2, "Loss of CCW During Power Operation." During this time, a failure will occur on the Electric Fire Pump Breaker and the operator will respond in accordance with AR-K-31, FIRE SYSTEM ALARM PANEL, and be required to address TR-3.7.1, "Fire Suppression Water Sources."

Following this, the controlling Pressurizer Pressure Transmitter will fail HIGH, causing the Spray Valves to open. The operator will respond in accordance with AR-F-2, "PRESSURIZER HIGH PRESS 2310 PSI," and AR-F-10, "PRESSURIZER LO PRESS 2205 PSI," and enter AP-PRZR.1, "Abnormal PZR Pressure." AP-PRZR.1 will refer the operator to ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure," for the defeat of PT-449. The operator will address Technical Specification LCO 3.4.1, "RCS Pressure, Temperature, and Flow Departure From Nucleate Boiling (DNB) Limits;" LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation;" and TR-3.4.3, "Anticipated Transient Without Scram (ATWS) Mitigation."

Subsequently, the controller for the A SG ARV will fail such that the valve will travel to the fully OPEN position. The operator will respond using A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and/or AP-FW.2, "Secondary Coolant Leak," and take manual control of the ARV-3411 and close the valve.

Then, the off-site transmission circuit 908 will de-energize, and the RG&E Energy Control Center (ECC) will request that Ginna verbally certify that the plant is capable of ramping down to 490 MWe net generation in 14 minutes upon subsequent notification from ECC. The operator will respond in accordance with AR-J-28, "STATION 13A TROUBLE," enter O-6.9, "Ginna Station Operating Limits for Station 13A Transmission," and prepare for plant shutdown. After this, the off-site transmission circuit 913 will also de-energize and the ECC will call requesting that the previously agreed to downpower be executed. The operating crew will enter AP-TURB.5, "Rapid Load Reduction," and lower plant power to 490 MWe.

During the load reduction, a failure of the B FRV to control in AUTO will occur. The operator will respond per AR-G-5, "S/G B LEVEL DEVIATION  $\pm 7\%$ ," or upon observing an abnormally high level in the B Steam Generator and control the B FRV manually.

After this, Shutdown Bank Control Rod K-9 will be ejected from the core causing a LOCA, and an automatic Rx Trip/SI signal will occur. On the trip the Main Turbine will fail to trip, and the operator will need to manually trip the Turbine. Additionally, the A and the B SI Pumps will fail to start automatically and the B RHR Pump will trip. The operator will be required to manually start both SI Pumps. The operator will enter E-0, "Reactor Trip or Safety Injection," and transition to E-1, "Loss of Reactor or Secondary Coolant."



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Scenario Event Description  
NRC Scenario 1

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The operator will transition to ECA-1.1, "Loss of Emergency Coolant Recirculation," due to a loss of both RHR Pumps. The operator will take actions to minimize the inventory loss from the RWST.

The scenario will terminate at Step 10.a RNO of ECA-1.1, after the crew has stopped one SI Pump.

**Critical Tasks:**

**Manually control PRZR pressure during the failure of PT-449 before the Reactor automatically trips due to low pressurizer pressure**

Safety Significance: failure to control PRZR pressure and stop the pressure transient, under the postulated plant conditions, results in an unnecessary transient to the plant and challenge to the Reactor Protection System. Performance of the critical task would stabilize the pressure transient. A failure to stabilize the pressure transient, when able to do so, constitutes a mis-operation or incorrect crew performance which leads to incorrect RCS pressure control.

**Manually control the B S/G level during the failure of the B FRV Controller before the Reactor automatically trips due to low S/G level or Feedwater Isolates due to high S/G level**

Safety Significance: failure to control B S/G level and stop the level transient, under the postulated plant conditions, results in an unnecessary transient to the plant and challenge to the Reactor Protection System. Performance of the critical task would stabilize the level transient. A failure to stabilize the level transient, when able to do so, constitutes a mis-operation or incorrect crew performance which leads to incorrect RCS temperature and/or pressure control.

**Establish flow from at least two SI pumps before transition to E-1, Loss of Reactor or Secondary Coolant**

Safety Significance: Failure to manually start at least two SI pumps under the postulated conditions constitutes "mis-operation or incorrect crew performance which leads to degraded ECCS capacity." In this case, at least two SI pumps can be manually started from the control room. Therefore, failure to manually start SI pumps also represents a "demonstrated inability by the crew to (1) Recognize a failure/incorrect auto actuation of an ESF system or component and (2) Effectively direct/manipulate ESF controls. The acceptable results obtained in the FSAR analysis of a small-break LOCA are predicated on the assumption of minimum ECCS pumped injection. The analysis assumes that a minimum pumped ECCS flow rate, which varies with RCS pressure, is injected into the core. The flow-rate values assumed for minimum pumped injection are based on operation of the following ECCS pumps: Two SI pumps and one RHR pump. Operation of this minimum required complement of ECCS injection pumps is consistent with the FSAR assumption that only minimum safeguards are actuated. Because compliance with the assumption of the FSAR is part of the facility license condition, failure to perform the critical task (under the postulated plant conditions) constitutes a violation of the license condition.

Scenario Event Description  
NRC Scenario 1

**SIMULATOR OPERATOR INSTRUCTIONS**

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>		Reset to Temp IC 155 (Originally IC-24).	<p>T = 0:</p> <p>Perform STP-O-2.2-COMP-A up to Step 6.1.11.  Insert MALF MIS02C (C CRFC Trip)  Pull Stop CRFC 'C' and tag. Ensure Black Dot on J-25 for C CRFC OOS.  Take A CB Pump Control Switch to TRIP  Insert OVR-CND04A = OFF  Hang LOTO Tags as necessary</p> <p>Insert MALF TUR02 (Turbine Fails to Trip on Rx Trip)  Insert MALF RPS07A (A SI Pump fails to AUTO Start)  Insert MALF RPS07B (B SI Pump fails to AUTO Start)  Insert MALF RHR01B (B RHR Pump trips)  Insert the following on T-9 (X07I197D==1 [A RHR Pump control switch to PULL STOP]):</p> <ul style="list-style-type: none"> <li>• MALF RHR01A (A RHR Pump trips)</li> <li>• OVR-RHR05A = OFF</li> <li>• OVR-RHR05B = OFF</li> <li>• OVR-RHR05C = OFF</li> </ul> <p>Insert MALF ANN-A-RHR02 = ON (60 seconds after A RHR Pump Start) on T-1 (X07O197R==1 [A RHR Red status light is LIT])  Insert MALF CLG05=10 (CCW Leak) on T-1 (X07O197R==1 [A RHR Red status light is LIT])  Insert MALF ANN-A-MIS50 = ON on T-2  Insert MALF PZR02D (2500, No Ramp) on T-3  Insert MALF STM04A (100 over 45 second Ramp) on T-4  Insert REM-EDS-025 (OPEN) on T-5  Insert REM-EDS-023 (OPEN) on T-5  Insert REM-EDS-031 (OPEN) on T-6  Insert MALF FDW07C (Current Controller Output) on T-7  Insert MALF ROD05-K9 (1400 gpm, No Ramp) on T-8</p> <p>Ensure <math>P_{RCS}-P_{S/G}</math> graphed during the scenario.</p>
<input type="checkbox"/>	Prior to Crew Briefing		Hang Protective Tags per OPG-Protected Equipment (CBP A P16 of 24 of Attachment 2).

Scenario Event Description	
NRC Scenario 1	
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	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>	<b>Crew Briefing</b> <ul style="list-style-type: none"> <li>Assign Crew Positions based on evaluation requirements</li> <li>Review the Shift Turnover Information with the crew.</li> <li>Provide crew with marked up copy of STP-O-2.2-COMP-A to Step 6.1.11.</li> <li>Handout Reactivity Binder (EOL).</li> </ul>		
<input type="checkbox"/>	T-0	Begin Familiarization Period	
<input type="checkbox"/>	At direction of examiner  At direction of examiner	Event 1 Trigger#1 MALF ANN-A-RHR02 = ON (60 seconds after A RHR Pump Start) MALF CLG05=10 (CCW Leak)  Trigger #2 MALF ANN-A-MIS50 = ON	Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump
<input type="checkbox"/>	At direction of examiner	Event 2 Trigger #3 PZR02D (2500, No Ramp)	Pressurizer Pressure (PT-449) fails HIGH
<input type="checkbox"/>	At direction of examiner	Event 3 Trigger #4 STM04A (100 over 45 second Ramp)	A ARV Fails OPEN (3411)

Scenario Event Description  
NRC Scenario 1

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>	At direction of examiner	<b>Event 4</b> <b>Trigger #5</b> <b>Circuit Breaker 90812 - REM-EDS-025 (OPEN)</b> <b>Circuit Breaker 7X13A72 - REM-EDS-023 (OPEN)</b>  <b>Trigger #6</b> <b>Circuit Breaker 91302 - REM-EDS-031 (OPEN) (Loss of Circuit 913)</b>	Unscheduled Trip of Transmission Circuits/Downpower  <b>Note: Loss of Circuit 908 (Followed by Phone Call)</b>   <b>Note: Loss of Circuit 913 (Followed by Phone Call)</b>
<input type="checkbox"/>	Turbine Load at 380 MWe	<b>Event 5</b> <b>Trigger #7</b> <b>FDW07C (Current Controller Output)</b>	B FRV fails AS-IS (Manual Control Available)
<input type="checkbox"/>	At direction of examiner	<b>Event 6</b> <b>Trigger #8</b> <b>ROD05-K9 (1400 gpm, No Ramp)</b>	Ejected Control Rod
<input type="checkbox"/>	Post-Rx Trip	<b>Event 7</b> <b>TUR02</b>	Failure of Turbine to Trip on Rx Trip <b>Note: This malfunction is inserted at T=0.</b>
<input type="checkbox"/>	Post-Rx Trip	<b>Event 8</b> <b>RPS07A</b> <b>RPS07B</b>	Failure of A and B SI Pumps to Auto Start <b>Note: These malfunctions are inserted at T=0.</b>
<input type="checkbox"/>	Post-Rx Trip	<b>Event 9</b> <b>RHR01B</b>	B RHR Pumps trips <b>Note: This malfunction is inserted at T=0, conditional on SI Actuation.</b>
<input type="checkbox"/>	<b>Terminate the scenario upon direction of Lead Examiner</b>		

Op Test No.: N20-1 Scenario # 1 Event # 1 Page 9 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Shortly after taking the watch, the operator will start the A RHR Pump per STP-O-2.2.-COMP-A, "Residual Heat Removal Pump A Comprehensive Test," and then stop the pump due to a pump seal water cooler failure using the guidance of A-503.1, "Emergency and Abnormal Operating Procedures User's Guide." The operator will respond using AP-CCW.2, "Loss of CCW During Power Operation." During this time, a failure will occur on the Electric Fire Pump Breaker and the operator will respond in accordance with AR-K-31, FIRE SYSTEM ALARM PANEL, and be required to address TR-3.7.1, "Fire Suppression Water Sources."

**SIM DRIVER Instructions:** **Verify Trigger #1 (MALF ANN-A-RHR02 = ON (60 seconds after A RHR Pump Start) MALF CLG05=10 (CCW Leak)) actuates**

**Indications Available:**

- MCB Annunciator A-9, RHR PUMP COOLING WATER OUTLET LO FLOW 15 GPM

Time	Pos.	Expected Actions/Behavior	Comments
<b>STP-O-2.2-COMP-A, RESIDUAL HEAT REMOVAL PUMP A COMPREHENSIVE TEST</b>			
	HCO	(Step 6.1.11) START RHR Pump A	<b>NOTE:</b> The HCO will contact the EO, and direct that the A RHR Pump be monitored during Pump start. <b>SIM DRIVER:</b> as EO, acknowledge and report that pump start is NORMAL.
	HCO	(Step 6.1.12) RECORD RHR Pump A start time:	
	HCO	(Step 6.1.13) VERIFY flow is indicated on RHR PMP A RECIRC FLOW IND, FI-673.	<b>NOTE:</b> The HCO will contact the EO, and direct that flow be verified. <b>SIM DRIVER:</b> as EO, acknowledge and report that FI-673 is indicating 210 gpm.

Op Test No.: N20-1 Scenario # 1 Event # 1 Page 10 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 6.1.14) RECORD the flow indicated on FI-673.	
	HCO	(Step 6.1.15) CHECK RHR Pump A Recirculation Flow Acceptance Criteria is met.	<b>NOTE:</b> The HCO will determine that the recirculation flow acceptance criteria (>208.7 gpm) is met.
	HCO	(Step 6.1.16) IF RHR Pump A Recirculation Flow Acceptance Criteria is NOT met,.....	
<b>AR-A-9, RHR PUMP COOLING WATER OUTLET LO FLOW 15 GPM</b>			
			<b>NOTE:</b> The HCO will contact the EO, and direct that the alarm be investigated. <b>SIM DRIVER:</b> as EO, acknowledge, and report that there is yellow water spraying out of the A RHR Seal Water Heat Exchanger and accumulating on the floor.
	US	(Step 1) GO TO the applicable AP-CCW procedure:	<b>NOTE:</b> The US will select AP-CCW.2.
		<ul style="list-style-type: none"> <li>AP-CCW.2, LOSS OF CCW DURING POWER OPERATION</li> </ul>	
		<ul style="list-style-type: none"> <li>AP-CCW.3, LOSS OF CCW - PLANT SHUTDOWN</li> </ul>	
<b>A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE</b>			

Op Test No.: N20-1 Scenario # 1 Event # 1 Page 11 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 5.3.A.5) Actions are permitted to mitigate or compensate for equipment or controller failures to isolate leaks. Permitted actions include those actions necessary to take manual control and stabilize the affected parameters, or to isolate a leak. Examples include closing or isolating a failed open PORV, taking manual control of a failed FRV controller, etc. These deviations fall under the Maintenance Rule. Therefore, 50.59 is not required.	<b>NOTE:</b> It is expected that the HCO will stop the A RHR Pump based on this guidance.  <b>SIM DRIVER: REMOVE A-RHR02 once A RHR Pump is stopped.</b>  Verify that Trigger #8 actuates once RHR Pump A is taken to PULL STOP.
			<b>NOTE:</b> The US will go to AP-CCW.2.
<b>AP-CCW.2, LOSS OF CCW DURING POWER OPERATION</b>			
<b>CAUTION</b> <ul style="list-style-type: none"> <li>IF CCW FLOW TO A RCP IS INTERRUPTED FOR GREATER THAN 2 MINUTES OR IF EITHER RCP MOTOR BEARING TEMPERATURE EXCEEDS 200°F, THEN TRIP THE AFFECTED RCP.</li> <li>IF CCW IS LOST, THEN SEAL INJECTION SHOULD BE MAINTAINED TO THE RCP(S) UNTIL RCS TEMPERATURE IS LESS THAN 150°F, OR UNTIL CCW IS RESTORED.</li> </ul>			
	HCO	(Step 1) Check CCW Pump Status:	
		<ul style="list-style-type: none"> <li>Both CCW pump breaker white lights – EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-17, MOTOR OFF RCP CCWP - EXTINGUISHED</li> </ul>	
<b>NOTE</b> <ul style="list-style-type: none"> <li>MCB CCW surge tank level indication should be verified locally in the AUX BLDG, if possible.</li> <li>Local Pressure Indication (PI-2669 or PI-2670) reading greater than 5 psi with PPCS point L0618 off scale low may indicate that LT-618 level transmitter has failed low.</li> <li>If it is suspected that CCW Fluid will enter the WHUT, NOTIFY the Chemistry Technician.</li> </ul>			

Op Test No.: N20-1 Scenario # 1 Event # 1 Page 12 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(*Step 2) Monitor CCW Surge Tank Level – APPROXIMATELY 50% AND STABLE....	<p><b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.</p> <p><b>NOTE:</b> The CCW Surge Tank Level is lowering, however, the level is lowering slowly. The HCO may or may not refill the Surge Tank. If not, go to Step 3.</p>
	HCO	(Step 2 RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Open RMW to CCW surge tank, MOV-823.</li> </ul>	
		<ul style="list-style-type: none"> <li>Start RMW pump(s).</li> </ul>	
		<ul style="list-style-type: none"> <li>IF surge tank level stable or rising, THEN control level at approximately 50% while continuing with Step 3.</li> </ul>	<p><b>NOTE:</b> The makeup flow into the CCW Surge Tank will be able to stabilize the tank level.</p>
	HCO	(*Step 3) Monitor CCW Hx Outlet Temperature (MCB rear or PPCS point ID T0621)	<p><b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.</p>
		<ul style="list-style-type: none"> <li>CCW Hx Outlet temperature – LESS THAN 120°F</li> </ul>	
	HCO	(*Step 4) Monitor RCP Indications:	<p><b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.</p>
		<ul style="list-style-type: none"> <li>Annunciator A-7 (A-15), RCP 1A (1B) CCW return Hi Temp or low flow 165 gpm 125°F alarm – EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP motor bearings temperature (PPCS Group Display – RCPS OR RXP temperature monitor RK-30A recorder) - ≤ 200°F</li> </ul>	



Op Test No.: N20-1 Scenario # 1 Event # 1 Page 13 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(*Step 5) Monitor If Letdown Should Be Isolated:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Check annunciator A-12, Non-Regen Hx Letdown Out Hi Temp 145°F - EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Check excess letdown temperature – LESS THAN 195°F</li> </ul>	<b>NOTE:</b> Excess Letdown is NOT in service.
	HCO	(Step 6) Check CCW Valve Alignment - NORMAL	
		<ul style="list-style-type: none"> <li>Check MCB CCW valves (Refer to ATT-1.0, ATTACHMENT AT POWER CCW ALIGNMENT)</li> </ul>	
		<ul style="list-style-type: none"> <li>Direct EO to check local flow indications per ATT-1.1, ATTACHMENT NORMAL CCW FLOW</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge.
<b>NOTE</b> <ul style="list-style-type: none"> <li>IF Seal Water Hx will be bypassed, THEN a rise in VCT temperature is expected.</li> <li>IF Seal Return Line will be isolated, THEN seal return and excess letdown (if in service) will be to the PRT through RV-314.</li> </ul>			
	HCO	(Step 7) Locally Check Seal Water Hx CCW Outlet Flow – NORMAL (FI-605)	<b>NOTE:</b> The US may direct the EO to report status of Seal Water Hx CCW Outlet Flow. If so, <b>SIM DRIVER</b> acknowledge as EO, and report flow is <b>6 gpm</b> .
<b>NOTE</b> Operation may continue with the reactor support coolers isolated. If this occurs, notify higher supervision.			
	HCO	(Step 8) Check for CCW Leakage In CNMT:	

Op Test No.: N20-1 Scenario # 1 Event # 1 Page 14 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Check CNMT sump A level:</li> </ul>	
		<ul style="list-style-type: none"> <li>Level – STABLE</li> </ul>	
		<ul style="list-style-type: none"> <li>Sump A pumps – OFF</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP oil levels - STABLE</li> </ul>	
	HCO/ EO	(Step 9) Check for CCW Leakage In AUX BLDG:	<b>NOTE:</b> The EO has already reported CCW leakage in the Aux Building.
		<ul style="list-style-type: none"> <li>Start frequency of AUX BLDG sump pump(s) – NORMAL (Refer to RCS daily leakage log)</li> </ul>	
		<ul style="list-style-type: none"> <li>Waste holdup tank level – STABLE OR RISING AS EXPECTED</li> </ul>	
	HCO	(Step 10) Verify CCW System Leak - IDENTIFIED	
		<ul style="list-style-type: none"> <li>Leak identified</li> </ul>	<b>NOTE:</b> The leak has been discovered.
		<ul style="list-style-type: none"> <li>Isolate leak if possible</li> </ul>	<b>NOTE:</b> The US/HCO may direct the EO to isolate the leak by closing V707A and 708A. If so, <b>SIM DRIVER</b> acknowledge as <b>EO</b> , and <b>DELETE MALFCLG05 60 seconds</b> after the direction to isolate the leak. <b>THEN</b> , report that the <b>valves have been closed</b> .
		<ul style="list-style-type: none"> <li>Refer to IP-ENV-3, RESPONSE TO A SPILL OF HAZARDOUS MATERIAL/WASTE</li> </ul>	<b>NOTE:</b> The US may ask the SM or WCCS to address. If so, <b>SIM DRIVER</b> acknowledge as needed.
	HCO	(Step 11) Check Normal or Excess Letdown – IN SERVICE	

Op Test No.: N20-1 Scenario # 1 Event # 1 Page 15 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 12) Check CCW System Leak Isolated	
		<ul style="list-style-type: none"> <li>Surge tank level – APPROXIMATELY 50%</li> </ul>	
		<ul style="list-style-type: none"> <li>(Step 12a RNO) IF level less than 50%, THEN continue filling.</li> </ul>	<b>NOTE:</b> The Surge Tank may or may not be being filled. If it is, the Step 12 RNO will be performed.
		IF $\geq 50\%$ THEN perform the following:	
		<ul style="list-style-type: none"> <li>Stop RMW pump(s).</li> </ul>	
		<ul style="list-style-type: none"> <li>Close MOV-823.</li> </ul>	
		<ul style="list-style-type: none"> <li>(Step 12 Continued) Surge tank level - STABLE</li> </ul>	
	HCO	(Step 13) Direct RP To Sample CCW System For Chromates	<b>NOTE:</b> The US may notify Chemistry. <b>SIM DRIVER:</b> as <b>Chemistry</b> , acknowledge.
	HCO/CO	(Step 14) Evaluate MCB Annunciator Status (Refer to AR Procedures)	
	US	(Step 15) Evaluate Plant Conditions:	
		<ul style="list-style-type: none"> <li>CCW system malfunction – IDENTIFIED AND CORRECTED.</li> </ul>	
		<ul style="list-style-type: none"> <li>CCW system status adequate for power operation (Refer to ITS Section 3.7.7).</li> </ul>	<b>NOTE:</b> The US will likely evaluate TS LCO 3.7.7 conclude that the LCO is MET.
<b>NOTE</b>			
Refer to LS-AA-1020, REPORTABILITY TABLES AND DECISION TREES for reporting requirements.			

Op Test No.: N20-1 Scenario # 1 Event # 1 Page 16 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 16) Notify Higher Supervision	<b>NOTE:</b> The US may notify the WCC. <b>SIM DRIVER:</b> as <b>WCCS</b> , acknowledge. AS <b>WCCS</b> report that the <b>required maintenance on the A RHR Pump will require 10 hours.</b>
	US	(Step 17) Return To Procedure Or Guidance In Effect	
			<b>NOTE:</b> The US may call WCC/Maintenance to address the failed RHR Pump. If so, <b>SIM DRIVER</b> acknowledge as WCC; and direct that the A RHR Pump be placed in <b>PULL STOP</b> .
			<b>NOTE:</b> The US will likely conduct a Plant Status Brief.
<b>SIM DRIVER Instructions:</b> Operate Trigger #2 (MALF ANN-A-MIS50 = ON) actuates			
<b>Indications Available:</b>			
<ul style="list-style-type: none"> <li>MCB Annunciator K-31, FIRE SYSTEM ALARM PANEL</li> </ul>			
<b>AR-K-31, FIRE SYSTEM ALARM PANEL</b>			
	CO	(Step 4.1) CHECK fire system panels for specific alarm location.	<b>NOTE:</b> The US may dispatch an EO to check the fire panels for the specific alarm. If so, <b>SIM DRIVER</b> acknowledge as <b>EO</b> ; wait <b>1 minute</b> and report that the <b>Fire Motor Control Cabinet Breaker is OPEN</b> .

Op Test No.: N20-1 Scenario # 1 Event # 1 Page 17 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 4.2) IF alarm is on the 1G charcoal filter unit, THEN....	
	CO	(Step 4.3) IF alarm is due to CREATS High Temp, THEN.....	
	CO	(Step 4.4) IF alarm is due to CONTAINMENT CHARCOAL FILTER MONITOR High Temp, THEN.....	
	CO	(Step 4.5) IF Fire Booster Pump is the cause, THEN.....	
	CO	Step 4.6) IF Fire Booster Pump is NOT the cause of the alarm, THEN NOTIFY EO of location of alarm problem.	
	US	(Step 4.7) REFER to ER-FIRE.0, CONTROL ROOM RESPONSE TO FIRE ALARMS AND REPORTS.	
	US	(Step 4.8) REFER to SC-3.1, FIRE EMERGENCY GENERAL INFORMATION AND appropriate Fire Response Plan.	
	US	(Step 4.9) REFER to the following as necessary:	
		<ul style="list-style-type: none"> <li>STP-O-13.1.16, PYROTRONICS SMOKE DETECTOR SYSTEM RESET to reset the Pyrotronics smoke detector system ONLY.</li> </ul>	
		<ul style="list-style-type: none"> <li>SC-3.16.2.6, RESPONSE TO TROUBLE SIGNALS FIRE SIGNALING SYSTEM, to respond to FCP trouble signals.</li> </ul>	
		<ul style="list-style-type: none"> <li>SC-3.16.2 (Step 3.1.12), CONTROL ROOM FIRE PANEL (OLD SYSTEM PANEL), to respond to CONTAINMENT CHARCOAL FILTER MONITOR alarms.</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 1 Page 18 of 76Event Description: **Failure of A RHR Pump During Surveillance/Failure of the Electric Fire Pump**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>SC-3.16.7, OPERATING INSTRUCTION - AUTOMATIC DELUGE SYSTEM for deluge system alarms/troubles.</li> </ul>	
	US	(Step 4.10) NOTIFY the SM of the problem.	
	US	(Step 4.11) IF necessary, THEN REFER to the TRM (TR 3.7.1).	<b>NOTE:</b> The US will address TRM 3.7.1.
<b>TR-3.7.1, FIRE SUPPRESSION WATER SOURCES</b>			
	US	TR 3.7.1 Two fire pumps shall be OPERABLE and aligned to the fire suppression header.	
	US	APPLICABILITY: At all times.	
CONDITION		REQUIRED ACTION	COMPLETION TIME
A. One required fire pump inoperable in MODES 1, 2, 3, or 4.		A.1 Restore required pump to OPERABLE status.	7 days
			The US will enter Condition A based on the Motor Fire Pump being inoperable due to the Control Cabinet Breaker being OPEN.
			<b>NOTE:</b> The US may call WCC/Maintenance to address the failed Motor Fire Pump. If so, <b>SIM DRIVER</b> acknowledge as WCC.
			<b>NOTE:</b> The US will likely conduct a Plant Status Brief.
<b>At the discretion of the Lead Examiner move to Event #2.</b>			

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 19 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Following this, the controlling Pressurizer Pressure Transmitter will fail HIGH, causing the Spray Valves to open. The operator will respond in accordance with AR-F-2, "PRESSURIZER HIGH PRESS 2310 PSI," and AR-F-10, "PRESSURIZER LO PRESS 2205 PSI," and enter AP-PRZR.1, "Abnormal PZR Pressure." AP-PRZR.1 will refer the operator to ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure," for the defeat of PT-449. The operator will address Technical Specification LCO 3.4.1, "RCS Pressure, Temperature, and Flow Departure From Nucleate Boiling (DNB) Limits;" LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation;" and TR-3.4.3, "Anticipated Transient Without Scram (ATWS) Mitigation."

**SIM DRIVER Instructions:****Operate Trigger #3 (PZR02D (2500, No Ramp))****Indications Available:**

- MCB Annunciator F-2, PRESSURIZER HIGH PRESS 2310
- PI-449 reading 2500 psig, all others lowering slowly
- Both Pressurizer Spray Valves fully OPEN
- Master Pressure Controller 431K output at 100%
- PPCS Alarm PZR AVG PRESS HI ALARM
- MCB Annunciator F-10, PRESSURIZER LO PRESS 2205 (15 seconds delayed)

Time	Pos.	Expected Actions/Behavior	Comments
	HCO		<b>NOTE:</b> The HCO may take action to place 431K in MANUAL control, or the Spray Valve Controllers in MANUAL control, before arriving at the procedurally directed step, per the Guidance of Step 5.3.A.5 of A-503.1.
			<b>NOTE:</b> The crew may enter AP-PRZR.1 directly.
<b>AR-F-2, PRESSURIZER HI PRESS 2310 PSI</b>			
	US	(Step 1) IF RCS pressure is high, THEN go to AP-PRZR.1.	<b>NOTE:</b> Pressurizer Pressure is NOT high.
	US	(Step 2) IF due to instrument failure, THEN refer to ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE	<b>NOTE:</b> While an instrument has failed, the failure has created a pressure transient, and AP-PRZR.1 is the appropriate procedure.

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 20 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
<b>AR-F-10, PRESSURIZER LO PRESS 2205 PSI</b>			
			<b>NOTE:</b> This alarm will occur if the Spray Valves are open ≈15 seconds.
	HCO	(Step 1) Perform a channel check.	
	US	(Step 2) Go to the applicable procedure: <ul style="list-style-type: none"> <li>• AP-TURB.2, if turbine load rejection has occurred.</li> <li>• AP-PRZR.1, if pressure is abnormal for plant condition.</li> <li>• ER-INST.1, if channel failed</li> <li>• AP-RCS.1, if RCS leak is indicated.</li> </ul>	
	US	(Step 3) Refer to ITS LCO 3.4.1	
			<b>NOTE:</b> The US will go to AP-PRZR.1.
<b>AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE</b>			
<b>NOTE</b> <ul style="list-style-type: none"> <li>• Actual PRZR pressure should be verified by more than 1 indicator.</li> <li>• Refer to ITS section 3.4.1.</li> </ul>			
	HCO	(Step 1) Check PRZR Pressure: <ul style="list-style-type: none"> <li>• All 4 narrow range channels- APPROXIMATELY EQUAL</li> </ul>	



Op Test No.: N20-1 Scenario # 1 Event # 2 Page 21 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ US	(Step 1 RNO) IF one pressure channel deviates significantly from the other 3. THEN perform the following: a) IF the controlling PRZR pressure channel has failed. THEN place controller, 431K, in MANUAL and adjust output to restore PRZR pressure b) Refer to ER-INST.1. REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE.	<b>NOTE:</b> The US may refer to ER-INST.1 here, or later when the pressure transient has been verified to be under control.
<b><u>Critical Task:</u></b>  <b>Manually control PRZR pressure during the failure of PT-449 before the Reactor automatically trips due to low pressurizer pressure</b>  Safety Significance: failure to control PRZR pressure and stop the pressure transient, under the postulated plant conditions, results in an unnecessary transient to the plant and challenge to the Reactor Protection System. Performance of the critical task would stabilize the pressure transient. A failure to stabilize the pressure transient, when able to do so, constitutes a mis-operation or incorrect crew performance which leads to incorrect RCS pressure control.			
	HCO	(Step 2) Check Reactor Power- STABLE	
	HCO	(Step 3) Check PRZR Pressure: a) Pressure- LESS THAN 2235 PSIG b) Pressure- GREATER THAN 2000 PSIG	
	HCO	(Step 4) Check PRZR Heater Status: a) PRZR proportional heater breaker- CLOSED b) PRZR heater backup group- ON	

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 22 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 5) Verify Normal PRZR Spray Valves-CLOSED <ul style="list-style-type: none"> <li>• AOV-431A</li> <li>• AOV-431B</li> </ul>	<b>NOTE:</b> The HCO may take action to place 431K in MANUAL control, or the Spray Valve Controllers in MANUAL control, before arriving at THIS step, per the Guidance of Step 5.3.A.5 of A-503.1.
	HCO	(Step 5 RNO) Place Controllers in MANUAL at 0% Demand. IF valves cannot be closed, THEN.....	
<b>NOTE</b> With PRZR pressure controller 431K in manual, PORV-431C will not operate in the automatic mode (refer to TR 3.4.3).			
	HCO	(Step 6) Check PRZR Pressure Controller, 431K, Demand- LESS THAN 50%	
	HCO	(Step 7) Check PRZR PORVs: <ul style="list-style-type: none"> <li>a) PORVs- CLOSED</li> <li>b) Annunciator F-19. PRZR PORV OUTLET HI TEMP 145°F- EXTINGUISHED</li> </ul>	
	US	c) Go to Step 9	
	HCO	(Step 9) Check PRZR Safety Valves: <ul style="list-style-type: none"> <li>• Position indicator- LESS THAN 0.1 INCH</li> <li>• Annunciator F-18. PRZR SAFETY VLV OUTLET HI TEMP 145°F- EXTINGUISHED</li> <li>• Annunciator AA-13, PRESSURIZER SAFETY VALVE POSITION- EXTINGUISHED.</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 23 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 10) Check AUX Spray Valve, AOV-296 - CLOSED	
	HCO	(Step 11) Check PRZR Pressure Control Restored: a) Pressure- TRENDING TO 2235 PSIG	
	US	b) Go to Step 16	
	HCO	(Step 16) Check PRT Indications: a) Level- BETWEEN 61% and 84% b) Pressure- APPROXIMATELY 1.5 PSIG AND STABLE c) Temperature- AT CNMT AMBIENT TEMPERATURE AND STABLE	
	HCO	(Step 17) Establish PRZR Pressure Control In Auto: a) Verify 431K in AUTO	
	HCO	(Step 17 RNO) Place 431K in AUTO, if desired.	<b>NOTE:</b> 431K cannot be placed in Auto until the Instrument is defeated. IF the Instrument has NOT been defeated in accordance with ER-INST.1, the US may refer to this procedure here.
			<b>NOTE:</b> The US may call WCCS to address the instrument failure. <b>If so, SIM DRIVER acknowledge as WCCS.</b>
<b>ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE</b>			

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 24 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 6.1.1) IDENTIFY the failed instrument channel by observation of the bistable status light board, MCB annunciators, and the MCB metering indication.	<b>NOTE:</b> The US will identify that PT-449 has failed.
<b>NOTE</b> <ul style="list-style-type: none"> <li>Channel defeat shall be performed by a licensed operator.</li> <li>Peer Checks of the channel defeat shall be performed by a Licensed Operator or a qualified STA shall provide oversight.</li> </ul>			
	US	(Step 6.1.2) WHEN a failed instrument loop and/or channel has been identified, THEN REFER to the appropriate section of this procedure listed below:	<b>NOTE:</b> The US will refer to PRZR Pressure Channel Failure, Section 6.3.
<b>NOTE</b> PORV PCV-431C WILL NOT automatically operate while HC-431K is in MANUAL.			
	HCO	(Step 6.3.1) IF the controlling PRZR Pressure channel has failed (normally PT-449, but PT-429 may be selected as controlling channel), THEN PLACE HC-431K in MANUAL at about 50% and control pressure manually	
<b>NOTE</b> <ul style="list-style-type: none"> <li>IF PT-430 OR PT-431 has failed to &lt; 2335 psig THEN PRZR PORV PCV-430 will only operate by MANUAL actions until the PRZR pressure defeat switch is selected to operable channels.</li> <li>PORV Interlocks will be affected IF PT-429 OR PT-431 has failed. PT-429 affects PCV-430. PT-431 affects PCV-431C.</li> </ul>			
	HCO	(Step 6.3.2) IF PT-429 OR PT-431 has failed, THEN .....	<b>NOTE:</b> Neither PT-429 nor PT-431 has failed.
	HCO	(Step 6.3.3) IF hot leg streaming has been causing single channel $\Delta T$ runback signals, THEN.....	<b>NOTE:</b> hot leg streaming has NOT been causing runback signals.

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 25 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
<b>NOTE</b>			
Completing the attachment changes $\Delta T$ runback and rod stop logic to 2/3, and changes $\Delta T$ reactor trip logic to 1/3 on the remaining channels.			
	HCO	(Step 6.3.4) REFER TO the appropriate attachment to defeat the associated control functions:	<b>NOTE:</b> The US will go to the PRZR PRESSURE PI-449 YELLOW CHANNEL Attachment 8.
			<b>NOTE:</b> The US will hand this off to the CO.
<b>ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE ATTACHMENT 8 YELLOW CHANNEL - PRZR PRESSURE PI-449</b>			
			<b>NOTE:</b> The CO will likely conduct Instrument Defeat Brief.
	HCO	(Step 1) IF PRZR Pressure channel failure resulted in a runback, THEN .....	<b>NOTE:</b> The failure did NOT result in a runback.
<b>NOTE</b>			
Performing the following step will remove the affected channel input to PC-431K controller and replace the input with the input from PI-429:			
	CO	(Step 2) In the PLP PRZR PRESS AND LEVEL rack, VERIFY the PRZR pressure DEFEAT switch P/429A position. <ul style="list-style-type: none"> <li>IF P/429A is in NORMAL, THEN place P/429A to DEFEAT-1.</li> </ul>	<b>NOTE:</b> The CO will unlock and open the PLP PRZR PRESS AND LEVEL Rack Cabinet, take the required action, and then close and lock the cabinet door.
<b>NOTE</b>			
The following Step removes the input from the following functions: <ul style="list-style-type: none"> <li><math>\Delta T</math> Runback and Rodstop</li> <li>RIL computer</li> <li>Annunciator F-30 OP DELTA T TURBINE RUNBACK</li> <li>Annunciator F- 31 OT DELTA T TURBINE RUNBACK</li> </ul>			

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 26 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 3) In the RIL INSERTION LIMIT rack, PLACE T/405F DELTA T DEFEAT switch to Loop B UNIT 2.	<b>NOTE:</b> The CO will unlock and open the RIL Insertion Limit Rack Cabinet, take the required action, and then close and lock the cabinet door.
<p align="center"><b>NOTE</b></p> <p>The following bistable status lights are expected to be lit after the DEFEAT:</p> <ul style="list-style-type: none"> <li>• PRZR Lo Press PC449A (Trip)</li> <li>• OTΔT LOOP B TC408C</li> </ul> <p>The following Annunciators are expected to be lit after the DEFEAT:</p> <ul style="list-style-type: none"> <li>• F-27, PRESSURIZER LO PRESS CHANNEL ALERT 1873 PSI</li> <li>• F-23, RCS OT DELTA T CHANNEL ALERT</li> </ul>			
	CO	(Step 4) DETERMINE the expected Bistable proving light status for the post defeat condition as follows:	
		RECORD the following Data:	
		<ul style="list-style-type: none"> <li>• PRZR Pressure PI-449 _____ PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>• LOOP 1B-2 Δ TEMP TI-408B _____ °F</li> </ul>	
		<ul style="list-style-type: none"> <li>• OTΔT SP1 LOOP 1B-2TEMP TI-408A _____ °F</li> </ul>	
		DETERMINE the expected post defeat Bistable proving light status and circle the expected status in table below:	
		408 LOOP B-2 <ul style="list-style-type: none"> <li>• OVERTEMP TRIP Light OFF IF TI-408B ≥ TI-408A</li> </ul>	<b>NOTE:</b> The CO will determine that the Proving Light should be ON in the Post-Defeat condition.
		449 CHANNEL 4 <ul style="list-style-type: none"> <li>• LOW PRESS TRIP Light OFF IF PI-449 ≤ 1873 psig</li> </ul>	<b>NOTE:</b> The CO will determine that the Proving Light should be ON in the Post-Defeat condition.

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 27 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 5) In the (YELLOW) Y-1 PROTECTION CHANNEL 4 rack, PLACE the following bistable proving switches to DEFEAT (UP) AND verify the proving light status is correct: <u>408 LOOP B-2</u> <u>OVER TEMP TRIP</u> <u>449 CHANNEL 4</u> <u>LOW PRESS TRIP</u>	<b>NOTE:</b> The CO will unlock and open the Y-1 PROTECTION CHANNEL 4 Rack Cabinet, take the required action, and then close and lock the cabinet door.  <b>NOTE:</b> Both B/S proving lights should be ON after defeat.
	HCO	(Step 6) PLACE the PRZR pressure recorder transfer switch (MCB) to position 1-3	
	HCO	(Step 7) VERIFY the bistable status lights AND Annunciators listed above are lit.	
	HCO/ CO	(Step 8) DELETE 404/408 from processing by performing the following on the PPCS: <ul style="list-style-type: none"> <li>• SELECT "Group Update" display</li> <li>• SELECT "List Server Groups"</li> <li>• SELECT 404_408 from the pick list</li> <li>• TURN "OFF" scan processing, THEN click the "Set Scan Processing" button</li> <li>• ANSWER prompts</li> <li>• SELECT the "Sub/Delete/Restore" display</li> <li>• SELECT Point ID T0404</li> <li>• TURN "ON" scan processing</li> <li>• SELECT "Change"</li> <li>• ANSWER prompts</li> <li>• SELECT the "Sub/Delete/Restore" display</li> <li>• SELECT Point ID P0449</li> <li>• TURN "OFF" scan processing</li> <li>• SELECT "Change"</li> <li>• ANSWER prompts</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 28 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 9) GO TO step 6.3.5	<b>NOTE:</b> The US will return to the body of the procedure.
<b>ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE</b>			
	HCO/ CO	(Step 6.3.5) RESTORE the following systems to automatic operation as necessary:	
		• PRZR Pressure control:	
		• HC-431K	
		• PRZR Spray Valves	
		• PRZR Heaters	
		• PRZR Level control	
		• Rod Control	
		• Steam Dump Turbine	
		• Turbine EH Control	
	HCO	(Step 6.3.6) OPEN any PORV Block Valve closed in step 6.3.2.	
	US	(Step 6.3.7) REFER TO the following ITS Sections for LCO's:	<b>Examiner Note:</b> See Tech Spec evaluation on <b>Page 31</b> .
		• Section 3.3.1, Table 3.3.1-1, Functions 5, 7a and 7b (7b not required for PT-449)	
		• Section 3.3.2, Table 3.3.2-1, Function 1d (not required for PT-449)	
		• Section 3.3.3, Table 3.3.3-1, Functions 1 and 6	
	US	(Step 6.3.8) REFER TO TRM 3.4.3, Anticipated Transients Without Scram (ATWS) mitigation.	
	CO	(Step 6.3.9) IF turbine runback has occurred AND rods are in MANUAL, THEN.....	



Op Test No.: N20-1 Scenario # 1 Event # 2 Page 29 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 6.3.10) RESTORE AUTO Rod Control, if desired.	
	US	(Step 6.3.11) GO TO step 6.16.	
	HCO	(Step 6.16.1) IF necessary, VERIFY an operable channel is selected for the affected recorder.	
	HCO/ CO	(Step 6.16.2) VERIFY the following systems in AUTO if desired:	
		<ul style="list-style-type: none"> <li>Rod control</li> </ul>	
		<ul style="list-style-type: none"> <li>Turbine EH control</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR Pressure control</li> </ul>	
		<ul style="list-style-type: none"> <li>HC 431K</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR spray valves</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR heaters</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR level control</li> </ul>	
		<ul style="list-style-type: none"> <li>Steam Dump (unless 1<sup>st</sup> stage pressure failed)</li> </ul>	
		<ul style="list-style-type: none"> <li>MFW control</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G Atmos Relief Vlv Control</li> </ul>	
	US	(Step 6.16.3) NOTIFY the following people:	<b>NOTE:</b> The US may call WCC/Supervision to address the failed Instrument. If so, <b>SIM DRIVER</b> acknowledge as WCC/Supervision.
		<ul style="list-style-type: none"> <li>Operations Supervision</li> </ul>	
		<ul style="list-style-type: none"> <li>STA</li> </ul>	
		<ul style="list-style-type: none"> <li>Work Week Manager</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 30 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 6.16.4) UPDATE the Temporary Configuration Change Tracking Log for the following as necessary:	
		<ul style="list-style-type: none"> <li>Jumper removal</li> </ul>	
		<ul style="list-style-type: none"> <li>Lifted wires</li> </ul>	
		<ul style="list-style-type: none"> <li>Slide links</li> </ul>	
	US	(Step 6.16.5) REFER to the following for Notification Requirements:	<b>NOTE:</b> The US may call the SM to address any notification requirements. If so, <b>SIM DRIVER</b> acknowledge as SM.
		<ul style="list-style-type: none"> <li>LS-AA-1020, REPORTABILITY TABLES AND DECISION TREES</li> </ul>	
		<ul style="list-style-type: none"> <li>OPG-NOTIFICATION, REQUIRED NOTIFICATIONS TO THE PSC/PIO/CEG SENIOR MANAGEMENT/OPERATIONS MANAGEMENT</li> </ul>	
<b>AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE</b>			
	HCO	(Step 17.b) Verify PRZR Spray Valves in Auto.	
	HCO	(Step 17.c) Verify PRZR Heaters restored: <ul style="list-style-type: none"> <li>PRZR proportional heaters breaker – CLOSED</li> <li>PRZR backup heaters breaker – RESET, IN AUTO</li> </ul>	
	US	(Step 18) Evaluate MCB Annunciator Status (Refer to AR Procedures)	
<b>NOTE</b> Refer to O-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.			

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 31 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 19) Notify Higher Supervision	<b>NOTE:</b> The US may notify supervision. <b>SIM DRIVER:</b> acknowledge as required.
	US	(Step 20) Notify Reactor Engineer for Transient Monitoring Program	<b>NOTE:</b> The US may notify RE. <b>SIM DRIVER:</b> acknowledge as required.
			<b>NOTE:</b> The US will address the Technical Specifications.
<b>TECHNICAL SPECIFICATION 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DEPARTURE FROM NUCLEATE BOILING (DNB) LIMITS</b>			
	US	(LCO 3.4.1) RCS DNB Parameters for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified in the COLR	<b>NOTE:</b> The US may determine that the crew be in and then out of this Technical Specification during this event (<2175 psig).
		APPLICABILITY: Mode 1.	
CONDITION		REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.		A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
<b>TECHNICAL SPECIFICATION 3.3.1, REACTOR TRIP (RTS) INSTRUMENTATION</b>			
	US	LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.	
		APPLICABILITY: According to Table 3.3.1-1 (Functions 5, 7a)	
CONDITION		REQUIRED ACTION	COMPLETION TIME

Op Test No.: N20-1 Scenario # 1 Event # 2 Page 32 of 76Event Description: **Pressurizer Pressure (PT-449) fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
A. One or more functions with one channel inoperable.		A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s).	Immediately
D. As required by Required Action A.1 and referenced by Table 3.3.1-1		D.1 Place channel in trip	6 hours
K. As required by Required Action A.1 and referenced by Table 3.3.1-1		K.1 Place channel in trip	6 hours
			<b>NOTE:</b> The US will determine that Condition A, D and K are applicable.
<b>TECHNICAL REQUIREMENT 3.4.3, ANTICIPATED TRANSIENTS WITHOUT SCRAM (ATWS) MITIGATION</b>			
	US	TR 3.4.3 ATWS Mitigation shall be OPERABLE as follows:	
		<ul style="list-style-type: none"> <li>Each PORV shall be capable of automatic actuation and each block valve shall be open;</li> </ul>	
		<ul style="list-style-type: none"> <li>Manual rod insertion shall be OPERABLE; and</li> </ul>	
		<ul style="list-style-type: none"> <li>ATWS Mitigation System Actuation Circuitry (AMSAC) shall be OPERABLE.</li> </ul>	
		APPLICABILITY MODE 1 > 45% RTP.	
CONDITION		REQUIRED ACTION	COMPLETION TIME
A. One or more PORV automatic flow path inoperable.		A.1 Declare ATWS mitigating capability inoperable.	Immediately
			<b>NOTE:</b> The US will determine that Condition A is applicable.
<b>At the discretion of the Lead Examiner move to Event #3.</b>			

Op Test No.: N20-1 Scenario # 1 Event # 3 Page 33 of 76Event Description: **A ARV Fails OPEN (3411)**

Subsequently, the controller for the A SG ARV will fail such that the valve will travel to the fully OPEN position. The operator will respond using A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and/or AP-FW.2, "Secondary Coolant Leak," and take manual control of the ARV-3411 and close the valve.

**SIM DRIVER Instructions:** **Operate Trigger #4 (STM04A (100% - 45 second ramp))**

**Indications Available:**

- Steam Noise is heard as the valve OPENS
- AOV-3411 Controller Green Status Light goes DARK.
- AOV-3411 Red Status light on MCB Panel 6 is LIT (Vertical Section).
- AOV-3411 Controller output goes toward 100% demand.
- Tavg decreases slightly
- Pzr Pressure decreases slightly
- Rx power increases slightly
- PPCS Alarm Point V3411 A ARV OPEN goes into ALARM
- Turbine load reduces automatically

Time	Pos.	Expected Actions/Behavior	Comments
			<b>NOTE:</b> The crew may take early action per the guidance of A-503.1 (Step 5.3.A.5) and/or go to AP-FW.2.
<b>A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE</b>			
	CO	(Step 5.3.A.5) Actions are permitted to mitigate or compensate for equipment or controller failures to isolate leaks. Permitted actions include those actions necessary to take manual control and stabilize the affected parameters, or to isolate a leak. Examples include closing or isolating a failed open PORV, taking manual control of a failed FRV controller, etc. These deviations fall under the Maintenance Rule. Therefore, 50.59 is not required.	<b>NOTE:</b> It is expected that the CO will take manual control of the valve.
		OR	
<b>AP-FW.2, LOSS OF SECONDARY COOLANT</b>			

Op Test No.: N20-1 Scenario # 1 Event # 3 Page 34 of 76Event Description: **A ARV Fails OPEN (3411)**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(*Step 1) Determine if Plant Operation can continue:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Leak does not present an unmanageable safety threat.</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT Pressure is being maintained less than 2 psig.</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT Temperature is being maintained less than 125°F.</li> </ul>	
		<ul style="list-style-type: none"> <li>Safe Shutdown Equipment Operability is not affected.</li> </ul>	
		<ul style="list-style-type: none"> <li>Leakage is within make-up capability (GE BETZ).</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G Level Stable at or Trending to 52%.</li> </ul>	
	HCO/ CO	(*Step 2) Determine if a Load Reduction is required:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Rx Power less than or equal to 100%.</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G Level Stable at or Trending to 52%.</li> </ul>	
		<ul style="list-style-type: none"> <li>MFW Pump Suction Pressure greater than 200 psig and stable.</li> </ul>	
	HCO	(Step 3) Check Containment conditions NORMAL.	
		<ul style="list-style-type: none"> <li>CNMT Humidity (PPCS Point: TCVDEW-S)</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT Pressure</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT Sump A Level</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT Air Temperature (PPCS Point: TCV17)</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT Recirc Fan Cooler Dump Frequency</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 3 Page 35 of 76Event Description: **A ARV Fails OPEN (3411)**

Time	Pos.	Expected Actions/Behavior	Comments
<b>CAUTION</b> WHEN PERSONNEL ARE DISPATCHED TO LOCATE THE LEAK LOCATION, EXTREME CARE MUST BE TAKEN TO PREVENT THE POTENTIAL FOR INJURY DUE TO THE LEAK.			
	CO	(Step 4) Check for Secondary Leak to Atmosphere.	<b>NOTE:</b> The A ARV has failed OPEN.
		<ul style="list-style-type: none"> <li>Check S/G Safety Valves CLOSED (PPCS POINTS: VMSSVA and VMSSVB)</li> </ul>	
		<ul style="list-style-type: none"> <li>Check S/G ARVs CLOSED</li> </ul>	
	CO	(Step 4.b RNO) Place the ARV controllers in Manual and Close the Valves.	<b>NOTE:</b> Early action may have been taken to close the A ARV.
		IF the Valve will not close THEN...	
	CO	<ul style="list-style-type: none"> <li>(Step 4 Continued) Verify no Steam or Feedwater Leakage in the Turbine or Intermediate Building (cleanside)</li> </ul>	
		<ul style="list-style-type: none"> <li>Dispatch AO as necessary to investigate leakage.</li> </ul>	<b>NOTE:</b> An EO may not be dispatched to look for leaks because the Steam Noise has been eliminated when action was taken to close the A ARV manually.
	HCO/ CO	(Step 5) Check Condenser Steam dump valves shut if not required for RCS Temp Control	
<b>NOTE</b> Isolation of MSR will require load reduction less than 70% pwr.			
	HCO/ CO	(Step 6) Check MSR Tubes intact:	
		<ul style="list-style-type: none"> <li>Check PPCS Server group MSR reading normal for each MSR</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 3 Page 36 of 76Event Description: **A ARV Fails OPEN (3411)**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Consult with System Engineering to determine if MSR Isolation is required.</li> </ul>	
<b>NOTE</b> <ul style="list-style-type: none"> <li>An HP Turbine rub could result from extended operations with 5A or 5B heater isolated.</li> <li>Isolation of a #4 or #5 Heater will require a load reduction to less than 50% Power.</li> </ul>			
	CO	(Step 7) Check Feedwater Heater intact:	
		<ul style="list-style-type: none"> <li>Check MCB Alarm H-29 FDWTR HTR and Drain Tank Hi-Lo level Extinguished.</li> </ul>	
		<ul style="list-style-type: none"> <li>Dump Valves Shut: (HDT Page on PPCS)</li> </ul>	
		<ul style="list-style-type: none"> <li>V-3343 for HDT</li> </ul>	
		<ul style="list-style-type: none"> <li>V-5557 for 3A Heater</li> </ul>	
		<ul style="list-style-type: none"> <li>V-3347 for 5A Heater</li> </ul>	
		<ul style="list-style-type: none"> <li>V-5560 for 3B Heater</li> </ul>	
		<ul style="list-style-type: none"> <li>V-3348 for 5B Heater</li> </ul>	
		<ul style="list-style-type: none"> <li>V-5561 for 1A Heater</li> </ul>	
		<ul style="list-style-type: none"> <li>V-5559 for 2A Heater</li> </ul>	
		<ul style="list-style-type: none"> <li>V-5556 for 1B Heater</li> </ul>	
		<ul style="list-style-type: none"> <li>V-5558 for 2B Heater</li> </ul>	
	US	(Step 8) Evaluate effect on continued Plant operation:	
		<ul style="list-style-type: none"> <li>Refer to the following Technical Specifications:</li> </ul>	<b>NOTE:</b> The US may refer to Technical Specification 3.7.4, however, it will be determined that LCO 3.7.4 is met.
		<ul style="list-style-type: none"> <li>ITS Section 3.7 Plant System</li> </ul>	
		<ul style="list-style-type: none"> <li>ITS Section 3.7.4 ARV's</li> </ul>	<b>NOTE:</b> The US will determine that the failed ARV is OPERABLE.
		<ul style="list-style-type: none"> <li>ITS Section 3.7.6 CST's</li> </ul>	



Op Test No.: N20-1 Scenario # 1 Event # 3 Page 37 of 76Event Description: **A ARV Fails OPEN (3411)**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>ITS Section 3.6.4 Containment Pressure</li> </ul>	
		<ul style="list-style-type: none"> <li>ITS Section 3.6.5 Containment Temperature</li> </ul>	
<b>NOTE</b> Refer to CNG-NL-1.01-1004 Regulatory Reporting.			
	US	(Step 9) Check if Plant Shutdown and Cooldown Required:	
		<ul style="list-style-type: none"> <li>Consult with SM and Plant Management if plant shutdown and cooldown required</li> </ul>	<b>NOTE:</b> The US may call WCCS/Supervision to address the Tech Spec Required Shutdown (Previous Event) and the ARV failure.  If so, <b>SIM DRIVER</b> acknowledge as WCCS/Plant Supervision; and state that management will call back with a Shutdown direction.
	US	(Step 9.a RNO) Return to Procedure and Step in effect.	
			<b>NOTE:</b> The US will likely conduct a Plant Status Brief.
<b>At the discretion of the Lead Examiner move to Event #4.</b>			

Op Test No.: N20-1 Scenario # 1 Event # 4 Page 38 of 76Event Description: **Unscheduled Trip of Transmission Circuits/Downpower**

Then, the off-site transmission circuit 908 will de-energize, and the RG&E Energy Control Center (ECC) will request that Ginna verbally certify that the plant is capable of ramping down to 490 MWe net generation in 14 minutes upon subsequent notification from ECC. The operator will respond in accordance with AR-J-28, "STATION 13A TROUBLE," enter O-6.9, "Ginna Station Operating Limits for Station 13A Transmission," and prepare for plant shutdown. After this, the off-site transmission circuit 913 will also de-energize and the ECC will call requesting that the previously agreed to downpower be executed. The operating crew will enter AP-TURB.5, "Rapid Load Reduction," and lower plant power to 490 MWe.

**SIM DRIVER Instructions:** **Operate Trigger #5 (Circuit Breaker 90812 - REM-EDS-025 (OPEN) Circuit Breaker 7X13A72 - REM-EDS-023 (OPEN) (Loss of Circuit 908)**

**Immediately after the recognition of the PPCS Alarms, contact the Control Room as RG&E ECC and state the following:**

**This is RG&E Energy Control Center. Circuit 908 has been lost, the exact cause is unknown, and crews are in route. There is no net generation reduction required at this time. RG&E ECC requests that Ginna verbally certify that the plant is capable of ramping down to 490 MWe net generation in 14 minutes upon Subsequent notification from RG&E ECC.**

**Indications Available:**

- PPCS Alarm Point B7X13A72 Station 13A Breaker 7X13A72 in ALARM
- PPCS Alarm Point B90812 Station 13A Breaker 90812 in ALARM
- MCB Annunciator J-28, STATION 13A TROUBLE

Time	Pos.	Expected Actions/Behavior	Comments
<b>AR-J-28, STATION 13A TROUBLE</b>			
	US	(Step 4.1) NOTIFY Plant Electricians to investigate.	<b>NOTE:</b> The US may notify the WCC/Electricians. <b>SIM DRIVER:</b> as <b>WCCS</b> , acknowledge.
	CO	(Step 4.2) VERIFY proper generator/system voltages.	

Op Test No.: N20-1 Scenario # 1 Event # 4 Page 39 of 76Event Description: **Unscheduled Trip of Transmission Circuits/Downpower**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 4.3) VERIFY proper breaker alignment. Refer to PPCS Electrical Distribution Display by clicking on "Station 13 Electrical" in the top menu display.	
	US	(Step 4.4) REFER to O-6.9, OPERATING LIMITS FOR GINNA STATION TRANSMISSION.	
			<b>NOTE:</b> The US will go to O-6.9.
<b>O-6.9, GINNA STATION OPERATING LIMITS FOR STATION 13A TRANSMISSION</b>			
<p style="text-align: center;"><b>NOTE</b></p> <p>The following information SHALL be provided by RG&amp;E ECC:</p> <ul style="list-style-type: none"> <li>• The transmission circuit(s) that is (are) out of service or scheduled to be taken out of service.</li> <li>• The net generation (MW) level the plant is to immediately ramp down to per grid conditions, IF required.</li> <li>• The net generation (MW) level the plant must certify it can ramp down to within 4, 14 or 29 minutes upon SUBSEQUENT notification to reduce power.</li> </ul>			
	US	(Step 6.1.1) AFTER CONFERRING with an SRO THEN INFORM RG&E ECC the plant is capable of meeting the reduced net generation level within 4, 14 or 29 minutes upon SUBSEQUENT notification.	<p><b>NOTE:</b> The US/CO may notify RG&amp;E ECC that the plant is capable of meeting the reduced net generation level within 4, 14 or 29 minutes upon SUBSEQUENT notification.</p> <p><b>SIM DRIVER:</b> as <b>RG&amp;E ECC</b>, acknowledge.</p>
	US	(Step 6.1.2) Shift Manager SHALL COMPLETE Attachment 1, Generation Output Ramp Down Written Certification, AND FAX a copy to RG&E ECC within 15 minutes of being notified of certification request.	<p><b>NOTE:</b> The US will direct the SM to perform this action.</p> <p><b>SIM DRIVER:</b> as <b>SM</b>, acknowledge.</p>

Op Test No.: N20-1 Scenario # 1 Event # 4 Page 40 of 76Event Description: **Unscheduled Trip of Transmission Circuits/Downpower**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 6.1.3) IMMEDIATELY REDUCE net generation to the level directed by RG&E ECC for the trip or scheduled outage of a transmission circuit. OTHERWISE, MARK this Step N/A.	<b>NOTE:</b> The US will mark this Step NA.
<b>NOTE</b> <ul style="list-style-type: none"> <li>RG&amp;E ECC will notify Ginna of any overload conditions AND the net generation level the plant is to operate at during the abnormal transmission condition.</li> <li>Maximum continuous load reduction greater than 5% per minute requires Shift Manager approval.</li> </ul>			
	US	(Step 6.1.4) REFER TO AP-TURB.5, Rapid Load Reduction, for preparations to meet the load reduction time limit(s).	
	US	(Step 6.1.5) IF either generator output breaker (1G13A72 or 9X13A72) is out of service OR has tripped....	<b>NOTE:</b> Neither breaker is OOS or tripped.
	US	(Step 6.1.6) IF NECESSARY COORDINATE with RG&E ECC in lowering VAR's to lower generator output current. OTHERWISE, MARK this Step N/A.	
<b>NOTE</b> <p>A Pre Job Brief SHALL include:</p> <ul style="list-style-type: none"> <li>Required load reduction rate required to meet the certification time.</li> <li>Manual OR Automatic EHC operation desired.</li> <li>Estimated quantity of boron required to complete load reduction.</li> <li>Expected boron addition rate.</li> <li>Final desired power level.</li> </ul>			
	US	(Step 6.1.7) PERFORM a Pre Job Briefing so that immediate load reductions can commence upon notification from RG&E ECC of a subsequent circuit failure.	

Op Test No.: N20-1 Scenario # 1 Event # 4 Page 41 of 76Event Description: **Unscheduled Trip of Transmission Circuits/Downpower**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 6.1.8) WHEN notification is received from RG&E ECC that a SUBSEQUENT loss of transmission circuit has occurred, THEN REDUCE net generation to the level directed by RG&E ECC within the required time limit(s).	
<b>SIM DRIVER Instructions:</b> <b>Operate Trigger #6 (Circuit Breaker 91302 - REM-EDS-031 (OPEN) (Loss of Circuit 913)</b>  <b>Immediately after the recognition of the PPCS Alarms, contact the Control Room as RG&amp;E ECC and state the following:</b>  <b>This is RG&amp;E Energy Control Center. Circuit 913 has been lost, the exact cause is unknown, and crews are in route. Reduce net generation to the level directed by the previous guarantee 490 MWe net generation within 14 minutes.</b>			
<b>Indications Available:</b> <ul style="list-style-type: none"> <li>PPCS Alarm Point B91302 Station 13A Breaker 91302 in ALARM</li> <li>MCB Annunciator J-28, STATION 13A TROUBLE</li> </ul>			
			<b>NOTE:</b> The US has already conducted a Power Reduction Brief.
<b>AP-TURB.5, RAPID LOAD REDUCTION</b>			
<b>CAUTION</b> IF MAIN FEEDWATER FLOW SHOULD LOWER TO 25% OF FULL POWER FLOW (1x106 LB/HR) PRIOR TO THE AMSAC SYSTEM AUTOMATICALLY BLOCKING AT 40% POWER, THEN A TURBINE TRIP AND AUX FEED PUMPS START COULD RESULT.			
<b>NOTE</b> <ul style="list-style-type: none"> <li>IF the turbine is to be taken offline, THEN transfer of 4160V loads may be performed at any time. Refer to ATT-23.0, ATTACHMENT TRANSFER 4160V LOADS.</li> <li>A maximum continuous load reduction rate of greater than 5%/min should not be used unless directed by the Shift Manager.</li> <li>Perform a Load Reduction Brief per A-503.1 Emergency and Abnormal Procedures User Guide Attachment 1.</li> </ul>			
	HCO	(Step 1) Initiate Load Reduction	
		<ul style="list-style-type: none"> <li>Verify rods in AUTO</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 4 Page 42 of 76Event Description: **Unscheduled Trip of Transmission Circuits/Downpower**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	<ul style="list-style-type: none"> <li>Initiate boration at the rate determined in OPG-REACTIVITY-CALC.</li> </ul>	<b>NOTE:</b> The HCO will initiate a boration per S-3.1.
<b>S-3.1, BORON CONCENTRATION CONTROL ATTACHMENT 2, NORMAL BORATION</b>			
	HCO	(Step 1) ENSURE Attachment 1, Makeup Determinations, is complete.	
	HCO	(Step 2) Board operator SHALL inform US of intent to change core reactivity.	
		<ul style="list-style-type: none"> <li>US SHALL acknowledge reactivity manipulation and provide input and oversight. [G0092].</li> </ul>	
	HCO	(Step 3) PLACE RMW MODE SELECTOR control switch to BORATE position.	
	HCO	(Step 4) SET BA TO BA BLENDER FLOW CONTROL VALVE, HCV-110A, controller to flow rate determined in Attachment 1, Makeup Determinations, Step 1.1.	
	HCO	(Step 5) SET BA COUNTER, YIC-110, to quantity determined in Attachment 1.	
<b>NOTE</b>			
Key parameters including Reactor Coolant Tavg AND control rod position indication, OR subcritical count rate SHALL be observed as boric acid is injected to ensure proper response. [G0092] [G0132]			
	HCO	(Step 6) PLACE RMW CONTROL switch to START position.	
	HCO	(Step 7) VERIFY the following:	

Op Test No.: N20-1 Scenario # 1 Event # 4 Page 43 of 76Event Description: **Unscheduled Trip of Transmission Circuits/Downpower**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>BORIC ACID TRANSFER PUMP A OR B starts.</li> </ul>	
		<ul style="list-style-type: none"> <li>BA TO BA BLENDER FLOW CONTROL VLV, HCV-110A, throttles open to preset flow position.</li> </ul>	
		<ul style="list-style-type: none"> <li>REACTOR MAKEUP TO CHG PUMP, AOV-110B, opens.</li> </ul>	
	HCO	(Step 8) WHEN boration is complete, THEN PERFORM the following:	
		<ul style="list-style-type: none"> <li>PLACE RMW MODE SELECTOR control switch to AUTO position.</li> </ul>	
		<ul style="list-style-type: none"> <li>PLACE RMW CONTROL switch to START position and VERIFY RMW control red light ILLUMINATED.</li> </ul>	
		<ul style="list-style-type: none"> <li>SET BA TO BA BLENDER FLOW CONTROL VLV, HCV-110A, for current RCS boron concentration PER Boration/Dilution tables OR PPCS Engineering Menu Boration/Dilution display.</li> </ul>	
	HCO	(Step 9) PLACE "BORATE" Human Performance Label next to RMW Mode Selector switch on MCB.	
	HCO	(Step 10) Board operator SHALL inform US that reactivity manipulation is complete. [G0092]	
	HCO	(Step 11) RECORD amount of boric acid added on S-12.4, RCS Leakage Surveillance Record Instructions, Attachment RCS Leakage Surveillance Record.	
<b>AP-TURB.5, RAPID LOAD REDUCTION</b>			
	CO	<ul style="list-style-type: none"> <li>Reduce turbine load in Auto as follows:</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 4 Page 44 of 76Event Description: **Unscheduled Trip of Transmission Circuits/Downpower**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Place Turbine EH Control in OPER PAN., IMP PRESS IN, if desired.</li> </ul>	
		<ul style="list-style-type: none"> <li>Select desired rate on thumbwheel</li> </ul>	<b>NOTE:</b> The CO will select 1-2%/Minute.
		<ul style="list-style-type: none"> <li>Reduce the setter to the desired load</li> </ul>	
		<ul style="list-style-type: none"> <li>Depress the GO button</li> </ul>	
	HCO	<ul style="list-style-type: none"> <li>Place PRZR backup heaters switch to ON</li> </ul>	
<b>CAUTION</b> EXTREME AND RAPID ROD MOTION TO MITIGATE TAVG SWINGS MAY RESULT IN LARGE POWER EXCURSIONS AND SHOULD BE AVOIDED.			
	HCO	(*Step 2) Monitor RCS Tavg	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Tavg – GREATER THAN 545°F</li> </ul>	
		<ul style="list-style-type: none"> <li>Tavg – LESS THAN 579°F</li> </ul>	
	HCO	(Step 3) Adjust Boric Acid Addition Rate As Necessary To (refer to OPG-REACTIVITY-CALC):	
		<ul style="list-style-type: none"> <li>Maintain rods above the insertion limit</li> </ul>	
		<ul style="list-style-type: none"> <li>Match Tavg and Tref</li> </ul>	
		<ul style="list-style-type: none"> <li>Compensate for Xenon</li> </ul>	
<b>NOTE</b> With PRZR pressure controller in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3)			
	HCO	(*Step 4) Monitor PRZR Pressure – TRENDING TO 2235 PSIG IN AUTO	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.



Op Test No.: N20-1 Scenario # 1 Event # 4 Page 45 of 76Event Description: **Unscheduled Trip of Transmission Circuits/Downpower**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(*Step 5) Monitor MFW Regulating Valves – RESTORING S/G LEVEL TO 52% IN AUTO	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
	HCO	(*Step 6) Monitor PRZR Level – TRENDING TO PROGRAM IN AUTO CONTROL	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
<b>SIM DRIVER: Operate Trigger #7 (FDW07C (Current Controller Output in %)) to initiate Event 5.</b>			
			<b>Examiner NOTE:</b> See Page 47 for MCB Indications of this failure. When the Crew diagnoses the failed Feed Reg Valve, MOVE to Event #5.
<p align="center"><b>NOTE</b></p> <p>It is permissible to operate RCPs for limited periods without seal injection, provided CCW is being supplied to the thermal barriers.</p>			
	CO	(Step 7) Check IA Available to CNMT	
		<ul style="list-style-type: none"> <li>IA pressure – GREATER THAN 60 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Instr Air to CNMT Isol Valve, AOV-5392 - OPEN</li> </ul>	
	CO	(*Step 8) Check Steam Dump Status:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Annunciator G-15, STEAM DUMP ARMED - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Steam dump operating properly in AUTO</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 4 Page 46 of 76Event Description: **Unscheduled Trip of Transmission Circuits/Downpower**

Time	Pos.	Expected Actions/Behavior	Comments
<b>CAUTION</b>			
MANUAL REJECT MAY BE REQUIRED TO PREVENT SIGNIFICANT AFFECT ON CONDENSATE PRESSURE			
	CO	(Step 9) Check Hotwell Level:	
		<ul style="list-style-type: none"> <li>Hotwell level controller in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Controller demand LESS THAN 60%</li> </ul>	
		<ul style="list-style-type: none"> <li>Hotwell level at setpoint</li> </ul>	
<b>NOTE</b>			
The load reduction should not be delayed to perform the remaining steps.			
	CO	(*Step 10) Check If Condensate Booster Pumps Should Be Secured	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Condensate booster pumps – 2 PUMPS RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify Reactor power is 70-75%</li> </ul>	
	US	(Step 10b RNO) GO TO Step 18.	
	US	(Step 18) Evaluate Plant Status	
		<ul style="list-style-type: none"> <li>IF load was reduced more than 15% RTP in one hour, THEN notify RP to obtain primary samples required by ITS LCO 3.4.16</li> </ul>	<b>NOTE:</b> The US will contact RP. <b>SIM DRIVER:</b> as RP, acknowledge
		<ul style="list-style-type: none"> <li>Power stable at desired level</li> </ul>	
		(Step 18b RNO) IF power greater than 20% and further reduction is required, THEN continue load reduction and return to Step 2.	
<b>When the Crew diagnoses the failed Feed Reg Valve, Lead Examiner move to Event #5.</b>			

Op Test No.: N20-1 Scenario # 1 Event # 5 Page 47 of 76Event Description: **B FRV fails AS-IS (Manual Control Available)**

During the load reduction, a failure of the B FRV to control in AUTO will occur. The operator will respond per AR-G-5, "S/G B LEVEL DEVIATION  $\pm 7\%$ ," or upon observing an abnormally high level in the B Steam Generator and control the B FRV manually.

**SIM DRIVER Instructions:** **Trigger #7 (FDW07C (Current Controller Output in %)) [Operated during Event 4]**

**Indications Available:**

- Feed flow in the B SG will stabilize during the downpower
- B SG level starts to rise.
- MCB Annunciator G-22, ADFCS SYSTEM TROUBLE
- MCB Annunciator G-5, S/G LEVEL DEVIATION  $\pm 7\%$

Time	Pos.	Expected Actions/Behavior	Comments
			<b>NOTE:</b> The CO will dispatch the EO to the relay room to check the ADFCS Panel. <b>SIM DRIVER:</b> as EO report that ADFCS Panel indicates "Control Card Failure" after 3 minutes.
<b>AR-G-5, S/G LEVEL DEVIATION <math>\pm 7\%</math></b>			
	CO	(Step 4.1) PERFORM a channel check of the following:	
		• LI-471	
		• LI-472	
		• LI-473	
	CO	(Step 4.2) IF Main Feedwater is supplying the S/G, THEN PERFORM the following as necessary:	
		• PLACE SG B MFW REG VLV HCV-476 in MANUAL.	<b>NOTE:</b> The CO will take manual control of the B FRV, and control B S/G level manually.
		• PLACE FW FLOW LOOP B BYPASS VLV HCV-481 in MANUAL.	
		• CONTROL SG level manually.	

Op Test No.: N20-1 Scenario # 1 Event # 5 Page 48 of 76Event Description: **B FRV fails AS-IS (Manual Control Available)**

Time	Pos.	Expected Actions/Behavior	Comments
<b><u>Critical Task:</u></b>			
<b>Manually control the B S/G level during the failure of the B FRV Controller before the Reactor automatically trips due to low S/G level or Feedwater Isolates due to high S/G level</b>			
Safety Significance: failure to control B S/G level and stop the level transient, under the postulated plant conditions, results in an unnecessary transient to the plant and challenge to the Reactor Protection System. Performance of the critical task would stabilize the level transient. A failure to stabilize the level transient, when able to do so, constitutes a mis-operation or incorrect crew performance which leads to incorrect RCS temperature and/or pressure control.			
<b>At the discretion of the Lead Examiner move to Events #6-9.</b>			

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 49 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

After this, Shutdown Bank Control Rod K-9 will be ejected from the core causing a LOCA, and an automatic Rx Trip/SI signal will occur. On the trip the Main Turbine will fail to trip, and the operator will need to manually trip the Turbine. Additionally, the A and the B SI Pumps will fail to start automatically and the B RHR Pump will trip. The operator will be required to manually start both SI Pumps. The operator will enter E-0, "Reactor Trip or Safety Injection," and transition to E-1, "Loss of Reactor or Secondary Coolant." The operator will transition to ECA-1.1, "Loss of Emergency Coolant Recirculation," due to a loss of both RHR Pumps. The operator will take actions to minimize the inventory loss from the RWST. The scenario will terminate at Step 10.a RNO of ECA-1.1, after the crew has stopped one SI Pump.

**SIM DRIVER Instructions:** **Operate Trigger #8 ROD05-K9 (1400 gpm, No Ramp)**

**Indications Available:**

- Pressurizer Pressure starts to lower.
- Containment Pressure starts to rise.
- MRPI indicates a Control Rod K-9 error.

Time	Pos.	Expected Actions/Behavior	Comments
<b>E-0, REACTOR TRIP OR SAFETY INJECTION</b>			
	HCO	(Step 1) Verify Reactor Trip:	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>• At least one train of reactor trip breakers – OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>• Neutron flux – LOWERING</li> </ul>	
		<ul style="list-style-type: none"> <li>• MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM with no instrument fluctuations concurrent with fire.</li> </ul>	<b>NOTE:</b> One Control Rod (K-9) does NOT indicate on the Bottom.
	HCO	(Step 1 RNO) Manually trip reactor.	
		<ul style="list-style-type: none"> <li>• IF reactor trip breakers NOT open OR there is a fire in the power block, THEN.....</li> </ul>	
		<ul style="list-style-type: none"> <li>• IF the reactor will NOT trip OR IF power range NIS indicates greater than 5%, THEN.....</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 50 of 76

Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 2) Verify Turbine Stop Valves - CLOSED	<b>Immediate Action</b>
	CO	(Step 2 RNO) Manually trip turbine.	
		IF turbine trip can NOT be verified, THEN.....	
	CO	(Step 3) Verify sufficient AC Emergency buses Energized To At Least 440 VOLTS:	<b>Immediate Action</b>
		• Bus 14 OR Bus 16	
		AND	
		• Bus 17 OR Bus 18	
	HCO/ CO	(Step 4) Check if SI is Actuated:	<b>Immediate Action</b>
		• Any SI Annunciator – LIT	
		• SI sequencing – BOTH TRAINS STARTED	
<b>NOTE</b> <ul style="list-style-type: none"> <li>FOLDOUT page should be open and monitored periodically.</li> <li>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</li> </ul>			
	HCO/ CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of E-0.
		RCP TRIP CRITERIA	<b>NOTE:</b> This condition is expected to be met when two SI Pumps are running.
		• IF BOTH conditions listed below occur, THEN trip both RCPs:	
		• SI pumps - AT LEAST TWO RUNNING	
		• RCS pressure minus maximum S/G pressure - LESS THAN 210 psi [240 psi adverse CNMT]	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 51 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		LOSS OF SW CRITERIA	
		AFW SUPPLY SWITCHOVER CRITERION	
		SFP COOLING CRITERIA	
		MULTIPLE FUNCTION LOSS CRITERIA	
	HCO	(*Step 5) Verify CNMT Spray Not Required:	<p><b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.</p> <p><b>NOTE:</b> The Containment Pressure is expected to be ≈2 psig and rising slowly.</p>
		<ul style="list-style-type: none"> <li>Annunciator A-27, CNMT SPRAY EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT pressure – LESS THAN 28 PSIG</li> </ul>	
	CO	(Step 6) Direct Operator to Perform ATT-27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION	
			<p><b>NOTE:</b> The US will hand off ATT-27.0 to either the HCO or the CO and continue with the other operator in E-0.</p> <p><b>Examiner</b> following operator performing ATT-27.0 continue below.</p> <p><b>Examiner</b> following operator NOT performing ATT-27.0 continue at <b>Page 56</b>.</p>
<b>E-0, REACTOR TRIP OR SAFETY INJECTION, ATTACHMENT 27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION</b>			
	HCO/CO	(Step 1) Verify SI and RHR Pumps Running:	
		<ul style="list-style-type: none"> <li>All SI pumps – RUNNING</li> </ul>	<p><b>NOTE:</b> The A and B SI Pumps are NOT running.</p>

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 52 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	(Step 1.a RNO) Manually start SI Pumps	
<b><u>Critical Task:</u></b>  <b>Establish flow from at least two SI pumps before transition to E-1, Loss of Reactor or Secondary Coolant</b>  <p>Safety Significance: Failure to manually start at least two SI pumps under the postulated conditions constitutes "mis-operation or incorrect crew performance which leads to degraded ECCS capacity." In this case, at least two SI pumps can be manually started from the control room. Therefore, failure to manually start SI pumps also represents a "demonstrated inability by the crew to (1) Recognize a failure/incorrect auto actuation of an ESF system or component and (2) Effectively direct/manipulate ESF controls. The acceptable results obtained in the FSAR analysis of a small-break LOCA are predicated on the assumption of minimum ECCS pumped injection. The analysis assumes that a minimum pumped ECCS flow rate, which varies with RCS pressure, is injected into the core. The flow-rate values assumed for minimum pumped injection are based on operation of one each of the following ECCS pumps: Two SI pumps and one RHR pump. Operation of this minimum required complement of ECCS injection pumps is consistent with the FSAR assumption that only minimum safeguards are actuated. Because compliance with the assumption of the FSAR is part of the facility license condition, failure to perform the critical task (under the postulated plant conditions) constitutes a violation of the license condition.</p>			
		<ul style="list-style-type: none"> <li>Both RHR pumps – RUNNING</li> </ul>	<b>NOTE:</b> There are NO RHR Pumps running.
	HCO/ CO	(Step 1.b RNO) Manually start RHR Pumps	<b>NOTE:</b> No RHR Pumps can be started.
	HCO/ CO	(Step 2) Verify CNMT RECIRC Fans RUNNING:	
		<ul style="list-style-type: none"> <li>All fans RUNNING</li> </ul>	<b>NOTE:</b> The C CRCF is OOS.
	HCO/ CO	(Step 2.a RNO) Manually start fans	



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Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	<ul style="list-style-type: none"> <li>Charcoal filter dampers green status lights – EXTINGUISHED</li> </ul>	
	HCO/ CO	(Step 3) Check If Main Steamlines Should Be Isolated:	
		<ul style="list-style-type: none"> <li>Any MSIV – OPEN</li> </ul>	
	HCO/ CO	(Step3.a RNO) Go to Step 4.	
	HCO/ CO	(Step 4) Verify MFW Isolation:	
		<ul style="list-style-type: none"> <li>MFW pumps – TRIPPED</li> </ul>	
		<ul style="list-style-type: none"> <li>MFW Isolation valves - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G A, AOV-3995</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G B, AOV-3994</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G blowdown and sample valves - CLOSED</li> </ul>	
	HCO/ CO	(Step 5) Verify At Least Two SW Pumps - RUNNING	
	HCO/ CO	(Step 6) Verify CI and CVI:	
		<ul style="list-style-type: none"> <li>CI and CVI annunciators - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-26, CNMT ISOLATION</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-25, CNMT VENTILATION ISOLATION</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify CI and CVI valve status lights - BRIGHT</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT</li> </ul>	
		<ul style="list-style-type: none"> <li>FCV-4561</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 54 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>FCV-4562</li> </ul>	
		<ul style="list-style-type: none"> <li>Letdown orifice valves - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-200A</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-200B</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-202</li> </ul>	
<p style="text-align: center;"><b>NOTE</b></p> <p>IF performing E-0 per direction of FR-S.1, FR-S.2, or FR-H.1 THEN stop here and return to E-0, REACTOR TRIP OR SAFETY INJECTION</p>			
	HCO/ CO	(Step 7) Check CCW System Status:	
		<ul style="list-style-type: none"> <li>Verify CCW pump – AT LEAST ONE RUNNING</li> </ul>	
	HCO/ CO	(Step 8) Verify SI And RHR Pump Flow:	
		<ul style="list-style-type: none"> <li>SI flow indicators – CHECK FOR FLOW</li> </ul>	
		<ul style="list-style-type: none"> <li>RHR flow indicator – CHECK FOR FLOW</li> </ul>	<b>NOTE:</b> There are NO RHR Pumps running.
	HCO/ CO	<ul style="list-style-type: none"> <li>(Step 8b RNO) IF RCS pressure less than 150 psig manually start pumps and align valves. IF NOT, THEN go to Step 9.</li> </ul>	
	HCO/ CO	(Step 9) Verify SI Pump And RHR Pump Emergency Alignment:	
		<ul style="list-style-type: none"> <li>RHR pump discharge to Rx vessel deluge - OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-852A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-852B</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify SI pump C – RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify SI pump A - RUNNING</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 55 of 76

Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Verify SI pump B – RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify SI pump C discharge valves - OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-817A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-817B</li> </ul>	
	HCO/ CO	(Step 9.e RNO) Manually open valves as necessary.	
	HCO/ CO	(Step 10) Verify CREATS Actuation:	
		<ul style="list-style-type: none"> <li>At least one damper in each flowpath - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Normal Supply Air</li> </ul>	
		<ul style="list-style-type: none"> <li>Normal Return Air</li> </ul>	
		<ul style="list-style-type: none"> <li>Lavatory Exhaust Air</li> </ul>	
		<ul style="list-style-type: none"> <li>CREATS fans – BOTH RUNNING</li> </ul>	
<b>NOTE</b>			
The hand switches for these valves should be placed in the closed position even if the valve status light is bright.			
	HCO/ CO	(Step 11) Verify CI and CVI During a Fire Event	
		<ul style="list-style-type: none"> <li>A confirmed fire has occurred in the control complex or cable tunnel (fire systems S05, S06, S08, Z05, Z18, or Z19).</li> </ul>	
	HCO/ CO	(Step 11 RNO) Go to END	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 56 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
<b>E-0, REACTOR TRIP OR SAFETY INJECTION</b>			
			<b>Examiner</b> following operator NOT performing ATT-27.0 continue <b>HERE</b> .
	CO/ HCO	(Step 7) Verify Both MDAFW Pumps RUNNING	
<b>NOTE</b> IF Crosstieing MDAFW Pumps is required, refer to ATT-5.3, ATTACHMENT MDAFW PUMPS CROSSTIE.			
	CO/ HCO	(Step 8) Verify AFW Valve Alignment:	
		<ul style="list-style-type: none"> <li>AFW flow – INDICATED TO BOTH S/G(s)</li> </ul>	
		<ul style="list-style-type: none"> <li>AFW flow from each MDAFW pump LESS THAN 230 GPM</li> </ul>	
	CO/ HCO	(*Step 9) Monitor Heat Sink:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Check S/G narrow range level GREATER THAN 7% [25% adverse CNMT] in any S/G</li> </ul>	<b>NOTE:</b> Adverse Containment may exist at this time.
		<ul style="list-style-type: none"> <li>Check S/G narrow range level BOTH S/G LESS THAN 50%</li> </ul>	
		<ul style="list-style-type: none"> <li>Control feed flow to maintain S/G narrow range level between 7% [25% adverse CNMT] and 50%.</li> </ul>	<b>NOTE:</b> Adverse Containment may exist at this time.
	CO/ HCO	(Step 10) Check If TDAFW Pump Can Be Stopped:	
		<ul style="list-style-type: none"> <li>Both MDAFW pumps – RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>PULL STOP TDAFW pump steam supply valves</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-3504A</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 57 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>MOV-3505A</li> </ul>	
<b>CAUTION</b> IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)			
<b>NOTE</b> IF starting non-safeguards equipment will result in exceeding 278 amps (yellow line) on Buses 14 or 16, THEN DO NOT start non-safeguards equipment.			
	CO/ HCO	(Step 11) Check CCW Flow to RCP thermal Barriers:	
		<ul style="list-style-type: none"> <li>Annunciator A-7. RCP 1A CCW RETURN HI TEMP OR LOW FLOW - EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-15, RCP 1B CCW RETURN HI TEMP OR LOW FLOW EXTINGUISHED</li> </ul>	
	CO/ HCO	(*Step 12) Monitor RCS Tavg – STABLE AT OR TRENDING TO 547°F	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
			<b>NOTE:</b> Tavg is expected to be less than 547°F and lowering.
	CO/ HCO	(Step 12 RNO) IF temperature less than 547°F and lowering, THEN perform the following:	
		<ul style="list-style-type: none"> <li>Stop dumping steam.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure reheater steam supply valves are closed.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF cooldown continues, THEN control total feed flow between 200 gpm to 230 gpm until narrow range level greater than 7% [25% adverse CNMT] in at least one S/G.</li> </ul>	<b>NOTE:</b> Adverse Containment may exist at this time.

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 58 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>WHEN S/G level greater than 7% [25% adverse CNMT] in one S/G, THEN limit feed flow to that required to maintain level in at least one S/G.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF cooldown continues, THEN close both MSIVs.</li> </ul>	
	CO/ HCO	(Step 13) Check PRZR PORVS And Spray Valves:	
		<ul style="list-style-type: none"> <li>PORVs – CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Auxiliary spray valve (AOV-296) - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Check PRZR pressure - LESS THAN 2260 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Normal PRZR spray valves - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>PCV-431A</li> </ul>	
		<ul style="list-style-type: none"> <li>PCV-431B</li> </ul>	
	CO/ HCO	(Step 14) Monitor RCP Trip Criteria:	
		<ul style="list-style-type: none"> <li>RCP status – ANY RCP RUNNING</li> </ul>	<b>NOTE:</b> RCP Trip Criteria may have already been MET and the RCPS may be stopped.
		<ul style="list-style-type: none"> <li>SI pumps - AT LEAST TWO RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>RCS pressure minus maximum S/G pressure - LESS THAN 210 psi [240 psi adverse CNMT]</li> </ul>	<b>NOTE:</b> Adverse Containment may exist at this time.
		<ul style="list-style-type: none"> <li>Stop both RCPs</li> </ul>	<b>NOTE:</b> If RCP Trip Criteria is NOT met, the RNO will be performed (Go to Step 15); and RCP Trip Criteria is expected to be met later.
	CO/ HCO	(Step 15) Check If S/G Secondary Side Is Intact:	
		<ul style="list-style-type: none"> <li>Pressure in both S/G's-STABLE OR Rising</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 59 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Pressure in both S/G's –GREATER THAN 110 PSIG</li> </ul>	
	CO/ HCO	(Step 16) Check if S/G Tubes are intact:	
		<ul style="list-style-type: none"> <li>Air Ejector radiation monitors (R-15, R-47, R-48) - NORMAL</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G blowdown radiation monitors (R-19) - NORMAL</li> </ul>	
		<ul style="list-style-type: none"> <li>Steamline radiation monitors (R-31, R-32) - NORMAL</li> </ul>	
	CO/ HCO	(Step 17) Check if RCS is intact:	
		<ul style="list-style-type: none"> <li>CNMT area radiation monitors – NORMAL</li> </ul>	<b>NOTE:</b> Containment Radiation Monitors are in alarm.
		<ul style="list-style-type: none"> <li>R-2</li> </ul>	
		<ul style="list-style-type: none"> <li>R-7</li> </ul>	
		<ul style="list-style-type: none"> <li>R-29</li> </ul>	
		<ul style="list-style-type: none"> <li>R-30</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT pressure – LESS than 0.5 psig</li> </ul>	
	US	(Step 17.a RNO) Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.	
			<b>NOTE:</b> The US will go to E-1. The US will conduct an alignment brief.
			<b>NOTE:</b> The US may notify the WCC regarding the B RHR Pump. <b>SIM DRIVER:</b> as <b>WCCS</b> , acknowledge.

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 60 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
<b>E-1, LOSS OF REACTOR OR SECONDARY COOLANT</b>			
<p align="center"><b>CAUTION</b></p> <p>IF TRANSITIONING TO ES-1.2, POST LOCA COOLDOWN AND DEPRESSURIZATION, THEN PROCEDURE SHOULD BE INITIATED WITHOUT DELAY TO ENSURE RCS COOLDOWN CAN BE STARTED WITHIN 1 HOUR OF LOCA INITIATION.</p>			
<p align="center"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>FOLDOUT page should be open AND monitored periodically.</li> <li>Critical Safety Function Status Trees should be monitored. (Refer to Appendix 1 for Red Path Summary.)</li> <li>Conditions should be evaluated for Site Contingency Reporting (Refer to EP-AA-1012 ADDENDUM 3, R.E. GINNA NUCLEAR POWER PLANT EMERGENCY ACTION LEVELS).</li> <li>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</li> </ul>			
	HCO/CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of E-1.
		RCP TRIP CRITERIA	<b>NOTE:</b> This condition is expected to be met.
		<ul style="list-style-type: none"> <li>IF BOTH conditions listed below occur, THEN trip both RCPs:</li> </ul>	
		<ul style="list-style-type: none"> <li>SI pumps - AT LEAST TWO RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>RCS pressure minus maximum S/G pressure - LESS THAN 210 psi [240 psi adverse CNMT]</li> </ul>	<b>NOTE:</b> Adverse Containment is likely to exist currently.
		LOSS OF SW CRITERIA	
		SI REINITIATION CRITERIA	
		SI TERMINATION CRITERIA	
		SECONDARY INTEGRITY CRITERIA	
		E-3 TRANSITION CRITERIA	
		COLD LEG RECIRCULATION SWITCHOVER CRITERION	
		AFW SUPPLY SWITCHOVER CRITERION	



Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 61 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<b>MULTIPLE FUNCTION LOSS CRITERIA</b>	
	HCO	(Step 1) Monitor RCP Trip Criteria:	
		<ul style="list-style-type: none"> <li>RCP status – ANY RCP RUNNING</li> </ul>	<b>NOTE:</b> RCP Trip Criteria may have already been MET and the RCPS may be stopped.
		<ul style="list-style-type: none"> <li>SI pumps – AT LEAST TWO RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>RCS pressure minus maximum S/G pressure – LESS THAN 210 psi [240 psi adverse CNMT]</li> </ul>	
		<ul style="list-style-type: none"> <li>Stop both RCPs</li> </ul>	<b>NOTE:</b> If the RCPs have NOT been stopped prior to this step, they will be stopped here.
	HCO/CO	(Step 2) Check If S/G Secondary Side Is Intact:	
		<ul style="list-style-type: none"> <li>Pressure in both S/Gs – STABLE OR RISING</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure in both S/Gs – GREATER THAN 110 PSIG</li> </ul>	
<b>NOTE</b>			
TDAFW pump flow control AOVs may drift open on loss of IA.			
	CO	(*Step 3) Monitor Intact S/G Levels:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Narrow range level – GREATER THAN 7% [25% adverse CNMT]</li> </ul>	<b>NOTE:</b> Adverse Containment is likely to exist currently.
		<ul style="list-style-type: none"> <li>Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%</li> </ul>	<b>NOTE:</b> Adverse Containment is likely to exist currently.

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 62 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 4) Monitor If Secondary Radiation Levels Are Normal	
		<ul style="list-style-type: none"> <li>Steamline radiation monitor (R-31 and R-32)</li> </ul>	
		<ul style="list-style-type: none"> <li>Request Chem Tech sample S/Gs for activity</li> </ul>	<b>NOTE:</b> The US may contact Chemistry. <b>SIM DRIVER:</b> as Chemistry, acknowledge.
<b>CAUTION</b> IF ANY PRZR PORV OPENS BECAUSE OF HIGH PRZR PRESSURE, IT SHOULD BE CLOSED AFTER PRESSURE LOWERS TO LESS THAN 2335 psig (REFER TO STEP 5b).			
	HCO	(*Step 5) Monitor PRZR PORV Status:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Power to PORV block valves – AVAILABLE</li> </ul>	
		<ul style="list-style-type: none"> <li>PORVs – CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Block valves – AT LEAST ONE OPEN.</li> </ul>	
<b>CAUTION</b> IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)			
	HCO	(Step 6) Reset SI.	
	HCO	(Step 7) Reset CI:	
		<ul style="list-style-type: none"> <li>Depress CI reset pushbutton</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify annunciator A-26, CNMT ISOLATION – EXTINGUISHED</li> </ul>	
	CO	(Step 8) Verify Adequate SW Flow:	

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Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Check at least two SW pumps RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>Dispatch AO to establish normal shutdown alignment (Refer to ATT-17.0, ATTACHMENT SD-1)</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge and perform Schedule File SD-1.
<b>NOTE</b> IF starting non-safeguards equipment will result in exceeding 278 amps (yellow line) on Buses 14 or 16, THEN DO NOT start non-safeguards equipment.			
	HCO/CO	(Step 9) Establish IA to CNMT:	
		<ul style="list-style-type: none"> <li>Verify non-safeguards busses energized from offsite power</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 13 normal feed – CLOSED</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>Bus 15 normal feed – CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify turbine building SW isolation valves - OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-4613 and MOV-4670</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-4614 and MOV-4664</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify adequate air compressors – RUNNING</li> </ul>	<b>NOTE:</b> The C IA Compressor is running.
		<ul style="list-style-type: none"> <li>Check IA supply:</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure – GREATER THAN 60 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure – STABLE OR RISING</li> </ul>	
		<ul style="list-style-type: none"> <li>Reset both trains of XY relays for IA to CNMT AOV-5392</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify IA to CNMT AOV-5392 – OPEN</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 64 of 76

Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 10) Check Normal Power Available To Charging Pumps:	
		<ul style="list-style-type: none"> <li>Check Normal Power Available To Charging Pumps:</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 14 normal feed breaker – CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 16 normal feed breaker - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify adequate Safeguards Bus capacity to run charging pumps (6 amps each)</li> </ul>	
		<ul style="list-style-type: none"> <li>Station Service transformer 14 ammeter</li> </ul>	
		<ul style="list-style-type: none"> <li>Station Service transformer 16 ammeter</li> </ul>	
	HCO	(Step 11) Check If Charging Flow Has Been Established:	
		<ul style="list-style-type: none"> <li>Charging pumps – ANY RUNNING</li> </ul>	<b>NOTE:</b> There are NO Charging Pumps running.
		<ul style="list-style-type: none"> <li>(Step 11a RNO) Perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>IF CCW flow is lost to any RCP thermal barrier OR any RCP #1 seal outlet temperature greater than 235°F, THEN.....</li> </ul>	<b>NOTE:</b> CCW flow to the RCP has NOT been lost, nor is any RCP #1 seal outlet temperature greater than 235°F.
		<ul style="list-style-type: none"> <li>Ensure HCV-142 open, demand at 0%.</li> </ul>	
		<ul style="list-style-type: none"> <li>(Step 11 Continued) Charging pump suction aligned to RWST:</li> </ul>	
		<ul style="list-style-type: none"> <li>LCV-112B – OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>LCV-1112C – CLOSED</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 65 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>(Step 11b RNO) manually align valves as necessary.</li> </ul>	
		<ul style="list-style-type: none"> <li>(Step 11 Continued) Start charging pumps and adjust charging flow as necessary to restore PRZR level</li> </ul>	<b>NOTE:</b> The HCO will start two Charging Pumps.
	HCO	(Step 12) Check If SI Should Be Terminated:	
		<ul style="list-style-type: none"> <li>RCS pressure:</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure – GREATER THAN 1650 psig [1650 psig adverse CNMT]</li> </ul>	<b>NOTE:</b> Adverse Containment is likely to exist currently. RCS pressure is expected to be ≈1000 psig and stable.
		<ul style="list-style-type: none"> <li>Pressure – STABLE OR RISING</li> </ul>	
	US	<ul style="list-style-type: none"> <li>(Step 12a RNO) Do NOT stop SI pumps. Go to Step 13.</li> </ul>	
	HCO	(*Step 13) Monitor If CNMT Spray Should Be Stopped:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>CNMT spray pumps – ANY RUNNING</li> </ul>	<b>NOTE:</b> No CS pumps running.
	US	<ul style="list-style-type: none"> <li>(Step 13a RNO) Go to Step 14.</li> </ul>	
<b>CAUTION</b> <ul style="list-style-type: none"> <li>RCS PRESSURE SHOULD BE MONITORED. IF RCS PRESSURE LOWERS IN AN UNCONTROLLED MANNER TO LESS THAN 300 PSIG [350 PSIG ADVERSE CNMT], THEN THE RHR PUMPS MUST BE MANUALLY RESTARTED TO SUPPLY WATER TO THE RCS.</li> <li>RCS PRESSURE MAY BE CONSIDERED STABLE EVEN THOUGH PRESSURE IS LOWERING DUE TO SAFETY INJECTION FLOW, DECAY HEAT REDUCTION OR BREAK FLOW.</li> </ul>			

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 66 of 76

Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(*Step 14) Monitor IF RHR Pumps Should Be Stopped:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Check RCS pressure:</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure – GREATER THAN 300 psig [350 psig adverse CNMT]</li> </ul>	<b>NOTE:</b> Adverse Containment is likely to exist currently.
		<ul style="list-style-type: none"> <li>RCS pressure – STABLE OR RISING</li> </ul>	
		<ul style="list-style-type: none"> <li>RHR pumps – ANY RUNNING IN INJECTION MODE</li> </ul>	<b>NOTE:</b> There are NO RHR Pumps running.
	US	(Step 14.b RNO) Go to Step 15.	
	CO	(Step 15) Check RCS And S/G Pressures	
		<ul style="list-style-type: none"> <li>Check pressures in both S/Gs – STABLE OR RISING</li> </ul>	
		<ul style="list-style-type: none"> <li>Check pressures in both S/Gs – GREATER THAN 110 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Check RCS pressure – STABLE OR LOWERING</li> </ul>	
	CO	(Step 16) CHECK IF EMERGENCY D/Gs Should Be Stopped:	
		<ul style="list-style-type: none"> <li>Verify Safeguards busses 14, 16, 17, and 18 voltage – GREATER THAN 440 VOLTS</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify Safeguards busses 14, 16, 17, and 18 voltage energized by offsite power:</li> </ul>	
		<ul style="list-style-type: none"> <li>Emergency D/G output breakers – OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>AC emergency bus normal feed breakers - CLOSED</li> </ul>	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 67 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Stop any unloaded emergency D/G and place in standby (Refer to ATT-8.1, ATTACHMENT D/G STOP)</li> </ul>	<b>NOTE:</b> Both D/Gs are running unloaded.
			<b>Examiner NOTE:</b> The US will hand this off to the HCO/CO. <b>Other Examiners</b> continue on <b>Page 68</b> .
<b>ATT-8.1, ATTACHMENT D/G STOP</b>			
<b>NOTE</b>			
One D/G must be stopped AND reset prior to stopping the second D/G.			
	CO	(Step A) Perform the following to STOP D/G A and restore to AUTO:	
		<ul style="list-style-type: none"> <li>Verify D/G A Bus 14 supply breaker is OPEN.</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify D/G A Bus 18 supply breaker is OPEN.</li> </ul>	
		<ul style="list-style-type: none"> <li>Using D/G A GOVERNOR, adjust D/G A speed to return frequency to 60Hz.</li> </ul>	
		<ul style="list-style-type: none"> <li>Using D/G A AUTO VOLTAGE CONTROL rheostat adjust D/G A voltage to 480 volts.</li> </ul>	
		<ul style="list-style-type: none"> <li>Place D/G A CONTROL switch to STOP AND immediately depress D/G A VOLTAGE SHUTDOWN button until voltage decays to zero.</li> </ul>	
		<ul style="list-style-type: none"> <li>After ~60 seconds, perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Depress D/G A FIELD RESET</li> </ul>	
		<ul style="list-style-type: none"> <li>Depress D/G A RESET</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify D/G A AIR START SOLENOID lights – LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify D/G A START RELAY lights - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>IF alternate cooling is being supplied to the D/G A.....</li> </ul>	<b>NOTE:</b> Alternate Cooling is NOT being supplied.

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 68 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step B) Perform the following to STOP D/G B and restore to AUTO:	
		<ul style="list-style-type: none"> <li>Verify D/G B Bus 16 supply breaker is OPEN.</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify D/G B Bus 17 supply breaker is OPEN.</li> </ul>	
		<ul style="list-style-type: none"> <li>Using D/G B GOVERNOR, adjust D/G B speed to return frequency to 60Hz.</li> </ul>	
		<ul style="list-style-type: none"> <li>Using D/G B AUTO VOLTAGE CONTROL rheostat adjust D/G B voltage to 480 volts.</li> </ul>	
		<ul style="list-style-type: none"> <li>Place D/G B CONTROL switch to STOP AND immediately depress D/G B VOLTAGE SHUTDOWN button until voltage decays to zero.</li> </ul>	
		<ul style="list-style-type: none"> <li>After ~60 seconds, perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Depress D/G B FIELD RESET</li> </ul>	
		<ul style="list-style-type: none"> <li>Depress D/G B RESET</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify D/G B AIR START SOLENOID lights - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify D/G b START RELAY lights - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>IF alternate cooling is being supplied to the D/G B.....</li> </ul>	<b>NOTE:</b> Alternate Cooling is NOT being supplied.
<b>E-1, LOSS OF REACTOR OR SECONDARY COOLANT</b>			
			<b>Other Examiners continue HERE.</b>
<b>CAUTION</b> WHEN STARTING NON-SAFEGUARD EQUIPMENT ON EITHER BUSES 14/16, OR WHEN THE 13-14/15-16 BUS TIE BREAKERS ARE CLOSED, THEN ENSURE THAT THE SAFEGUARDS BUS 14/16 SST AMMETER IS LESS THAN 278 AMPS (YELLOW ARROW) OR THE EMERGENCY D/G LOAD IS LESS THAN 1950 KW. IF AFTER LOADING THE NON SAFEGUARDS EQUIPMENT THESE LIMITS ARE EXCEEDED THEN SECURE THE NON-SAFEGUARD LOAD.			



Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 69 of 76

Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 17) Evaluate Plant Status:	
		<ul style="list-style-type: none"> <li>Check auxiliary building radiation - NORMAL</li> </ul>	
		<ul style="list-style-type: none"> <li>Plant vent iodine (R-10B)</li> </ul>	
		<ul style="list-style-type: none"> <li>Plant vent particulate (R-13)</li> </ul>	
		<ul style="list-style-type: none"> <li>Plant vent gas (R-14)</li> </ul>	
		<ul style="list-style-type: none"> <li>CCW liquid monitor (R-17)</li> </ul>	
		<ul style="list-style-type: none"> <li>LTDN line monitor (R-9)</li> </ul>	
		<ul style="list-style-type: none"> <li>CHG pump room (R-4)</li> </ul>	
		<ul style="list-style-type: none"> <li>WHEN TSC is manned, THEN request evaluation of sampling requirements.</li> </ul>	<b>NOTE:</b> The TSC will NOT be manned.
		<ul style="list-style-type: none"> <li>RCS boron</li> </ul>	
		<ul style="list-style-type: none"> <li>RCS activity</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT hydrogen</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT sump boron</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT Sump pH</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify adequate Rx head cooling:</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify at least one control rod shroud fan - RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify one Rx compartment cooling fan - RUNNING</li> </ul>	
	HCO	(Step 18) Verify CNMT Sump Recirculation Capability:	
		<ul style="list-style-type: none"> <li>Check RHR and Support systems:</li> </ul>	
		<ul style="list-style-type: none"> <li>At least one recirculation flowpath, including required power supplies, from Sump B and back to RCS available per ATT-14.5, ATTACHMENT RHR SYSTEM</li> </ul>	<b>NOTE:</b> There are NO RHR Pumps running.

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 70 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 18.a RNO) IF at least one flowpath of cold leg recirculation capability can NOT be verified, THEN go to ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.	
			<b>NOTE:</b> The US will transition to ECA-1.1.
<b>ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION</b>			
<b>CAUTION</b> <ul style="list-style-type: none"> <li>IF EMERGENCY COOLANT RECIRCULATION IS ESTABLISHED DURING THIS PROCEDURE, FURTHER RECOVERY ACTIONS SHOULD CONTINUE BY RETURNING TO ES-1.3, TRANSFER TO COLD LEG RECIRCULATION.</li> <li>IF SUCTION SOURCE IS LOST TO ANY SI OR CNMT SPRAY PUMP, THE PUMP SHOULD BE STOPPED.</li> </ul>			
<b>NOTE</b> <ul style="list-style-type: none"> <li>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</li> <li>FOLDOUT page should be open and monitored periodically.</li> </ul>			
	HCO/ CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of ECA-1.1.
		LOSS OF SW CRITERIA	
		MULTIPLE FUNCTION LOSS CRITERIA	
	HCO	(Step 1) Verify CNMT Sump Recirculation Capability:	
		<ul style="list-style-type: none"> <li>Check CNMT Sump B Level – AT LEAST 113 INCHES</li> </ul>	
	HCO	(Step 1.a RNO) IF Sump B level less than 113 inches due to a loss of RCS inventory outside CNMT. THEN go to Step 2.	<b>NOTE:</b> There is no LOCA outside Containment.

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 71 of 76

Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	<ul style="list-style-type: none"> <li>(Step 1.b) Check RHR system:</li> </ul>	
		<ul style="list-style-type: none"> <li>RHR pumps - OPERABLE</li> </ul>	<b>NOTE:</b> There are NO RHR Pumps running or available.
	HCO	(Step 1.b RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Manually or locally try to restore at least one flowpath (Refer to ATT-14.5, ATTACHMENT RHR SYSTEM to identify minimum components for one flowpath).</li> </ul>	<b>NOTE:</b> The US may call WCC/Maintenance to address the need for an RHR Pump. If so, <b>SIM DRIVER</b> acknowledge as WCC.
	US	<ul style="list-style-type: none"> <li>Continue with Step 2. WHEN at least one flowpath is available. THEN do Steps 1c, 1d and 1e.</li> </ul>	
	HCO	(Step 2) Verify CNMT RECIRC Fans Running:	
		<ul style="list-style-type: none"> <li>All fans - RUNNING</li> </ul>	<b>NOTE:</b> The C CRCF is OOS.
	HCO	(Step 2.a RNO) Manually start fans	
	HCO	<ul style="list-style-type: none"> <li>Charcoal filter dampers green status lights - EXTINGUISHED</li> </ul>	<b>NOTE:</b> The C CRCF is OOS.
	HCO	(Step 2.b RNO) Dispatch personnel with relay rack key to locally open dampers using trip relay pushbuttons in relay room racks.	<b>NOTE:</b> The US will call an EO to perform action. If so, <b>SIM DRIVER</b> acknowledge as EO.
		<ul style="list-style-type: none"> <li>AUX RELAY RACK RA-3 for fan C</li> </ul>	
	HCO	(Step 3) Monitor RWST Level – GREATER THAN 15%	
	HCO	(Step 4) Determine CNMT Spray Requirements:	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 72 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Determine number of CNMT spray pumps required from table:</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT spray pumps running – EQUAL TO MINIMUM NUMBER REQUIRED</li> </ul>	<b>NOTE:</b> There are NO CS Pumps running or required to be running.
	HCO	(Step 5) Add Makeup To RWST As Necessary	
		<ul style="list-style-type: none"> <li>Refer to ATT-18.0, ATTACHMENT SFP-RWST (~ 400 gpm can be expected)</li> </ul>	<b>NOTE:</b> The US/HCO may direct the EO to initiate makeup to the RWST. If so, <b>SIM DRIVER</b> acknowledge as EO, and use the following Remotes: V804 – CLG050=0 V789 – CLG089=1 V790 – CLG049=0 V803 – CLG052=1 Ramped over 60 seconds. THEN report that Makeup has been initiated from the SFP.
		OR	
		<ul style="list-style-type: none"> <li>Refer to S-3.2D. TRANSFERRING WATER FROM CVCS HUT(S) TO RWST OR SFP (~ 69 gpm can be expected)</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>Refer to S-9J, BLENDING TO RWST (~ 50 gpm can be expected)</li> </ul>	
<b>CAUTION</b> IF CST LEVEL LOWERS TO LESS THAN 5 FEET, THEN ALTERNATE WATER SOURCES FOR AFW PUMPS WILL BE NECESSARY (REFER TO ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).			
<b>NOTE</b> TDAFW pump flow control AOVs may drift open on loss of IA.			
	CO	(Step 6) Monitor Intact S/G Levels:	

Op Test No.: N20-1 Scenario # 1 Event # 6, 7, 8 & 9 Page 73 of 76Event Description: **Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Narrow range level – GREATER THAN 7% [25% adverse CNMT]</li> </ul>	
		<ul style="list-style-type: none"> <li>Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%.</li> </ul>	
<p style="text-align: center;"><b>NOTE</b></p> <p>Shutdown margin should be monitored during RCS cooldown (Refer to FIG-2.0, FIGURE SDM).</p>			
	CO	(Step 7) Initiate RCS Cooldown To Cold Shutdown:	
		<ul style="list-style-type: none"> <li>Establish and maintain cooldown rate in RCS cold legs – LESS THAN 100°F/HR</li> </ul>	<b>NOTE:</b> The current cooldown rate is approaching 100°F/hour.
		<ul style="list-style-type: none"> <li>Dump steam to condenser form intact S/G(s)</li> </ul>	
	HCO	(Step 8) Check ECCS Pump Status:	
		<ul style="list-style-type: none"> <li>SI Pumps – ANY RUNNING</li> </ul>	<b>NOTE:</b> All three SI Pumps are running.
		OR	
		<ul style="list-style-type: none"> <li>RHR Pumps – ANY RUNNING IN INJECTION MODE</li> </ul>	<b>NOTE:</b> There are NO RHR Pumps running.
<p style="text-align: center;"><b>CAUTION</b></p> <p>IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)</p>			
	HCO	(Step 9) Reset SI If Necessary	
	HCO	(Step 10) Establish One Train Of SI Flow	
		<ul style="list-style-type: none"> <li>SI pumps – LESS THAN THREE RUNNING</li> </ul>	

Op Test No.:	N20-1	Scenario #	1	Event #	6, 7, 8 & 9	Page	74	of	76
Event Description: <b>Ejected Control Rod/Failure of Turbine to Trip on Rx Trip/ Failure of A and B SI Pumps to Auto Start/ B RHR Pumps trips</b>									

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 10.a RNO) Stop one SI pump.	
At the discretion of the Lead Examiner terminate the exam.			

TURNOVER SHEET for NRC Exam Scenario #1

<p><u>Core Age: EOL</u></p> <p>100% Power, Equilibrium Xe</p> <p>Outside Air Temp = 82°F</p> <p>Water Temp = 70°F</p>	<p><u>Procedure in Use:</u></p> <p>STP-O-2.2-COMP-A</p>	<p><u>ACTIONS/NOTES:</u></p> <ul style="list-style-type: none"> <li>• The plant is at 100% power (EOL).</li> <li>• The area has experienced unseasonably hot weather with no precipitation. It is expected to maintain power stable at the current power level throughout the shift.</li> <li>• The A RHR Pump is OOS for Seal Cooling Heat Exchanger replacement.</li> <li>• Post-maintenance testing of the A RHR Pump is in progress and the A RHR Pump is ready to be started.</li> <li>• Containment Recirculation Fan Cooler C is OOS for breaker maintenance.</li> <li>• The Condensate Booster Pump A is OOS for thrust bearing replacement.</li> <li>• Protected equipment IAW OPG Protected Equipment.</li> </ul>
<p>Boron: 288 ppm</p> <p>BAST: 17,500 ppm</p> <p>RCS Activity: Normal</p>	<p><u>RCS LEAKAGE:</u> (gpm)</p> <p>Total: .021</p> <p>Identified: .003</p> <p>Unidentified: .018</p>	

TURNOVER SHEET for NRC Exam Scenario #1

<u>Equipment Problems/OOS:</u> See NOTES	<u>Planned Activities for Shift:</u> <ul style="list-style-type: none"> <li>Perform post-maintenance testing on the A RHR Pump using STP-O-2.2-COMP-A</li> </ul>	<u>Electrical System Operator Declarations</u> None in effect
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A-52.4					
EQUIPMENT	DATE/TIME OOS	LCO	TITLE	EXP DATE	ECD
A RHR Pump	20 hours ago	3.5.2	ECCS – Modes 1, 2 and 3	72 hours	52 hours
C CRFC	30 hours ago	3.6.6	Containment Spray (CS), Containment Recirculation Fan Cooler (CRFC), and NaOH Systems	7 days	42 hours
A-52.12					
EQUIPMENT	DATE/TIME OOS	TRM /ODCM	TITLE	EXP DATE	ECD



PROGRAM: Ginna Operations Training

MODULE: Initial License Operator Training Class 19-1

TOPIC: NRC Simulator Exam

**Scenario N20-1-2**

**REFERENCES:**

1. Technical Specification LCO 3.6.6, "Containment Spray (CS) Containment Recirculation Fan Cooler (CRFC), and NaOH Systems" (Amendment 118)
2. Technical Specification LCO 3.7.5, "Auxiliary Feedwater (AFW) System" (Amendment 88)
3. AR-G-25, MOTOR OFF CTR SECT PMPS EXCEPT MAIN & AUX FEED PMPS (Rev 01000)
4. AR-E-24, "RMS AREA MONITOR HIGH ACTIVITY" (Rev 00901)
5. AR-RMS-9, "R9 LETDOWN LINE MONITOR" (Rev 4)
6. AP-RCS.3, "High Reactor Coolant Activity" (Rev 014)
7. S-3.2P, "Swapping CVCS Letdown Orifice Valves" (Rev 009)
8. Technical Specification LCO 3.4.16, "RCS Specific Activity" (Amendment 123)
9. EPIP 1.13, "Local Radiation Emergency" (Rev 00800)
10. AR-H-22, "H2 CLR TEMP HI/BYP VLV < 70% OPEN" (Rev 012)
11. AR-H-12, "FEED PUMP DC OIL PUMP AUTO START" (Rev 5)
12. AP-FW.1, "Abnormal MFW Pump Flow or NPSH" (Rev 021)
13. AP-TURB.5, "Rapid Load Reduction" (Rev 020)
14. AR-C-5, "PPCS ROD SEQUENCE OR ROD DEVIATION/PPCS LTOP HI-LOW TEMPERATURE" (Rev 00901)
15. AP-RCC.2, "RCC/RPI Malfunction" (Rev 01400)
16. Technical Specification LCO 3.1.4, "Rod Group Alignment Limits" (Amendment 131)
17. Technical Specification LCO 3.2.4, "Quadrant Power Tilt Ratio" (Amendment 94)
18. AP-FW.2, "Secondary Coolant Leak" (Rev 00100)
19. E-0, "Reactor Trip or Safety Injection" (Rev 049)
20. ES-0.1, "Reactor Trip Response" (Rev 032)
21. FR-H.1, "Response to Loss of Secondary Heat Sink" (Rev 042)
22. ATT-5.1, "Attachment SAFW From SW" (Rev 014)
23. ATT-22.0, "Attachment Restoring Feed Flow" (Rev 00700)

Validation Time: 106 minutes

Author: David Lazarony, Essential Training & Consulting, LLC

Facility Review: \_\_\_\_\_

Rev. 091120

## **Ginna 2020 NRC Scenario #2 Objectives:**

Given the simulator at an initial condition of 70% power evaluate:

1. the SRO's ability to supervise the control room team during the normal, abnormal, and emergency situations that arise, including compliance with all facility procedures, Technical Specifications, and other commitments.
2. each crew member's ability to effectively communicate as part of a control room team during the normal, abnormal, and emergency situations that arise.
3. each crew member's ability to effectively diagnose and the RO's ability to mitigate the consequences of a Charging Pump trip in accordance with Annunciator Response Procedures.
4. each crew member's ability to effectively diagnose and the RO's ability to mitigate the consequences of failed fuel/High RCS Activity in accordance with AP-RCS.3, "High Reactor Coolant Activity."
5. each crew member's ability to effectively diagnose and the BOP's ability to mitigate the consequences of a failed Generator Hydrogen temperature instrument in accordance with Annunciator Response Procedures.
6. each crew member's ability to effectively diagnose and the BOP's ability to mitigate the consequences of a Main Feedwater Pump trip in accordance with AP-FW.1, "Abnormal MFW Pump Flow or NPSH."
7. each crew member's ability to conduct a rapid downpower in accordance with AP-TURB.5, "Rapid Load Reduction," whenever plant conditions dictate the need to do so.
8. each crew member's ability to effectively diagnose and the RO's ability to mitigate the consequences of a failure of the Control Rods to move in AUTO and a Stuck Rod in accordance with AP-RCC.2, "RCC/RPI Malfunction."
9. each crew member's ability to effectively diagnose major secondary coolant break in the Turbine Building and the RO and BOP's ability to respond to such an event in accordance with E-0, "Reactor Trip or Safety Injection," and ES-0.1, "Reactor Trip Response."
10. each crew member's to manually trip the reactor by normal and alternate means when required to do so.
11. each crew member's ability to effectively diagnose and respond to a loss of all feedwater to the steam generators in accordance with FR-H.1, "Response to Loss of Secondary Heat Sink."

Scenario Event Description  
NRC Scenario 2

Facility: <b>Ginna</b>		Scenario No.: <b>2</b>		Op Test No.: <b>N20-1</b>	
Examiners: _____		Operators: _____		(SRO)	
_____		_____		(RO)	
_____		_____		(BOP)	
Initial Conditions:		The plant is at 70% power (BOL). The area has experienced cool weather with no precipitation. The crew is expected to remain at this power level while maintenance is completed during the shift.			
Turnover:		The following equipment is Out-Of-Service: Containment Recirculation Fan Cooler C (TS 3.6.6 Condition D Action D.1) is OOS for breaker maintenance, and the B MDAFW Pump (TS 3.7.5 Condition B Action B.1) is OOS for breaker maintenance. The A HDT Pump is OOS due to abnormal noises.			
Critical Tasks:		See Below			
Event No.	Malf. No.	Event Type*	Event Description		
1	MAL CVC12A	C-RO C-SRO	A Charging Pump Trip		
2	MAL RCS16	C-RO C-SRO TS	Fuel Failure/High RCS Activity		
3	MAL GEN02	C-BOP C-SRO	Generator Hydrogen Temperature (Cold Gas) Instrument fails HIGH		
4	MAL FDW04B FDW02B	C-BOP C-SRO	B Feed Pump Oil Leak/Trip (CT-1)		
5	OVR ROD04C MAL ROD03-G11	R-RO C-SRO TS	Control Rods fail to Move in AUTO/Stuck Rod		
6	MAL CND08 FDW02A FDW12	M-RO M-BOP M-SRO	Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed		
7	MAL RPS05A RPS05B	C-BOP C-SRO	Automatic Rx Trip fails/No Manual Available (CT-2)		
8	REM EDS04A	C-BOP C-SRO	Loss of Bus 14 (CT-3)		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

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Scenario Event Description  
NRC Scenario 2

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**Ginna 2020 NRC Scenario #2**

The plant is at 70% power (BOL). The area has experienced cool weather with no precipitation. The crew is expected to remain at this power level while maintenance is completed during the shift.

The following equipment is Out-Of-Service: Containment Recirculation Fan Cooler C (TS 3.6.6 Condition D Action D.1) is OOS for breaker maintenance, and the B MDAFW Pump (TS 3.7.5 Condition B Action B.1) is OOS for breaker maintenance. The A HDT Pump is OOS due to abnormal noises.

Shortly after taking the watch, the A Charging Pump (Operating in AUTO) will trip. The operator will respond in accordance with AR-G-25, "MOTOR OFF CTR SECT PMPS EXCEPT MAIN & AUX FEED PMPS," and start the B Charging Pump.

Shortly after this, a fuel failure will occur. The crew will address AR-E-24, "RMS AREA MONITOR HIGH ACTIVITY," and AR-RMS-9, "R9 LETDOWN LINE MONITOR," and enter AP-RCS.3, "High Reactor Coolant Activity." After Chemistry reports that Dose Equivalent Iodine is 13  $\mu\text{Ci}/\text{gram}$ , the operator will place the 60 GPM letdown orifice in service, in accordance with S-3.2P, "Swapping CVCS Letdown Orifice Valves." The operator will address Technical Specification LCO 3.4.16, "RCS Specific Activity," and EPIP 1.13, "Local Radiation Emergency."

Following this, the Generator Hydrogen Temperature (Cold Gas/TT-2023) Instrument will fail HIGH causing the Temperature Controller to increase cooling flow to the Main Generator, and Generator Gas temperatures to start to decrease. The operator will respond in accordance with AR-H-22, "H2 CLR TEMP HI/BYP VLV < 70% OPEN." Using AR-H-22, the operator will take manual control of the Generator Hydrogen Temp Controller (TC-2023), as necessary, to control Generator Gas Temperature.

After this, the B Main Feedwater Pump will develop an oil leak, and trip within 60 seconds. The operator will respond using AR-H-4, "MAIN FEED PUMP OIL SYSTEM," and AR-H-12, "FEED PUMP DC OIL PUMP AUTO START," and enter AP-FW.1, "Abnormal MFW Pump Flow or NPSH." The operator will start the A MDAFW Pump and the TD AFW Pump and initiate a downpower in accordance with AP-TURB.5, "Rapid Load Reduction."

During the downpower, the control rods will fail to move in auto and the operator will need to insert control rods manually. Additionally, Control Rod G-11 will stick in its original position. After the plant stabilizes, the operator will respond in accordance with AR-C-5, "PPCS ROD SEQUENCE OR ROD DEVIATION/PPCS LTOP HI-LOW TEMPERATURE," and enter AP-RCC.2, "RCC/RPI Malfunction." The operator will address Technical Specification LCO 3.1.4, "Rod Group Alignment Limits," and LCO 3.2.4, "Quadrant Power Tilt Ratio."

After this, a large rupture will occur in the Condensate Header resulting in a loss of feedwater. The automatic Rx Trip system will fail to trip the reactor, and the operator will need to manually trip the reactor from the MCB by de-energizing Bus 13 and 15. The crew may enter AP-FW.2, "Secondary Coolant Leak," then will enter E-0, "Reactor Trip or Safety Injection," and transition to ES-0.1, "Reactor Trip Response."

The TDAFW Pump will trip on overspeed on the reactor trip. Subsequently, after ES-0.1 has been entered, a ground fault will occur on Bus 14, isolating the bus and de-energizing the A MDAFW Pump. A Red condition will eventually exist on the Heat Sink Critical Safety Function, and the crew will transition to FR-H.1, "Response to Loss of Secondary Heat Sink." The crew will restore

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Scenario Event Description  
NRC Scenario 2

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AFW flow to the Steam Generators via ATT-5.1, "Attachment SAFW From SW," and ATT-22.0, "Attachment Restoring Feed Flow."

The scenario will terminate at Step 12.b of FR-H.1, after the crew has returned to ES-0.1.

**Critical Tasks:**

**Stabilize the plant during the Main Feedwater Pump Trip before the Reactor must be manually tripped at 20% or automatically trips on a low Narrow Range Steam Generator level**

Safety Significance: Failure to control plant power and stabilize the transient, under the postulated plant conditions, results in an unnecessary transient to the plant and challenge to the Reactor Protection System. Performance of the critical task would stabilize the transient. A failure to stabilize the transient, when able to do so (i.e. event initiates from < 75% power), constitutes a mis-operation or incorrect crew performance which leads to incorrect RCS pressure/temperature control.

**Manually trip the reactor from the control room before transition to FR-S.1**

Safety Significance: Failure to manually trip the reactor from the control room when able to do so (i.e. De-energize Bus 13 and 15) causes a challenge to the subcriticality CSF beyond that irreparably introduced by the postulated conditions and requires that the facility declare an ALERT based on MA3 when the Emergency Classification would have been an Unusual Event based on MU3 had the Critical Task been completed successfully. The failure to complete the Critical Task constitutes an "incorrect performance that necessitates the crew taking action which complicates the event mitigation strategy demonstrating the inability by the crew to recognize and properly mitigate a failure of the automatic actuation of the RPS.

**Establish feedwater flow into at least one Steam Generator before both Steam Generator Wide Range Levels lower to less than 120 inches [160 inches adverse CNMT]**

Safety Significance: Failure to establish feedwater flow to any Steam Generator results in the crew's having to rely upon the lower-priority action of establishing RCS bleed and feed to minimize core uncover. This constitutes incorrect performance that "leads to degradation of any barrier to fission product release." Establishing feedwater flow into the SGs offers the most effective recovery action to restore the heat sink. The introduction of feedwater flow immediately restores SG inventory and re-establishes primary-to-secondary heat transfer, decreasing RCS pressure and cooling the core. The RCS pressure decrease then precludes the opening of the PORVs and degradation of the RCS barrier. If no form of feedwater flow is made available to the SGs, the crew must establish RCS bleed and feed on or before SG dryout. When the crew fails to simply establish available feedwater flow (as it could, given the postulated conditions) before SG dryout occurs, it "necessitates the crew taking compensating action which complicates the event mitigation strategy."

Scenario Event Description  
NRC Scenario 2

**SIMULATOR OPERATOR INSTRUCTIONS**

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>		<b>Reset to Temp IC 156 (Originally IC-13).</b>	<p><b>T = 0:</b></p> <p>Place 40 gpm Letdown Orifice in service. Set up EH Panel for 10%/hour operation.</p> <p>Pull Stop the B MDAFW pump Pull Stop CRFC 'C' and tag. Ensure Black Dot on J-25 for C CRFC OOS. Pull Stop the A HDP. Hang LOTO Tags as necessary</p> <p>Insert MALF FDW02A (A MFWP Trip) conditional on Rx Trip (T-30) Insert REM FDW12 = 0 (TDAFW Pump Trips on Overspeed) conditional on Rx Trip (T-30) Insert MALF RPS05A, NO MAN (Reactor trip breaker A failure) Insert MALF RPS05B, NO MAN (Reactor trip breaker B failure)</p> <p>Insert MALF CVC12A, on T-1 Insert MALF RCS16 (0.7, 120 second Ramp), on T-2 Insert MALF GEN02 (200, 30 second Ramp), on T-3 Insert MALF FDW04B (100, 600 second Ramp), on T-4 Insert MALF FDW02B (B MFWP Trip 60 seconds delayed), on T-4 Insert OVR-ROD04C = FALSE (Rods fail in AUTO) on T-4 Insert MALF ROD03-G11 (Untrippable) on T-4 Insert MALF CND08 (20000, 60 second Ramp), on T-5 Insert MALF EDS04A (Loss of Bus 14) on T-6</p>
<input type="checkbox"/>	Prior to Crew Briefing		<ul style="list-style-type: none"> <li>• Hang Protective Tags per OPG-Protected Equipment (MC AFW Pump P7 of 24 of Attachment 2, A HDT Pump P15 of 24 of Attachment 2).</li> <li>• Place Black Dot on J-25, SAFEGUARDS EQUIPMENT LOCKED OFF.</li> </ul>

Scenario Event Description  
NRC Scenario 2

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>	<b>Crew Briefing</b> <ul style="list-style-type: none"> <li>Assign Crew Positions based on evaluation requirements.</li> <li>Review the Shift Turnover Information with the crew.</li> <li>Handout Reactivity Binder (BOL).</li> </ul>		
<input type="checkbox"/>	T-0	Begin Familiarization Period	
<input type="checkbox"/>	At direction of examiner	<b>Event 1</b> <b>Trigger #1</b> <b>CVC12A</b>	A Charging Pump Trip
<input type="checkbox"/>	At direction of examiner	<b>Event 2</b> <b>Trigger#2</b> <b>RCS16 (0.7, 120 second Ramp)</b>	Fuel Failure/High RCS Activity
<input type="checkbox"/>	At direction of examiner	<b>Event 2</b> <b>Trigger #3</b> <b>GEN02 200, 30 second Ramp)</b>	Generator Hydrogen Temperature (Cold Gas) Instrument fails HIGH
<input type="checkbox"/>	At direction of examiner	<b>Event 4</b> <b>Trigger #4</b> <b>FDW04B (Leak at 100, 600 second Ramp)</b> <b>FDW02B (MFWP Trip 60 seconds delayed)</b>	B Feed Pump Oil Leak/Trip
<input type="checkbox"/>	When the Crew addresses AP-RCC.2.	<b>Event 5</b> <b>Trigger #4</b> <b>OVR-ROD04C = FALSE</b> <b>ROD03-G11 (Untrippable)</b>	Control Rods fail to Move in AUTO/Stuck Rod  <b>Note: These malfunctions are entered on TRIGGER 4, during Event 4, to become apparent during Event 5.</b>

Scenario Event Description  
NRC Scenario 2

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>	At direction of examiner	<b>Event 6</b> <b>Trigger #5</b> <b>CND08 (20000, 60 second Ramp)</b>  <b>FDW02A</b> <b>REM FDW12 = 0</b>	Condensate Header Break/A Main Feedwater Pump Trip/ TDAFW Pump trips on Overspeed  <b>Note: These malfunctions are inserted at T=0, conditional on Rx trip.</b>
<input type="checkbox"/>	Post-Rx Trip	<b>Event 7</b> <b>RPS05A</b> <b>RPS05B</b>	Automatic Rx Trip fails/No Manual Available <b>Note: This malfunction is inserted at T=0.</b>
<input type="checkbox"/>	At direction of examiner	<b>Event 8</b> <b>Trigger #6</b> <b>EDS04A</b>	Loss of Bus 14
<input type="checkbox"/>	<b>Terminate the scenario upon direction of Lead Examiner</b>		



Op Test No.: N20-1 Scenario # 2 Event # 1 Page 9 of 60Event Description: **A Charging Pump Trip**

Shortly after taking the watch, the A Charging Pump (Operating in AUTO) will trip. The operator will respond in accordance with AR-G-25, "MOTOR OFF CTR SECT PMPS EXCEPT MAIN & AUX FEED PMPS," and start the B Charging Pump.

**SIM DRIVER Instructions:** **Operate Trigger #1 (CVC12A)**

**Indications Available:**

- MCB Annunciator G-25, MOTOR OFF CENTER SECTION PUMPS/EXCEPT MAIN AND AUX FEEDPUMPS
- A Charging Pump Green and White Breaker Status Lights are LIT
- Charging Line Flow (FI-128C) reads low (12 gpm)
- RCP Seal Flow (FI-115A/116A) reads low (5 gpm)
- RCP Seal Labyrinth DPs read low (10-20" H2O)
- AR-B-9, RCP 1A LABYR SEAL LO DIFF PRESS
- AR-B-10, RCP 1B LABYR SEAL LO DIFF PRESS

Time	Pos.	Expected Actions/Behavior	Comments
<b>AR-G-25, MOTOR OFF CTR SECT PMPS EXCEPT MAIN &amp; AUX FEED PMPS</b>			
			<b>NOTE:</b> The US may direct the EO to check out the A Charging Pump. <b>If so, SIM DRIVER acknowledge as EO, and report the pump has tripped.</b>
	HCO	(Step 4.1) DETERMINE affected pump (white light at control switch ILLUMINATED).	<b>NOTE:</b> The A Charging Pump (previously running in AUTO), tripped.
	HCO	(Step 4.2) ENSURE standby pump AUTO STARTS, if required.	<b>NOTE:</b> The B Charging Pump, did not auto start.
	CO	(Step 4.3) IF HDT Pump(s) or Condensate Pump(s) TRIPPED, THEN.....	<b>NOTE:</b> An HDT/Condensate Pump did NOT trip.
	HCO	(Step 4.4) IF all Charging Pump(s) tripped, THEN.....	<b>NOTE:</b> All Charging Pumps are NOT tripped.

Op Test No.: N20-1 Scenario # 2 Event # 1 Page 10 of 60Event Description: **A Charging Pump Trip**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 4.5) IF one running Charging Pump TRIPPED, THEN START non-running Charging Pump at minimum speed, if desired.	<b>NOTE:</b> The HCO will start the B Charging Pump and may take MANUAL control of Charging Pump speed.
	US	(Step 4.6) IF Charging Pump TRIPPED due to a VFD fault, THEN perform P-15.79, Accessing and Clearing VFD Faults.	<b>NOTE:</b> The US will direct WCCS to determine this.
	US	(Step 4.7) Notify Electrician.	<b>NOTE:</b> The US may call WCC/Electrical Maintenance to address the Charging Pump Trip. <i>If so, SIM DRIVER acknowledge as WCC/Electrical Maintenance.</i>
	US	(Step 4.8) REFER to the following:	
		<ul style="list-style-type: none"> <li>TS LCO 3.7.5, Auxiliary Feedwater (AFW) System</li> </ul>	<b>NOTE:</b> 3.7.5 is AFW, and N/A to this event.
		<ul style="list-style-type: none"> <li>TRM TR 3.1.1, Boron Injection System – MODES 1, 2, 3, and 4</li> </ul>	<b>NOTE:</b> With 2 charging pumps, requirements are met, but crew may submit A-52.12 for tracking.
		<ul style="list-style-type: none"> <li>TRM TR 3.1.2, Boron Injection System – MODE 5</li> </ul>	
			<b>NOTE:</b> The US will likely conduct a Plant Status Brief.
<b>At the discretion of the Lead Examiner move to Event #2.</b>			

Op Test No.: N20-1 Scenario # 2 Event # 2 Page 11 of 60Event Description: **Fuel Failure/High RCS Activity**

Shortly after this, a fuel failure will occur. The crew will address AR-E-24, "RMS AREA MONITOR HIGH ACTIVITY," and AR-RMS-9, "R9 LETDOWN LINE MONITOR," and enter AP-RCS.3, "High Reactor Coolant Activity." After Chemistry reports that Dose Equivalent Iodine is 13  $\mu$ Ci/gram, the operator will place the 60 GPM letdown orifice in service, in accordance with S-3.2P, "Swapping CVCS Letdown Orifice Valves." The operator will address Technical Specification LCO 3.4.16, "RCS Specific Activity," and EPIP 1.13, "Local Radiation Emergency."

**SIM DRIVER Instructions:** Operate Trigger #2 (RCS16 (0.7, 120 second Ramp))

**NOTE:** It require approximately 1-2 minutes for this malfunction to cause PPCS Alarm for R-9.

**Indications Available:**

- SPDS Normal OPS Page – Containment Radiation Alarm turns RED (R-2 indication starts to rise)
- R-9, Letdown Line Monitor indication rising and in alarm
- PPCS Alarm for R-9 WRN (precedes E-24 alarm)
- MCB Annunciator E-24, RMS AREA MONITOR HIGH ACTIVITY

Time	Pos.	Expected Actions/Behavior	Comments
<b>AR-E-24, RMS AREA MONITOR HIGH ACTIVITY</b>			
	HCO	(Step 4.1) DETERMINE which area monitor has alarmed.	
	HCO/ CO	(Step 4.2) REFER to applicable AR-RMS PROCEDURE.	
	US	(Step 4.3) NOTIFY the following to investigate RMS Alarm:	
		<ul style="list-style-type: none"> <li>• Auxiliary Operators</li> </ul>	<p><b>NOTE:</b> The US may call an EO to address the RMS alarms.</p> <p>If so, <b>SIM DRIVER</b> acknowledge as EO.</p>

Op Test No.: N20-1 Scenario # 2 Event # 2 Page 12 of 60Event Description: **Fuel Failure/High RCS Activity**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Radiation Protection</li> </ul>	<b>NOTE:</b> The US may call RP to address the RMS alarms. If so, <b>SIM DRIVER</b> acknowledge as RP, and report that radiation levels in the vicinity of the Letdown Line are consistent with R-9.
<b>AR-RMS-9, R9 LETDOWN LINE MONITOR</b>			
	US	(Step 1) GO TO AP-RCS.3.	<b>NOTE:</b> The US will transition to AP-RCS.3.
<b>AP-RCS.3, HIGH REACTOR COOLANT ACTIVITY</b>			
<b>NOTE</b> Conditions should be evaluated for site contingency reporting (Refer to EP-AA-1012 ADDENDUM 3, R.E. GINNA NUCLEAR POWER PLANT EMERGENCY ACTION LEVELS).			
	US	(Step 1) VERIFY RCS Activity:	
		<ul style="list-style-type: none"> <li>Direct Chemistry to sample RCS for activity</li> </ul>	<b>NOTE:</b> The US will call Chemistry to address the samples. If so, <b>SIM DRIVER</b> acknowledge as Chemistry.
		<ul style="list-style-type: none"> <li>RCS activity – GREATER THAN NORMAL</li> </ul>	<b>SIM DRIVER: Using Time Compression 2 minutes after this request, report Dose Equivalent I-131 activity 13 µC/gm.</b>  <b>Note: Normal DEI is 1.26E-3 µC/gm.</b>
	HCO	(Step 2) RAISE Letdown Flow to 60 GPM (Refer to S-3.2P, SWAPPING CVCS LETDOWN ORIFICE VALVES)	

Op Test No.: N20-1 Scenario # 2 Event # 2 Page 13 of 60Event Description: **Fuel Failure/High RCS Activity**

Time	Pos.	Expected Actions/Behavior	Comments
<b>S-3.2P, SWAPPING CVCS LETDOWN ORIFICE VALVES</b>			
	HCO	(Step 6.1.1) VERIFY DIVERT VLV CATION DEBOR DI, AOV-244 is in the BYPASS position.	<b>NOTE:</b> AOV-244 is in BYPASS.
<p align="center"><b>NOTE</b></p> <p>PCV-135 SHOULD be adjusted to control Letdown pressure at approximately 200 psig to accommodate the pressure rise when swapping from a 40 gpm orifice to a 60 gpm orifice.</p>			
	HCO	(Step 6.1.2) IF letdown temperature adjustment is required, THEN PERFORM the following: OTHERWISE, MARK this Step N/A.	
	HCO	(Step 6.1.3) PLACE PCV-135 to MANUAL.	
	HCO	(Step 6.1.4) ADJUST as necessary to control Low Pressure Letdown pressure at approximately 200 psig.	
<p align="center"><b>NOTE</b></p> <p>The next step requires two actions, AOV-200A AND AOV-200B SHALL be closed prior to opening AOV-202.</p>			
	HCO	(Step 6.1.5) CLOSE one of the following 40 gpm orifice valves, THEN IMMEDIATELY OPEN LTDN ORIFICE AOV-202 (N/A 40 gpm orifice valve not operated).	<b>NOTE:</b> The HCO will Close AOV-200B and Open AOV-202.
		• AOV-200A Closed	
		• AOV 200B Closed	
		• AOV-202 Open	

Op Test No.: N20-1 Scenario # 2 Event # 2 Page 14 of 60Event Description: **Fuel Failure/High RCS Activity**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 6.1.6) ADJUST PCV-135 UNTIL PI-135 indicates approximately 250 psig.	
	HCO	(Step 6.1.7) ENSURE PCV-135 controller signal is nulled/balanced AND THEN PLACE PCV-135 to AUTO.	
	HCO	(Step 6.1.8) ADJUST the Charging Pump that is in manual UNTIL the speed of the operating pumps is approximately equal.	<b>NOTE:</b> The C Charging Pump is in MANUAL.
	HCO	(Step 6.1.9) VERIFY Letdown temperature is at desired value, THEN ENSURE TCV-130 is in AUTO.	
	HCO	(Step 6.1.10) IF Charging/Letdown mismatch exist, THEN PLACE Charging Pumps in manual AND ADJUST as necessary to maintain Charging/Letdown mismatch at approximately 0. OTHERWISE, MARK this Step N/A.	
	HCO	(Step 6.1.11) LOCALLY ADJUST SEAL INJECTION INLET NEEDLE VLV TO RCP A, V-300A AND SEAL INJECTION INLET NEEDLE VLV TO RCP B, V-300B, as necessary to maintain labyrinth seal D/P between 30 and 40 inches.	<b>NOTE:</b> The HCO will call an EO to adjust the valves. If so, <b>SIM DRIVER</b> acknowledge as EO, and use REM-CVC19 for V-300A and REM-CVC20 for V-300B.
	HCO	(Step 6.1.12) MONITOR Letdown temperature is controlling at desired value.	
	HCO	(Step 6.1.13) VERIFY local demin D/P less than 25 psid (DPI-100 or DPI-101).	<b>NOTE:</b> The HCO will call an EO to obtain reading. If so, <b>SIM DRIVER</b> acknowledge as EO, and report local reading is 18 psid.

Op Test No.: N20-1 Scenario # 2 Event # 2 Page 15 of 60Event Description: **Fuel Failure/High RCS Activity**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 6.1.14) NOTIFY Shift Chemistry Technician.	<b>NOTE:</b> The HCO will call Chemistry to address the rise in Letdown flow. If so, <b>SIM DRIVER</b> acknowledge as Chemistry.
<b>AP-RCS.3, HIGH REACTOR COOLANT ACTIVITY</b>			
	HCO/ CO	(Step 3) CHECK Letdown Line Monitor, R-9 – LESS THAN 200 MR/HR ABOVE BACKGROUND	<b>NOTE:</b> R-9 is indicating abnormally high.
	HCO/ CO	(Step 3RNO) Evaluate conditions to determine whether local radiation emergency exists (Refer to EPIP 1-13, LOCAL RADIATION EMERGENCY)	<b>NOTE:</b> The US may address EPIP 1-13.
<b>CAUTION</b> PLACING A NEW DI IN SERVICE MAY RESULT IN A POSITIVE OR NEGATIVE REACTIVITY ADDITION DUE TO A BORON CHANGE.			
	US	(Step 4) Direct Chemistry to Sample Letdown DI Efficiency – DECONTAMINATION FACTOR GREATER THAN 10	<b>NOTE:</b> The US will call Chemistry to address the samples. If so, <b>SIM DRIVER</b> acknowledge as Chemistry.
	HCO/ CO	(Step 5) Evaluate AUX BLDG Radiation Levels:	
		<ul style="list-style-type: none"> <li>Direct RP Tech to survey AUX BLDG</li> </ul>	<b>NOTE:</b> The US will call RP to address the elevated rad levels. If so, <b>SIM DRIVER</b> acknowledge as RP.
		<ul style="list-style-type: none"> <li>Check AUX BLDG radiation monitors - NORMAL</li> </ul>	
		<ul style="list-style-type: none"> <li>R-4</li> </ul>	
		<ul style="list-style-type: none"> <li>R-9</li> </ul>	

Op Test No.: N20-1 Scenario # 2 Event # 2 Page 16 of 60Event Description: **Fuel Failure/High RCS Activity**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>R-10B</li> </ul>	
		<ul style="list-style-type: none"> <li>R-13</li> </ul>	
		<ul style="list-style-type: none"> <li>R-14</li> </ul>	
	US	(Step 5.b RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Direct RP Tech to survey AUX BLDG areas as necessary.</li> </ul>	<b>NOTE:</b> The US will call RP to address the elevated rad levels. If so, <b>SIM DRIVER</b> acknowledge as RP.
		<ul style="list-style-type: none"> <li>Evaluate conditions to determine whether local radiation emergency exists (Refer to EPIP 1-13, LOCAL RADIATION EMERGENCY).</li> </ul>	<b>NOTE:</b> The US may address EPIP 1-13.
	HCO/CO	(Step 6) Evaluate MCB Annunciator Status (Refer to AR Procedures)	
	US	(Step 7) Determine If Plant Operation Can Continue (Consult Plant staff if necessary) – OPERATION CAN CONTINUE	<b>NOTE:</b> The US will call Supervision to address the elevated rad levels. If so, <b>SIM DRIVER</b> acknowledge as appropriate.
		<ul style="list-style-type: none"> <li>RP Supervision</li> </ul>	
		<ul style="list-style-type: none"> <li>Chemistry Supervision</li> </ul>	
		<ul style="list-style-type: none"> <li>Reactor Engineer</li> </ul>	
<b>NOTE</b> Refer to LS-AA-1020, REPORTABILITY TABLES AND DECISION TREES, for reporting requirements.			
	US	(Step 8) Notify Higher Supervision	<b>NOTE:</b> The US will call WCCS/Supervision to address the elevated rad levels. If so, <b>SIM DRIVER</b> acknowledge as appropriate.



Op Test No.: N20-1 Scenario # 2 Event # 2 Page 17 of 60Event Description: **Fuel Failure/High RCS Activity**

Time	Pos.	Expected Actions/Behavior	Comments
			<b>NOTE:</b> The US may address to EPIP 1-13.
<b>EPIP 1-13, LOCAL RADIATION EMERGENCY</b>			
	HCO	(Step 6.1.1) Upon notification that a Local Radiation Emergency exists, the following actions should be taken:	
	HCO	(Step 6.1.2) Make an appropriate announcement over the paging system that all personnel shall evacuate the affected area.	
	HCO	(Step 6.1.2.1) For evacuation of the Containment Building:	<b>NOTE:</b> There is no one in the CTMT.
	HCO	(Step 6.1.2.2) For a fuel handling accident in the SFP area, make the following announcement:	<b>NOTE:</b> There is no Fuel Handling Accident in progress.
	US	(Step 6.1.3) Take appropriate action to limit contain or correct the condition. Refer to RMS Alarm Response and ER-RMS.1, Determining the Location of High Activity Within the Plant Utilizing the Plant Vent, as required. Consider altering the ventilation lineup to optimize filter flow and negative pressure in the Aux. Bldg.	
	US	(Step 6.1.4) Notify the Shift Manager to perform section 6.2.	<b>NOTE:</b> The US will call Supervision to address the elevated rad levels. <b>If so, SIM DRIVER acknowledge as appropriate.</b>

Event Description: **Fuel Failure/High RCS Activity**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 6.1.5) Notify the Radiation Protection Section to perform Section 6.3.	<b>NOTE:</b> The US will call RP to address the elevated rad levels. If so, <b>SIM DRIVER</b> acknowledge as RP.
<b>TECHNICAL SPECIFICATION 3.4.16, RCS SPECIFIC ACTIVITY</b>			
	US	(LCO 3.4.16) The specific activity of the reactor coolant shall be within limits.	
		APPLICABILITY: Mode 1 and 2, Mode 3 with RCS average temperature ( $T_{avg}$ ) $\geq 500^{\circ}\text{F}$ .	
		ACTIONS:	
CONDITION		REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT 1-131 specific activity not within limit.		NOTE – LCO 3.0.4.c is applicable. A.1 Verify DOSE EQUIVALENT 1-131 $\leq 60\mu\text{Ci/gm}$ .  AND  A.2 Restore DOSE EQUIVALENT 1-131 to within limit.	Once per 8 hours       7 days
			<b>NOTE:</b> The US will identify that SR 3.4.16.2 is NOT being complied with making Condition A applicable.
			<b>NOTE:</b> The US will likely conduct a Plant Status Brief.
<b>At the discretion of the Lead Examiner move to Event #3.</b>			

Op Test No.: N20-1 Scenario # 2 Event # 3 Page 19 of 60Event Description: **Generator Hydrogen Temperature (Cold Gas) Instrument fails HIGH**

Following this, the Generator Hydrogen Temperature (Cold Gas/TT-2023) Instrument will fail HIGH causing the Temperature Controller to increase cooling flow to the Main Generator, and Generator Gas temperatures to start to decrease. The operator will respond in accordance with AR-H-22, "H2 CLR TEMP HI/BYP VLV < 70% OPEN." Using AR-H-22, the operator will take manual control of the Generator Hydrogen Temp Controller (TC-2023), as necessary, to control Generator Gas Temperature.

**SIM DRIVER Instructions:** Operate Trigger #3 (GEN02 (200, 30 second Ramp))

**NOTE:** It requires approximately 2 minutes for this malfunction to cause MCB Annunciator H-22.

**Indications Available:**

- MCB Annunciator H-22, H2 CLR TEMP HI/BYP VLV <70% OPEN
- Pt. 9 on RK-30 abruptly increases to 93°C
- TC-2023 output moving toward 0%

Time	Pos.	Expected Actions/Behavior	Comments
<b>AR-H-22, H2 CLR TEMP HI/BYP VLV &lt; 70% OPEN</b>			
<b>NOTE</b>			
<ul style="list-style-type: none"> <li>• Alarm indicates maximum CNDST flow through H2 Coolers.</li> <li>• Raising CNDST Cooler cooling should cause the H2 Cooler bypass valve to open as cooler water enters the H2 Coolers.</li> <li>• 80% open on the H2 Cooler bypass valve corresponds to approximately 20% H2 Cooler controller demand signal.</li> <li>• CNDST TO GEN H2 COOLERS, TI-2029 SHALL be maintained greater than 73°F. Lower cooler inlet temperature causes higher delta T's AND low flow which can lead to H2 Cooler leakage into the Main Generator.</li> <li>• Local guidance for maintaining temperature is in P-15.95, LOCAL OPERATION CONTROLLING GENERATOR HYDROGEN COOLER INLET TEMPERATURE.</li> </ul>			
	CO	(Step 4.1) CHECK for H2 Cooler controller failure (Back of MCB center Section). IF the Controller has failed THEN PLACE the Controller in Manual at 50%	<b>NOTE:</b> The CO will place the TC-2023 in MANUAL and control output. Controller was responding to the FAILED HI RTD.

Op Test No.: N20-1 Scenario # 2 Event # 3 Page 20 of 60Event Description: **Generator Hydrogen Temperature (Cold Gas) Instrument fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 4.2) If the controller demand is less than 20%, THEN PLACE the controller in MANUAL at 50%	<b>NOTE:</b> Controller was at 0% (fully OPEN position)
	CO	(Step 4.3) MONITOR generator gas temperatures AND MAINTAIN Cold Gas Temperature between 38 and 45 degrees C. (MCB Back – Recorder RK-30)	
	CO	(Step 4.4) IF the condensate cooler is in service, THEN .....	<b>NOTE:</b> The Condensate Cooler is NOT in service.
	CO	(Step 4.5) IF the condensate cooler is NOT in service AND it is desired to place it in service, THEN...	<b>NOTE:</b> It is NOT desired to place the Condensate Cooler in service.
	CO	(Step 4.6) CHECK Condensate Cooler $\Delta P$ (MCB Back – Diff Press PI-2036 –Max 10 PSID).	<b>NOTE:</b> The Condensate Cooler is NOT in service.
	CO	(Step 4.7) CHECK H2 Cooler $\Delta P$ (MCB Back - Diff Press PI-2026 - Max 8.5 PSID)	
	CO	(Step 4.8) IF automatic valve control failure is suspected, THEN....	<b>NOTE:</b> The CO will diagnose an RTD Failure.
			<b>NOTE:</b> The US may notify the WCC. <b>SIM DRIVER:</b> as WCCS, acknowledge.
<b>At the discretion of the Lead Examiner move to Event #4.</b>			

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 21 of 60Event Description: **B Feed Pump Oil Leak/Trip**

After this, the B Main Feedwater Pump will develop an oil leak, and trip within 60 seconds. The operator will respond using AR-H-4, "MAIN FEED PUMP OIL SYSTEM," and AR-H-12, "FEED PUMP DC OIL PUMP AUTO START," and enter AP-FW.1, "Abnormal MFW Pump Flow or NPSH." The operator will start the A MDAFW Pump and the TD AFW Pump and initiate a downpower in accordance with AP-TURB.5, "Rapid Load Reduction."

**SIM DRIVER Instructions:**

**Operate Trigger #4 (FDW04B (100, 600 second Ramp); FDW02B (B MFWP Trip 60 seconds delayed))**

**NOTE: OVR-ROD04C (Rods fail in AUTO) and ROD03-G11 (Rod Untrippable) are also operated on Trigger #4 to set-up Event 5**

**Indications Available:**

- MCB Annunciator H-12, FEED PUMP DC OIL PUMP AUTO START
- Feed Pump DC Oil Pump Red status light is LIT.

Time	Pos.	Expected Actions/Behavior	Comments
<b>AR-H-12, FEED PUMP DC OIL PUMP AUTO START</b>			
	CO	(Step 1) VERIFY DC Oil Pump started.	
	CO	(Step 2) NOTIFY AO to perform the following:	<b>NOTE:</b> The US may direct the EO to report status of the B MFWP.  If so, <b>SIM DRIVER</b> acknowledge as EO, and within 30 seconds report that there is a large oil leak on the pump.
		<ul style="list-style-type: none"> <li>• VERIFY Oil in the sump by LG-2764(2773) OR dipstick.</li> </ul>	
		<ul style="list-style-type: none"> <li>• CHECK DC Oil Pump.</li> </ul>	
	CO	(Step 3) IF required, THEN START the other AC Oil Pump.	<b>NOTE:</b> The B MFW Pump will trip within 60 seconds.

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 22 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 4) NOTIFY AO to check the running AC Oil Pump.	
	CO	(Step 5) WHEN AO reports the AC Pump is operating, THEN STOP the DC Oil Pump, AND PLACE in AUTO.	
			<b>NOTE:</b> The US will transition to AP-FW.1.
<b>AP-FW.1, ABNORMAL MFW PUMP FLOW OR NPSH</b>			
<b>NOTE</b> IF power reduction is required, OPG-REACTIVITY-CALC provides the amount and rate of Boric Acid Addition.			
	HCO	(Step 1) Check MFW Requirements:	<b>NOTE:</b> Power level is $\approx$ 70%.
		<ul style="list-style-type: none"> <li>Power – GREATER THAN 50%</li> </ul>	
		<ul style="list-style-type: none"> <li>Both MFW pumps - RUNNING</li> </ul>	
	HCO	(Step 1.b RNO) IF power greater than 75%, THEN...	<b>NOTE:</b> Power level is $\approx$ 70%.
	CO	IF power less than 75% and only one MFW pump has tripped THEN perform the following:	
		<ul style="list-style-type: none"> <li>Start all 3 AFW pumps and verify flow.</li> </ul>	<b>NOTE:</b> The CO will start the A MDAFW Pump and the TD AFW Pump. The B MDAFW Pump is OOS.
		<ul style="list-style-type: none"> <li>Place tripped MFW pump switch to Pull Stop to shut the MFW Pump Recirc Valve.</li> </ul>	
		<ul style="list-style-type: none"> <li>Initiate power reduction. Refer to AP-TURB.5, RAPID LOAD REDUCTION.</li> </ul>	<b>NOTE:</b> The US will transition to AP-TURB.5.

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 23 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
			<b>Examiner Note:</b> The US will terminate the load reduction when feed flow is greater than steam flow and continue with AP-FW.1. When the load reduction is terminated continue with <b>AP-FW.1 actions on Page 29.</b>
<b>AP-TURB.5, RAPID LOAD REDUCTION</b>			
			<b>NOTE:</b> The US/CO may notify the <b>CENG Generation Dispatch.</b> <b>SIM DRIVER:</b> as <b>CENG Generation Dispatch</b> , acknowledge. <b>NOTE:</b> The US may notify the <b>RG&amp;E ECC.</b> <b>SIM DRIVER:</b> as <b>RG&amp;E ECC</b> , acknowledge.
<p align="center"><b>CAUTION</b></p> <p>IF MAIN FEEDWATER FLOW SHOULD LOWER TO 25% OF FULL POWER FLOW (<math>1 \times 10^6</math> LB/HR) PRIOR TO THE AMSAC SYSTEM AUTOMATICALLY BLOCKING AT 40% POWER, THEN A TURBINE TRIP AND AUX FEED PUMPS START COULD RESULT.</p>			
<p align="center"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>IF the turbine is to be taken offline, THEN transfer of 4160V loads may be performed at any time. Refer to ATT-23.0, ATTACHMENT TRANSFER 4160V LOADS.</li> <li>A maximum continuous load reduction rate of greater than 5%/min should not be used unless directed by the Shift Manager.</li> <li>Perform a Load Reduction Brief per A-503.1 Emergency and Abnormal Procedures User Guide Attachment 1.</li> </ul>			
	HCO	(Step 1) Initiate Load Reduction	
		<ul style="list-style-type: none"> <li>Verify rods in AUTO</li> </ul>	<b>NOTE:</b> The rods are in AUTO, however, the rods will not move in AUTO.  WHEN this is diagnosed the HCO will manually insert rods to match Tavg with Tref (Step 1.a RNO).
	HCO	<ul style="list-style-type: none"> <li>Initiate boration at the rate determined in OPG-REACTIVITY-CALC.</li> </ul>	<b>NOTE:</b> The HCO will initiate a boration per S-3.1.

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 24 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
<b>S-3.1, BORON CONCENTRATION CONTROL ATTACHMENT 2, NORMAL BORATION</b>			
	HCO	(Step 1) ENSURE Attachment 1, Makeup Determinations, is complete.	
	HCO	(Step 2) Board operator SHALL inform US of intent to change core reactivity.	
		<ul style="list-style-type: none"> <li>US SHALL acknowledge reactivity manipulation and provide input and oversight. [G0092].</li> </ul>	
	HCO	(Step 3) PLACE RMW MODE SELECTOR control switch to BORATE position.	
	HCO	(Step 4) SET BA TO BA BLENDER FLOW CONTROL VALVE, HCV-110A, controller to flow rate determined in Attachment 1, Makeup Determinations, Step 1.1.	
	HCO	(Step 5) SET BA COUNTER, YIC-110, to quantity determined in Attachment 1.	
<b>NOTE</b>			
Key parameters including Reactor Coolant Tavg AND control rod position indication, OR subcritical count rate SHALL be observed as boric acid is injected to ensure proper response. [G0092] [G0132]			
	HCO	(Step 6) PLACE RMW CONTROL switch to START position.	
	HCO	(Step 7) VERIFY the following:	
		<ul style="list-style-type: none"> <li>BORIC ACID TRANSFER PUMP A OR B starts.</li> </ul>	



Op Test No.: N20-1 Scenario # 2 Event # 4 Page 25 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>BA TO BA BLENDER FLOW CONTROL VLV, HCV-110A, throttles open to preset flow position.</li> </ul>	
		<ul style="list-style-type: none"> <li>REACTOR MAKEUP TO CHG PUMP, AOV-110B, opens.</li> </ul>	
	HCO	(Step 8) WHEN boration is complete, THEN PERFORM the following:	
		<ul style="list-style-type: none"> <li>PLACE RMW MODE SELECTOR control switch to AUTO position.</li> </ul>	
		<ul style="list-style-type: none"> <li>PLACE RMW CONTROL switch to START position and VERIFY RMW control red light ILLUMINATED.</li> </ul>	
		<ul style="list-style-type: none"> <li>SET BA TO BA BLENDER FLOW CONTROL VLV, HCV-110A, for current RCS boron concentration PER Boration/Dilution tables OR PPCS Engineering Menu Boration/Dilution display.</li> </ul>	
	HCO	(Step 9) PLACE "BORATE" Human Performance Label next to RMW Mode Selector switch on MCB.	
	HCO	(Step 10) Board operator SHALL inform US that reactivity manipulation is complete. [G0092]	
	HCO	(Step 11) RECORD amount of boric acid added on S-12.4, RCS Leakage Surveillance Record Instructions, Attachment RCS Leakage Surveillance Record.	
<b>AP-TURB.5, RAPID LOAD REDUCTION</b>			
	CO	<ul style="list-style-type: none"> <li>Reduce turbine load in Auto as follows:</li> </ul>	
		<ul style="list-style-type: none"> <li>Place Turbine EH Control in OPER PAN., IMP PRESS IN, if desired.</li> </ul>	

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 26 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Select desired rate on thumbwheel</li> </ul>	<b>NOTE:</b> The CO will select 1-3%/Minute.
		<ul style="list-style-type: none"> <li>Reduce the setter to the desired load</li> </ul>	
		<ul style="list-style-type: none"> <li>Depress the GO button</li> </ul>	
	HCO	<ul style="list-style-type: none"> <li>Place PRZR backup heaters switch to ON</li> </ul>	
<b>CAUTION</b> EXTREME AND RAPID ROD MOTION TO MITIGATE TAVG SWINGS MAY RESULT IN LARGE POWER EXCURSIONS AND SHOULD BE AVOIDED.			
	HCO	(*Step 2) Monitor RCS Tavg	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Tavg – GREATER THAN 545°F</li> </ul>	
		<ul style="list-style-type: none"> <li>Tavg – LESS THAN 579°F</li> </ul>	
			<b>NOTE:</b> The rods have failed to move in AUTO. WHEN this is diagnosed the HCO will manually insert rods to match Tavg with Tref. As the controls are inserted it will be diagnosed that there is one stuck rod.
	HCO	(Step 3) Adjust Boric Acid Addition Rate As Necessary To (refer to OPG-REACTIVITY-CALC)	
		<ul style="list-style-type: none"> <li>Maintain rods above the insertion limit</li> </ul>	
		<ul style="list-style-type: none"> <li>Match Tavg and Tref</li> </ul>	
		<ul style="list-style-type: none"> <li>Compensate for Xenon</li> </ul>	
<b>NOTE</b> With PRZR pressure controller in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3)			

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 27 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(*Step 4) Monitor PRZR Pressure TRENDING to 2235 PSIG IN AUTO	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
	CO	(*Step 5) Monitor MFW Regulating Valves – RESTORING S/G LEVEL TO 52% in AUTO	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
			<b>NOTE:</b> The MFW Regulating Valves are working in conjunction with the AFW System. The CO may stop feed to the A S/G with the TDAFW Pump (AOV-4297). This will result in the A MDAFW Pump feeding the A S/G, and the TDAFW Pump feeding the B S/G.
	HCO	(*Step 6) Monitor PRZR Level – TRENDING TO PROGRAM IN AUTO CONTROL	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
			<b>NOTE:</b> Stuck rod causes C-5 alarm. <b>NOTE:</b> The US should NOT stop the load decrease, but at the same time address the Stuck Rod. <b>Examiner NOTE:</b> The crew may enter AP-RCC.2 at any time based on AR-C-5 or MRPI Indication. If so, <b>MOVE to Event 5 as needed (Page 37)</b> . This may result in simultaneous performance of AP-FW.1 and AP-RCC.2.
<b>NOTE</b> It is permissible to operate RCPs for limited periods without seal injection, provided CCW is being supplied to the thermal barriers.			
	CO	(Step 7) Check IA Available To CNMT	

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 28 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>IA pressure - GREATER THAN 60 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Instr Air to CNMT Isol Valve, AOV-5392 - OPEN</li> </ul>	
	HCO/ CO	(Step 8) Check Steam Dump Status:	
		<ul style="list-style-type: none"> <li>Annunciator G-15, STEAM DUMP ARMED - LIT</li> </ul>	
	HCO/ CO	(Step 8 RNO) IF steam dump required but NOT operating, THEN...	
<b>CAUTION</b> MANUAL REJECT MAY BE REQUIRED TO PREVENT SIGNIFICANT AFFECT ON CONDENSATE PRESSURE			
	CO	(Step 9) Check Hotwell Level:	<b>NOTE:</b> Depending on progress through this procedure, the crew may or may not perform the RNO. If not, MOVE to Step 10.
		<ul style="list-style-type: none"> <li>Hotwell level controller in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Controller demand LESS THAN 60%</li> </ul>	
		<ul style="list-style-type: none"> <li>Hotwell level at setpoint</li> </ul>	
	CO	(Step 9 RNO) IF controller demand approaching 70% (Large Reject Valve Opens), THEN place controller in Manual and control level.	
<b>NOTE</b> The load reduction should not be delayed to perform the remaining steps.			

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 29 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
	US/ CO	(*Step 10) Check If Condensate Booster Pumps Should Be Secured	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Condensate booster pumps – 2 PUMPS RUNNING</li> </ul>	<b>NOTE:</b> There are no Condensate Booster Pumps running.
	CO	(Step 10.a RNO) IF only 1 Condensate Booster Pump running, THEN.....	
	CO	(Step 11) Check If One MFW Pump Should Be Secured	
		<ul style="list-style-type: none"> <li>Power LESS THAN 50%</li> </ul>	
	US	(Step 11.a RNO) GO TO Step 18.	
	US	(Step 18) Evaluate Plant Status	
		<ul style="list-style-type: none"> <li>IF load was reduced more than 15% RTP in one hour, THEN notify RP to obtain primary samples required by ITS LCO 3.4.16</li> </ul>	<b>NOTE:</b> The US will contact RP. <b>SIM DRIVER:</b> as RP, acknowledge
		<ul style="list-style-type: none"> <li>Power stable at desired level</li> </ul>	
		(Step 18b RNO) IF power greater than 20% and further reduction is required, THEN continue load reduction and return to Step 2.	<b>NOTE:</b> The crew will continue the downpower and perform the remaining actions of AP-FW.1 in parallel.
			<b>Examiner NOTE:</b> The crew may enter AP-RCC.2 at any time based on AR-C-5 or MRPI Indication. If so, MOVE to Event 5 (Page 37) as needed.
<b>AP-FW.1, ABNORMAL MFW PUMP FLOW OR NPSH</b>			
	US	(Step 1.b RNO 3) WHEN feed flow greater than steam flow, THEN stop load reduction.	<b>NOTE:</b> The US will stop the load decrease when feed flow is greater than steam flow.

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 30 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Go to Step 3.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF both MFW pumps have tripped THEN...</li> </ul>	<b>NOTE:</b> The A MFW Pump is still running.
	CO	(Step 3) Check S/G Status	
		<ul style="list-style-type: none"> <li>MFW flows – GREATER THAN STEAM FLOWS</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G levels stabilizing or returning to program</li> </ul>	
	CO	(Step 4) Verify at Least 2 Condensate pumps - RUNNING	
	CO	(Step 5) Verify Both HDT Pumps - RUNNING	
	CO	(Step 5 RNO) IF greater than 70% power, and one HDT Pump has tripped, THEN...	<b>NOTE:</b> The B HDT Pump is running.
		<ul style="list-style-type: none"> <li>IF both HDT pumps have tripped, THEN...</li> </ul>	
	CO	(Step 6) Check Condensate Booster Pumps – 2 RUNNING	<b>NOTE:</b> There are no Condensate Booster Pumps running.
	CO	(Step 6 RNO) IF no condensate booster pump is running, THEN perform the following:	
		<ul style="list-style-type: none"> <li>Ensure power less than 70%. (Refer to AP-TURB.5, RAPID LOAD REDUCTION)</li> </ul>	<b>NOTE:</b> Power level is < 70%.
	US	<ul style="list-style-type: none"> <li>Continue with Step 7.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF a running condensate booster pump has tripped AND the standby pump has NOT started, THEN.....</li> </ul>	<b>NOTE:</b> No Booster Pumps have been running in this scenario.

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 31 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 7) Check Both MFW Pump Recirc AOV's CLOSED	<b>NOTE:</b> The B MFW Pump Recirc Valve is Open.
		<ul style="list-style-type: none"> <li>AOV-4147</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-4148</li> </ul>	
	CO	(Step 7 RNO) Dispatch an AO to locally place the associated RECIRC Controller in MANUAL AND CLOSE the associated MFP RECIRC AOV at the MFW Pump Seal Water Panel.	<b>NOTE:</b> The US/CO will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge.
<b>CAUTION</b> MANUAL REJECT MAY BE REQUIRED TO PREVENT SIGNIFICANT AFFECT ON CONDENSATE PRESSURE.			
	CO	(Step 8) Check Hotwell Level:	<b>NOTE:</b> Hotwell may be out of band during the transient. If so, the Step 8 RNO will be performed.
		<ul style="list-style-type: none"> <li>Hotwell Level controller in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Controller demand less than 70%</li> </ul>	
		<ul style="list-style-type: none"> <li>Hotwell level at setpoint</li> </ul>	
	CO	(Step 8 RNO) IF controller demand approaching 70% (Large Reject Valve Opens), THEN place controller in Manual and control level	
	CO	(Step 9) Check MFW Pump Suction Pressure	
		<ul style="list-style-type: none"> <li>Both MFW pump suction pressures GREATER THAN 200 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator H-17, FEED PUMP NET POSITIVE SUCTION HEAD – EXTINGUISHED.</li> </ul>	
	CO	(Step 10) Verify Adequate MFW Flow:	

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 32 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>A MFW flow – GREATER THAN OR EQUAL TO A STEAM FLOW</li> </ul>	
		<ul style="list-style-type: none"> <li>B MFW flow – GREATER THAN OR EQUAL TO B STEAM FLOW</li> </ul>	
	CO	(Step 11) Check Status of MFW System:	
		<ul style="list-style-type: none"> <li>Both MFW pumps - RUNNING</li> </ul>	<b>NOTE:</b> Only the A MFW Pump is running.
	CO	(Step 11.a RNO) IF any MFW has tripped, THEN place pump control switch to PULL STOP to close recirc to condenser. AOV-4262.	
		<ul style="list-style-type: none"> <li>IF AOV-4262 will NOT close, THEN...</li> </ul>	
		(Step 11.b-c) Verify condensate pump recirc valve AOV-4238 – CLOSED (PPCS V4238)	
		<ul style="list-style-type: none"> <li>Check MFW pump suction pressure:</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure – GREATER THAN 200 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure - STABLE</li> </ul>	
<p align="center"><b>NOTE</b></p> <p>With PRZR pressure controller 431K in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3)</p>			
	US	(Step 12) Establish Stable Plant Conditions:	
	HCO	<ul style="list-style-type: none"> <li>Tavg – AT OR TRENDING TO TREF</li> </ul>	<p><b>NOTE:</b> The rods have failed to move in AUTO.</p> <p>WHEN this is diagnosed the HCO will manually insert rods to match Tavg with Tref.</p> <p>As the controls are inserted it will be diagnosed that there is one stuck rod.</p>



Op Test No.: N20-1 Scenario # 2 Event # 4 Page 33 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 12.a RNO) IF Tavg greater than Tref, THEN restore Tavg to Tref by one or more of the following:	
		<ul style="list-style-type: none"> <li>Insert control rods</li> </ul>	
		<ul style="list-style-type: none"> <li>RCS boration</li> </ul>	
		IF Tavg less than Tref, THEN....	<b>NOTE:</b> Tavg is expected to be higher than Tref.
	HCO/ CO	(Step 12.b-e) PRZR pressure – AT OR TRENDING TO 2235 PSIG IN AUTO	
		<ul style="list-style-type: none"> <li>PRZR level – AT OR TRENDING TO PROGRAM IN AUTO CONTROL</li> </ul>	
		<ul style="list-style-type: none"> <li>MFW regulating valves – RESTORING S/G LEVEL TO 52% IN AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Rod insertion limit alarms - EXTINGUISHED</li> </ul>	

**Critical Task:**

**Stabilize the plant during the Main Feedwater Pump Trip before the Reactor must be manually tripped at 20% or automatically trips on a low Narrow Range Steam Generator level**

Safety Significance: Failure to control plant power and stabilize the transient, under the postulated plant conditions, results in an unnecessary transient to the plant and challenge to the Reactor Protection System. Performance of the critical task would stabilize the transient. A failure to stabilize the transient, when able to do so (i.e. event initiates from < 75% power), constitutes a mis-operation or incorrect crew performance which leads to incorrect RCS pressure/temperature control.

	CO	(Step 13) Check Status of Condensate System:	
		<ul style="list-style-type: none"> <li>Check hotwell level controller, LC-107</li> </ul>	
		<ul style="list-style-type: none"> <li>Hotwell Level controller in AUTO</li> </ul>	<b>NOTE:</b> The Hotwell level controller may be in MANUAL.
		<ul style="list-style-type: none"> <li>Controller demand less than 70%</li> </ul>	
		<ul style="list-style-type: none"> <li>Hotwell level at setpoint</li> </ul>	

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 34 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Check condensate bypass valve, AOV-3959, CLOSED, IN AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Check condensate pump – LESS THAN 3 PUMPS RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify trim valves in AUTO at 400 psig</li> </ul>	
	HCO/CO	(Step 14) Verify Control Systems In Auto	
		<ul style="list-style-type: none"> <li>Verify 431K in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify PRZR spray valves in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify PRZR Heaters restored:</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR proportional heater breaker - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR backup heater breaker – RESET / IN AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify one charging pump in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify MFW regulating valves in AUTO</li> </ul>	<b>NOTE:</b> The MFW regulating Valves are working in conjunction with the AFW System. The CO may have previously stopped feed to the A S/G with the TDAFW Pump (AOV-4297).
		<ul style="list-style-type: none"> <li>Verify EH controls in OP PAN, IMP OUT</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify steam dump controller, HC-484, in AUTO at 1005 psig</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify annunciator G-15, STEAM DUMP ARMED - EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify Rods in AUTO</li> </ul>	<b>NOTE:</b> The rods have failed to move in AUTO.
	HCO	(Step 14.i RNO) Place Rods in AUTO, if desired.	<b>NOTE:</b> The HCO will NOT place the control rods in AUTO.
	CO	(Step 15) Restore AFW System to Auto Standby:	

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 35 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Check AFW pumps – ANY RUNNING</li> </ul>	<b>NOTE:</b> The A MDAFW Pump and the TDAFW Pump are running.
		<ul style="list-style-type: none"> <li>Verify MFW regulating valves – RESTORING S/G LEVEL TO 52% IN AUTO</li> </ul>	<b>NOTE:</b> The MFW regulating Valves are working in conjunction with the AFW System. The CO may have previously stopped feed to the A S/G with the TDAFW Pump (AOV-4297).
		<ul style="list-style-type: none"> <li>Close TDAFW pump steam supply valves</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-3504A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-3505A</li> </ul>	
		<ul style="list-style-type: none"> <li>Direct EO to locally isolate S/G blowdowns, (Refer to T-14N, BLOWDOWN SYSTEM FLOW CHANGES)</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge and report that action is complete in 2 minutes.
		<ul style="list-style-type: none"> <li>WHEN EO has locally isolated S/G blowdowns, THEN stop MDAFW pumps and place switches in AUTO</li> </ul>	<b>NOTE:</b> The CO will stop the A MDAFW Pump when blowdowns have been isolated.
		<ul style="list-style-type: none"> <li>Open AFW pump discharge valves</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-4007</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-4008</li> </ul>	<b>NOTE:</b> The B MDAFW Pump is OOS, and this valve will remain Closed.
		<ul style="list-style-type: none"> <li>MOV-3996</li> </ul>	
		<ul style="list-style-type: none"> <li>Open TDAFW pump flow control valves</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-4297</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-4298</li> </ul>	
		<ul style="list-style-type: none"> <li>Direct EO to locally restore S/G blowdowns to desired glow rate, (Refer to T-14N, BLOWDOWN SYSTEM FLOW CHANGES)</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge and report that action is complete in 2 minutes.

Op Test No.: N20-1 Scenario # 2 Event # 4 Page 36 of 60Event Description: **B Feed Pump Oil Leak/Trip**

Time	Pos.	Expected Actions/Behavior	Comments
	US	<ul style="list-style-type: none"> <li>GO to Step 17</li> </ul>	
	HCO/ CO	(Step 17) Evaluate MCB Annunciator Status (Refer to AR procedures)	
	US	(Step 18) Check If PRZR Boron Should Be Mixed	
		<ul style="list-style-type: none"> <li>Boration performed for load reduction</li> </ul>	
	HCO	<ul style="list-style-type: none"> <li>Place PRZR backup heaters switch to ON</li> </ul>	
<p style="text-align: center;"><b>NOTE</b></p> <p>Refer to LS-AA-1020, REPORTABILITY TABLES AND DECISION TREES for reporting requirements.</p>			
	US	(Step 19) Notify Higher Supervision	<p><b>NOTE:</b> The US will call Supervision to address the elevated rad levels.</p> <p>If so, <b>SIM DRIVER</b> acknowledge as appropriate.</p>
	US	(Step 20) Return to Procedure Or Guidance IN Effect	
<p style="text-align: center;"><b>When the crew addresses AP-RCC.2 move to Event #5.</b></p>			

Op Test No.: N20-1 Scenario # 2 Event # 5 Page 37 of 60Event Description: **Control Rods fail to Move in AUTO/Stuck Rod**

During the downpower, the control rods will fail to move in auto and the operator will need to insert control rods manually. Additionally, Control Rod G-11 will stick in its original position. After the plant stabilizes, the operator will respond in accordance with AR-C-5, "PPCS ROD SEQUENCE OR ROD DEVIATION/PPCS LTOP HI-LOW TEMPERATURE," and enter AP-RCC.2, "RCC/RPI Malfunction." The operator will address Technical Specification LCO 3.1.4, "Rod Group Alignment Limits," and LCO 3.2.4, "Quadrant Power Tilt Ratio."

**SIM DRIVER Instructions:** **NA**

**NOTE: OVR-ROD04C (Rods fail in AUTO) and ROD03-G11 (Rod Untrippable) were previously operated on Trigger #4.**

**Indications Available:**

- Control Rods do not move in AUTO
- Control Rod G-11 MRPI indicates that the rod is NOT moving

Time	Pos.	Expected Actions/Behavior	Comments
<b>AR-C-5, PPCS ROD SEQUENCE OR ROD DEVIATION/PPCS LTOP HI-LOW TEMPERATURE</b>			
	HCO	IF rods are out of sequence, THEN....	
	HCO	IF rod position deviation, THEN	
		<ul style="list-style-type: none"> <li>• GO TO AP-RCC.2, RCC/RPI MALFUNCTION</li> </ul>	
		<ul style="list-style-type: none"> <li>• Check PPCS for operability (S-26.1, COMPUTER PROGRAM CHECK)</li> </ul>	
		<ul style="list-style-type: none"> <li>• Check PPCS for Fail Over</li> </ul>	
		<ul style="list-style-type: none"> <li>• Refer to ITS 3.1.4 and ITS 3.1.6.</li> </ul>	
			NOTE: The US will go to AP-RCC.2.
<b>AP-RCC.2, RCC/RPI MALFUNCTION</b>			
<b>CAUTION</b>			
BANK ROD WITHDRAWAL SHOULD NOT BE PERFORMED UNTIL DIRECTED PER APPLICABLE RECOVERY PROCEDURE.			

Op Test No.: N20-1 Scenario # 2 Event # 5 Page 38 of 60Event Description: **Control Rods fail to Move in AUTO/Stuck Rod**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 1) Place Rods to Manual	<b>NOTE:</b> The rods will be in MANUAL.
	HCO	(Step 2) Check Dropped Rod Indication:	<b>NOTE:</b> These Annunciators are EXTINGUISHED.
		<ul style="list-style-type: none"> <li>Annunciator E-28, POWER RANGE ROD DROP ROD STOP 5%/5 SECONDS- EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator C-14, ROD BOTTOM ROD STOP – EXTINGUISHED.</li> </ul>	
	HCO	(Step 3) Check Tav <sub>g</sub> – STABLE AT PROGRAM.	<b>NOTE:</b> If Tav <sub>g</sub> is stable at Program, the Step 3 RNO will not be performed.
	HCO	(Step 3 RNO) IF Tav <sub>g</sub> is Low, THEN perform the following:	
		<ul style="list-style-type: none"> <li>Place EH control in MANUAL.</li> </ul>	
		<ul style="list-style-type: none"> <li>Manually lower turbine load to match Tav<sub>g</sub> and Tref.</li> </ul>	
		IF Tav <sub>g</sub> is High, THEN perform the following:	
		Initiate a Boration to lower Tav <sub>g</sub> to Tref.	<b>Examiner NOTE:</b> The HCO may borate the RCS to lower Tav <sub>g</sub> to Tref ( <b>See Pages 24-25</b> ).
	CO	(Step 4) Check Steam Dump Status:	
		Annunciator G-15, STEAM DUMP ARMED – LIT.	
	CO	(Step 4 RNO) IF steam dump required but NOT operating, THEN...	
	CO	(Step 5) Check Main Generator Load – GREATER THAN 15 MW.	

Op Test No.: N20-1 Scenario # 2 Event # 5 Page 39 of 60Event Description: **Control Rods fail to Move in AUTO/Stuck Rod**

Time	Pos.	Expected Actions/Behavior	Comments
<b>NOTE</b> With PRZR pressure controller 431K in manual, PORV-431K will not operate in the automatic mode. (Refer to TR 3.4.3)			
	HCO	(Step 6) Establish Stable Plant Conditions	
		a. Tavg – TRENDING TO TREF	
		b. PRZR pressure – TRENDING TO 2235 PSIG IN AUTO	
		c. PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL	
	CO	d. MFW Regulating Valves – RESTORING S/G LEVEL TO 52% IN AUTO	
	US	(Step 7) Check Control Rod Alignment:	
		a. Verify all rods in affected group – WITHIN $\pm$ 12 STEPS OF ASSOCIATED GROUP STEP COUNTER	<b>NOTE:</b> Rod G-11 is not aligned.
	US	(Step 7 RNO) Refer to ITS Section 3.1.4.	
<b>NOTE</b> Step 8 is an attempt to determine whether a rod is misaligned or whether the MRPI System is malfunctioning.			
	US	(Step 8) Check QPTR – LESS THAN 1.02	<b>NOTE:</b> QPTR may be > 1.02 due to the stuck rod. If so, the RNO will be performed. If not, proceed to Step 9.
<b>NOTE</b> IF the MRPI CRT fails, THEN the PPCS can be used for rod position indications until the CRT is made operable. Rod position indication can be retrieved from the PPCS by selecting the "CBAW" display button.			

Op Test No.: N20-1 Scenario # 2 Event # 5 Page 40 of 60Event Description: **Control Rods fail to Move in AUTO/Stuck Rod**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 8 RNO) Refer to ITS Section 3.2.4.	
	HCO	(Step 9) Verify All Individual Rod Position Indication Per Bank Operable.	
		<ul style="list-style-type: none"> <li>MRPI system – NO MRPI SYSTEM ALARMS</li> </ul>	
		<ul style="list-style-type: none"> <li>MRPI system – NO KNOWN PROBLEMS WITH MRPI SYSTEM THAT COULD RENDER ROD POSITION INDICATION INOPERABLE.</li> </ul>	
	US	(Step 9 RNO) Perform the following	
		a. Refer to ITS section 3.1.7 for required action.	
		b. Consult Reactor Engineer and plant staff to evaluate MRPI.	
		c. Go to Step 11	
			<b>NOTE:</b> The US will evaluate Technical Specifications.
<b>TECHNICAL SPECIFICATION 3.1.4, ROD GROUP ALIGNMENT LIMITS</b>			
	US	LCO 3.1.4 All shutdown and control rods shall be OPERABLE AND Individual indicated rod positions shall be within 12 steps of their group step counter demand position.	
	US	APPLICABILITY: MODES 1 and 2.	
		ACTIONS:	
CONDITION		REQUIRED ACTION	COMPLETION TIME
B. One rod not within alignment limits.		B.1.1 Verify SDM to be within the limits specified in the COLR. <u>OR</u>	1 hour



Op Test No.: N20-1 Scenario # 2 Event # 5 Page 41 of 60Event Description: **Control Rods fail to Move in AUTO/Stuck Rod**

Time	Pos.	Expected Actions/Behavior	Comments
		B.1.2 Initiate boration to restore SDM to within limit. <u>AND</u> B.2 Reduce THERMAL POWER to $\leq 75\%$ RTP. <u>AND</u> B.3 Verify SDM is within the limits specified in the COLR <u>AND</u> B.4 Perform SR 3.2.1.1, SR 3.2.1.2, and SR 3.2.2.1 <u>AND</u> B.5 Re-evaluate safety analyses and confirm results remain valid for duration of operation under these conditions.	1 hour  2 hours  Once per 12 hours  72 hours  5 days
			<b>NOTE:</b> The US will identify that Condition B is applicable.
<b>TECHNICAL SPECIFICATION 3.2.4, QUADRANT POWER TILT RATIO</b>			
	US	LCO 3.2.4 QUADRANT POWER TILT RATION (QPTR)	
	US	APPLICABILITY: MODES 1 with THERMAL POWER > 50% RTP	<b>NOTE:</b> In attempting to stabilize the plant transient the crew lower power to < 50%.
CONDITION		REQUIRED ACTION	COMPLETION TIME
A. QPTR not with limit.		A.1 Reduce THERMAL POWER $\geq 3\%$ from RTP for each 1% of QPTR. 1.00. <u>AND</u> A.2 Determine QPTR  <u>AND</u> A.3 Perform SR 3.2.1.1, SR, 3.2.1.2 and SR 3.2.2.1	2 hours after each QPTR determination  Once per 12 hours  24 hours after achieving equilibrium conditions from a

Op Test No.: N20-1 Scenario # 2 Event # 5 Page 42 of 60Event Description: **Control Rods fail to Move in AUTO/Stuck Rod**

Time	Pos.	Expected Actions/Behavior	Comments
		<p>AND</p> <p>A.4 Reevaluate safety analyses and confirm results remain valid for the duration of operation under this condition.</p> <p>AND</p> <p>A.5 Normalize excore detectors to restore QPTR to within limit.</p> <p>AND</p> <p>A.6 Perform SR 3.2.1.1, SR 3.2.1.2 and SR 3.2.2.1</p>	<p>THERMAL POWER reduction per Required Action A.1</p> <p>AND</p> <p>Once per 7 days thereafter</p> <p>Prior to increasing THERMAL POWER above the limit of Required Action A.1</p> <p>Prior to increasing THERMAL POWER above the limit of Required Action A.1</p> <p>Within 24 hours after achieving equilibrium conditions at RTP not to exceed 48 hours after increasing THERMAL POWER above the limit of Required Action a.1</p>
			<p><b>NOTE:</b> If the plant is &gt; 50% power, AND QPTR is &gt; 1.02, the US will identify that Condition A is applicable.</p>
At the discretion of the Lead Examiner move to Events #6-8.			

Op Test No.: N20-1 Scenario # 2 Event # 6, 7, & 8 Page 43 of 60

Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

After this, a large rupture will occur in the Condensate Header resulting in a loss of feedwater. The automatic Rx Trip system will fail to trip the reactor, and the operator will need to manually trip the reactor from the MCB by de-energizing Bus 13 and 15. The crew may enter AP-FW.2, "Secondary Coolant Leak," then will enter E-0, "Reactor Trip or Safety Injection," and transition to ES-0.1, "Reactor Trip Response." The TDAFW Pump will trip on overspeed on the reactor trip. Subsequently, after ES-0.1 has been entered, a ground fault will occur on Bus 14, isolating the bus and de-energizing the A MDAFW Pump. A Red condition will eventually exist on the Heat Sink Critical Safety Function, and the crew will transition to FR-H.1, "Response to Loss of Secondary Heat Sink." The crew will restore AFW flow to the Steam Generators via ATT-5.1, "Attachment SAFW From SW," and ATT-22.0, "Attachment Restoring Feed Flow." The scenario will terminate at Step 12.b of FR-H.1, after the crew has returned to ES-0.1.

**SIM DRIVER Instructions:** **Operate Trigger #5 (CND08 (20000, 60 second Ramp))**

**Indications Available:**

- Numerous MCB Annunciators.
- Feed flow less than Steam Flow to both Steam Generators
- B Heater Drains Pump trips
- Condensate Pumps Trip
- S/G Narrow Levels are lowering

Time	Pos.	Expected Actions/Behavior	Comments
			<b>NOTE:</b> US may enter AP-FW.2 or enter E-0 directly.
<b>AP-FW.2, SECONDARY COOLANT LEAK</b>			
	US	(Step 1) Determine if Plant Operation can continue:	
		<ul style="list-style-type: none"> <li>• Leak does not present an unmanageable safety threat.</li> </ul>	
		<ul style="list-style-type: none"> <li>• CNMT Pressure is being maintained less than 2 psig.</li> </ul>	
		<ul style="list-style-type: none"> <li>• CNMT Temperature is being maintained less than 125°F.</li> </ul>	
		<ul style="list-style-type: none"> <li>• Safe Shutdown Equipment Operability is not affected.</li> </ul>	
		<ul style="list-style-type: none"> <li>• Leakage is within make-up capability (GE BETZ).</li> </ul>	
		<ul style="list-style-type: none"> <li>• S/G Level Stable at or Trending to 52%.</li> </ul>	

Op Test No.: N20-1 Scenario # 2 Event # 6, 7, & 8 Page 44 of 60

Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 1 RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>• Trip the Reactor and perform immediate actions of E-0, REACTOR TRIP OR SAFETY INJECTION.</li> </ul>	
	HCO/CO	<ul style="list-style-type: none"> <li>• Close both MSIV's.</li> </ul>	
		<ul style="list-style-type: none"> <li>• AOV-3517</li> </ul>	
		<ul style="list-style-type: none"> <li>• AOV-3516</li> </ul>	
		<ul style="list-style-type: none"> <li>• Go To E-0, REACTOR TRIP OR SAFETY INJECTION. When permitted by the EOP's, Then continue with this procedure at step 3.</li> </ul>	<b>NOTE:</b> US may enter E-0 directly.
<b>E-0, REACTOR TRIP OR SAFETY INJECTION</b>			
	HCO	(Step 1) Verify Reactor Trip:	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>• At least one train of reactor trip breakers – OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>• Neutron flux - LOWERING</li> </ul>	
		<ul style="list-style-type: none"> <li>• MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM with no instrument fluctuations concurrent with fire.</li> </ul>	<b>NOTE:</b> The Rod G-11 MRPI light will not be LIT.
	HCO	(Step 1 RNO) Manually trip reactor.	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>• IF reactor trip breakers NOT open OR there is a fire in the power block, THEN perform the following:</li> </ul>	
	CO	<ul style="list-style-type: none"> <li>• Open Bus 13 and Bus 15 normal feed breakers.</li> </ul>	
		<ul style="list-style-type: none"> <li>• IF Bus 13 or Bus 15 indicating lights are extinguished or flickering, THEN.....</li> </ul>	
		<ul style="list-style-type: none"> <li>• Verify rod drive MG sets tripped.</li> </ul>	
	CO	<ul style="list-style-type: none"> <li>• Close Bus 13 and Bus 15 normal feed breakers.</li> </ul>	

Op Test No.: N20-1 Scenario # 2 Event # 6, 7, & 8 Page 45 of 60

Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	<ul style="list-style-type: none"> <li>Reset lighting breakers.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF the reactor will NOT trip OR IF power range NIS indicates greater than 5%, THEN.....</li> </ul>	<b>NOTE:</b> The reactor is considered tripped even with one stuck rod (G-11).
<b><u>Critical Task:</u></b>  <b>Manually trip the reactor from the control room before transition to FR-S.1</b>  <p>Safety Significance: Failure to manually trip the reactor from the control room when able to do so (i.e. De-energize Bus 13 and 15) causes a challenge to the subcriticality CSF beyond that irreparably introduced by the postulated conditions and requires that the facility declare an ALERT based on MA3 when the Emergency Classification would have been an Unusual Event based on MU3 had the Critical Task been completed successfully. The failure to complete the Critical Task constitutes an "incorrect performance that necessitates the crew taking action which complicates the event mitigation strategy demonstrating the inability by the crew to recognize and properly mitigate a failure of the automatic actuation of the RPS.</p>			
	CO	(Step 2) Verify Turbine Stop Valves – CLOSED	<b>Immediate Action</b>
	CO	(Step 2 RNO) Manually trip turbine.	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>IF turbine trip can NOT be verified, THEN close both MSIVs.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF the turbine CANNOT be tripped AND either MSIV CANNOT be closed from the Control Room THEN...</li> </ul>	
	CO	(Step 3) Verify sufficient AC Emergency buses Energized To At Least 440 VOLTS:	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>Bus 14 OR Bus 16</li> </ul>	
		AND	
		<ul style="list-style-type: none"> <li>Bus 17 OR Bus 18</li> </ul>	

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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 4) Check if SI is Actuated:	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>Any SI Annunciator – LIT</li> </ul>	
	HCO/ CO	(Step 4.a RNO) IF any of the following conditions are met, THEN manually actuate SI and CI:	
		<ul style="list-style-type: none"> <li>PRZR pressure less than 1750 psig</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>Steamline pressure less than 514 psig</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>CNMT pressure greater than 4 psig</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>SI sequencing started</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>Operator determines SI required</li> </ul>	
		IF SI is NOT required, THEN go to ES-0.1, REACTOR TRIP RESPONSE, Step 1.	
			<b>Examiner NOTE:</b> A Red Path on Subcriticality will exist because the Rx Trip Breakers are Closed (Not Valid).
<b>ES-0.1, REACTOR TRIP RESPONSE</b>			
<p align="center"><b>CAUTION</b></p> <p>IF SI ACTUATION OCCURS DURING THIS PROCEDURE, THEN E-0, REACTOR TRIP OR SAFETY INJECTION, SHOULD BE PERFORMED.</p>			
<p align="center"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>FOLDOUT page should be open and monitored periodically.</li> <li>Critical Safety Function Status Trees should be monitored. (Refer to Appendix 1 for Red Path Summary.)</li> <li>Refer to AP(s) that were in effect prior to the reactor trip.</li> </ul>			

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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	Foldout Page	NOTE: The crew will monitor these conditions throughout the performance of ES-0.1.
		LOSS OF SW CRITERIA	
		SI ACTUATION CRITERIA	
		AFW SUPPLY SWITCHOVER CRITERION	
		MULTIPLE FUNCTION LOSS CRITERIA	
	HCO	(*Step 1) Check RCS Temperature Control:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Check RCPs - ANY RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>Monitor RCS Tavg – STABLE AT OR TRENDING TO 547°F</li> </ul>	
	HCO/ CO	(Step 1 RNO) IF temperature is less than 547°F and lowering, THEN perform the following:	<b>NOTE:</b> These actions will be taken between RCS temperature is <547°F and lowering.
		<ul style="list-style-type: none"> <li>Stop dumping steam:</li> </ul>	
		<ul style="list-style-type: none"> <li>Establish condenser steam dump pressure control:</li> </ul>	
		<ul style="list-style-type: none"> <li>Check condenser available:</li> </ul>	
		<ul style="list-style-type: none"> <li>Any MSIV - OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator G-15, STEAM DUMP ARMED - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>IF condenser NOT available, THEN place S/G ARV controller in AUTO at 1005 psig and adjust as necessary. IF S/G ARV NOT controlling in AUTO, THEN control S/G ARV manually.</li> </ul>	
		<ul style="list-style-type: none"> <li>Adjust condenser steam dump controller HC-484 to 1005 psig in AUTO.</li> </ul>	

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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Place steam dump mode selector switch to MANUAL.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure S/G ARVs closed.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure S/G blowdown and sample valves closed.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure reheater steam supply valves closed.</li> </ul>	
	HCO/CO	<ul style="list-style-type: none"> <li>IF MDAFW pumps supplying greater than 200 gpm, THEN ensure TDAFW pump steam supply valves in PULL STOP.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF cooldown continues, THEN control total feed flow greater than 200 gpm until narrow range level greater than 5% in at least one S/G. WHEN S/G level greater than 5% in one S/G, THEN limit feed flow to that required to maintain S/G level.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF cooldown continues below 540°F, THEN perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Close both MSIVs.</li> </ul>	
		<ul style="list-style-type: none"> <li>Adjust S/G ARV controller in auto to control RCS Tav<sub>g</sub> at 547°F.</li> </ul>	
		IF RCS Tav <sub>g</sub> greater than 547°F and rising, THEN dump steam to stabilize and slowly lower RCS Tav <sub>g</sub> to 547°F.	<b>NOTE:</b> These actions will be taken between RCS temperature is >547°F and rising.

**SIM DRIVER Instructions:**

**WHEN ES-0.1 Step 1 RNO actions have been performed AND SG Narrow Range Level is 12%, Operate Trigger #6 (EDS04A)**

**Examiner NOTE: This will create a loss of all MFW/AFW to the Steam Generators. A Red Condition on Heat Sink will occur in 5-7 minutes and cause the crew to implement FR-H.1. When the Red Path occurs move forward to Page 52.**



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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
			<b>Examiner NOTE:</b> The US may address AP-ELEC.14-16 after Bus 14 (Not Scripted) is de-energized. However, no substantive actions will be taken, and the crew will ultimately need to implement FR-H.1.
	HCO	(Step 2) Check PRZR Level Control:	
		<ul style="list-style-type: none"> <li>Verify charging pumps – ANY RUNNING</li> </ul>	<b>NOTE:</b> Two Charging Pumps are likely running.
		<ul style="list-style-type: none"> <li>PRZR level – GREATER THAN 13%</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify letdown – IN SERVICE</li> </ul>	<b>NOTE:</b> Letdown may or may not be in service. It may have isolated when Pressurizer level lowered to <13% during the cooldown due to the secondary system break.  If letdown must be restored, the HCO will use ATT-9.0 (Not Scripted).
		<ul style="list-style-type: none"> <li>PRZR level – TRENDING TO 20%</li> </ul>	
		<ul style="list-style-type: none"> <li>Check PRZR heaters - ENERGIZED</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR proportional heaters</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR heater backup group</li> </ul>	
	CO	(Step 3) Check S/G Feed Flow Status:	
		<ul style="list-style-type: none"> <li>Check RCS Tavg – LESS THAN 554°F</li> </ul>	
		Verify MFW flow control valves - CLOSED	
		<ul style="list-style-type: none"> <li>MFW regulating valves</li> </ul>	
		<ul style="list-style-type: none"> <li>MFW bypass valves</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify total AFW flow – GREATER THAN 200 GPM</li> </ul>	

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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 3.c RNO) Manually start both MDAFW pumps.	<b>NOTE:</b> The B MDAFW is OOS.
		IF total AFW flow greater than 200 gpm can NOT be established, THEN perform the following:	
		<ul style="list-style-type: none"> <li>Manually start TDAW pump.</li> </ul>	<b>NOTE:</b> The TDAFW Pump has tripped on overspeed.
		OR	
		<ul style="list-style-type: none"> <li>Perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Establish MFW on bypass valves.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF MFW flow established, THEN...</li> </ul>	
		<ul style="list-style-type: none"> <li>IF MFW flow NOT established, THEN go to step 3.d)</li> </ul>	
	CO	(Step 3.d-f) Close MFW pump discharge valves	
		<ul style="list-style-type: none"> <li>MOV-3977, A MFW pump</li> </ul>	<b>NOTE:</b> MOV-3977 is de-energized because MCC-A (Bus 13) is de-energized.
		<ul style="list-style-type: none"> <li>MOV-3976, B MFW pump</li> </ul>	
		<ul style="list-style-type: none"> <li>Stop MFW pumps and place in PULL STOP</li> </ul>	
		<ul style="list-style-type: none"> <li>WHEN both MFP pumps are stopped, THEN depress MANUAL pushbuttons for A and B MFW regulating valve and bypass valve controllers AND adjust to 0% demand.</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G A, HCV-466 and HCV-480</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G B, HCV-476 and HCV-481</li> </ul>	

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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 4) Verify MRPI Indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM	<b>NOTE:</b> MRPI has been de-energized. However, Control Rod G-11 was NOT on the bottom prior to MRPI being de-energized.
	HCO	(Step 4 RNO) IF any control rods NOT fully inserted, THEN perform the following:	
		IF three or more control rods NOT fully inserted, THEN.....	<b>NOTE:</b> There is only one Control Rod not fully inserted.
		OR	
		IF one or two control rods NOT fully inserted, THEN perform the following:	
		<ul style="list-style-type: none"> <li>Place RMW mode selector switch to BORATE.</li> </ul>	
		<ul style="list-style-type: none"> <li>Adjust boric acid flow control valve, HCV-110A, for desired flowrate.</li> </ul>	
		<ul style="list-style-type: none"> <li>Set boric acid integrator to the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>900 gallons for 1 stuck rod</li> </ul>	
		<ul style="list-style-type: none"> <li>Place RMW control to start and verify flow. IF flow can NOT be established, THEN.....</li> </ul>	
	HCO	(Step 5) Check PRZR Pressure Control:	
		<ul style="list-style-type: none"> <li>PRZR pressure – GREATER THAN 1750 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR pressure – GREATER THAN 2210 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR pressure – LESS THAN 2260 PSIG</li> </ul>	
	CO	(*Step 6) Monitor S/G Levels:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Narrow range level – GREATER THAN 5%</li> </ul>	

Op Test No.: N20-1 Scenario # 2 Event # 6, 7, & 8 Page 52 of 60Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 6.a RNO) Maintain total feed flow greater than 200 gpm until narrow range level greater than 5% in at least one S/G.	
		<ul style="list-style-type: none"> <li>Control feed flow to maintain narrow range level between 17% and 52%.</li> </ul>	<b>NOTE:</b> A Red Path will exist on Heat Sink requiring an entry into FR-H.1.
<b>FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK</b>			
<b>CAUTION</b> <ul style="list-style-type: none"> <li>IF TOTAL FEED FLOW IS LESS THAN 200 GPM DUE TO OPERATOR ACTION, THIS PROCEDURE SHOULD NOT BE PERFORMED.</li> <li>FEED FLOW SHOULD NOT BE REESTABLISHED TO A FAULTED S/G IF A NON-FAULTED S/G IS AVAILABLE.</li> <li>IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)</li> </ul>			
<b>NOTE</b> <ul style="list-style-type: none"> <li>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</li> <li>Foldout Page should be open and monitored periodically.</li> </ul>			
	HCO/CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of FR-H.1.
		<b>LOSS OF SW CRITERIA</b>	
	HCO	(Step 1) Check If Secondary Heat Sink Is Required: <ol style="list-style-type: none"> <li>RCS pressure- GREATER THAN ANY NON-FAULTED S/G PRESSURE</li> <li>Check RCS cold leg temperature GREATER THAN 350°F</li> </ol>	

Op Test No.: N20-1 Scenario # 2 Event # 6, 7, & 8 Page 53 of 60Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(*Step 2) Check if Bleed and Feed is Required  Both S/G level wide range levels LESS THAN 120 inches [160 inches adverse CNMT]	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
	US	(Step 2 RNO) Go to Step 3.	
<b>CAUTION</b> IF CST LEVEL LOWERS TO LESS THAN 5 FEET, THEN ALTERNATE WATER SOURCES FOR AFW PUMPS WILL BE NECESSARY (REFER TO ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).			
<b>NOTE</b> <ul style="list-style-type: none"> <li>IF it is necessary to crosstie the MDAFW pumps to restore AFW, THEN refer to ATT-5.3, ATTACHMENT MDAFW PUMPS CROSSTIE.</li> <li>AFW discharge valves MOV-4007 and MOV-4008 switches may be held closed during pump start to allow throttling feed flow to less than the value determined from ATT-22.0, ATTACHMENT RESTORING FEED FLOW.</li> </ul>			
	HCO	(Step 3) Try to Establish AFW Flow To At Least One Intact S/G: a) Check Blowdown and Sample Valves-CLOSED	
		b) Check any preferred AFW pump - AVAILABLE	<b>NOTE:</b> Neither MDAFW Pump is available.
	US	(Step 3.b RNO) Go to Step 4.	
	HCO	(Step 4) Stop Both RCPs	
<b>CAUTION</b> IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)			

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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 5) Reset SI if Actuated	<b>NOTE:</b> SI has not been actuated.
<b>NOTE</b> IF required SAFW flow cannot be established, THEN isolate non-essential SW loads. Do NOT isolate Aux Bldg SW loops.			
	CO	(Step 6) Try and Establish SAFW Flow To At Least One Intact S/G:	
		a) Check any SAFW pump available	
		b) Align SAFW system for operation (Refer to ATT-5.1, ATTACHMENT SAFW)	
<b>ATTACHMENT-5.1, ATTACHMENT SAFW</b>			
<b>CAUTION</b> <ul style="list-style-type: none"> <li>• IF SELECTED S/G WIDE RANGE LEVEL LESS THAN 50 inches (100 inches ADVERSE CNMT), THEN REFER TO ATT-22.0, ATTACHMENT RESTORING FEED FLOW, PRIOR TO STARTING SAFW PUMP.</li> <li>• FEED FLOW SHOULD NOT BE REESTABLISHED TO A FAULTED S/G IF A NON-FAULTED S/G IS AVAILABLE.</li> <li>• IF THE INITIATING EVENT IS A TORNADO, THEN SAFW PUMP D DISCHARGE LINE SHOULD BE VERIFIED TO BE INTACT BEFORE RESTORING NORMAL SAFW FLOW TO S/G B.</li> </ul>			
<b>NOTE</b> <ul style="list-style-type: none"> <li>• Since establishing SAFW flow is time critical, SAFW flow should be initiated as soon as the first pump is aligned.</li> <li>• IF SI has actuated and the initiating signal has cleared, THEN there is the potential that a second SI may occur tripping the running SAFW pump(s). SI should be reset and the SAFW pumps restarted as soon as possible.</li> <li>• Feed flow should be initiated to both S/Gs if possible to prevent stagnation in the RCS loop in which the S/G is not being fed.</li> </ul>			
	CO	(Step A) IF SW is not available OR cannot support required SAFW flow, THEN.....	<b>NOTE:</b> SW is available and can support.

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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step B) IF feeding both S/Gs using only one SAFW pump, THEN open either STANDBY AUX FW PUMP CROSSOVER VLV (SAFW pump area):	<b>NOTE:</b> There is no power available to the A Train.
		<ul style="list-style-type: none"> <li>STANDBY AUX FW PUMP CROSSOVER VLV, MOV-9703B</li> </ul>	
	CO	(Step C) Align SAFW Pump C to feed S/G A as follows:	<b>NOTE:</b> There is no power available to the A Train.
<p align="center"><b>NOTE</b></p> <p>IF SAFW pump D discharge line has been damaged and feed to S/G B is required, THEN go to section E below to establish a flowpath to S/G B. IF the SAFW pump D discharge line has NOT been damaged, THEN perform section D.</p>			
	CO	(Step D) Align SAFW Pump D to selected S/G as follows:	
		<ul style="list-style-type: none"> <li>Ensure SI reset.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure MDAFW pump B control switch in PULL STOP.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure the following valves open:</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-9701B, SAFW PUMP D DISCHARGE</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-4615, AUX BLDG SW ISOL VLVS</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-9704B, SAFW PUMP D ISOL VLV</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-9746, SAFW PMP D EMERG DISCH VLV</li> </ul>	
		<ul style="list-style-type: none"> <li>Open MOV-9629B, SAFW PUMP D SUCTION VLV.</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify at least 1 SW pump running.</li> </ul>	
		<ul style="list-style-type: none"> <li>Notify US that SAFW pump D is aligned and ready for start.</li> </ul>	<b>NOTE:</b> The US will coordinate starting the pump with FR-H.1.

Op Test No.: N20-1 Scenario # 2 Event # 6, 7, & 8 Page 56 of 60Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Start SAFW pump D and establish flow as directed.</li> </ul>	
<b>FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK</b>			
	HCO	(Step 6.c) Check RCS hot leg temperature - LESS THAN 550°F	
	US/ CO	(Step 6.c RNO) Determine SAFW flow requirements per ATT-22.0, ATTACHMENT RESTORING FEED FLOW	<b>NOTE:</b> The US will direct the CO to use ATT-22.0 to determine the allowable rate of feed flow to the B SG.
<b>ATT-22.0, ATTACHMENT RESTORING FEED FLOW</b>			
<p style="text-align: center;"><b>CAUTION</b></p> <ul style="list-style-type: none"> <li>FEED FLOW SHOULD NOT BE ESTABLISHED TO A FAULTED OR RUPTURED S/G IF AN INTACT S/G IS AVAILABLE.</li> <li>FEED FLOW RATES SHOULD BE CONTROLLED TO PREVENT EXCESSIVE RCS COOLDOWN AND ASSOCIATED RCS PRESSURE AND INVENTORY REDUCTION.</li> </ul>			
<p style="text-align: center;"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>This attachment provides the desired feed flow rate when restoring feed flow to a S/G during FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK.</li> <li>IF feedwater is restored via main feedwater or condensate the following may be used to indicate flow to the S/G (100,000 lb/hr is approximately 200 gpm): <ul style="list-style-type: none"> <li>S/G feedwater flow meters (MCB)</li> <li>S/G feedwater flow recorders (MCB)</li> <li>S/G feedwater flow (PPCS Point ID F0466, F0467, F0476, F0477)</li> <li>S/G feedwater RTD temperature lowers (PPCS Point ID T2096, T2097)</li> </ul> </li> </ul>			
	HCO	(Step 1) Check affected S/G Loop RCS Temperature	<b>NOTE:</b> That will likely be higher than 550°F.
		<ul style="list-style-type: none"> <li>Affected Loop hot leg temperature Less Than 550°F.</li> </ul>	



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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 1.a RNO) Go to Step 2.	
	HCO	(Step 2) Determine S/G feed flowrate requirements:	
		<ul style="list-style-type: none"> <li>Bleed and Feed initiated</li> </ul>	<b>NOTE:</b> Feed and bleed has not been initiated.
	HCO/ CO	(Step 2.a RNO) IF feedwater flow to affected S/G is greater than 50 gpm OR affected S/G is greater than 50 inches [100 inches adverse CNMT], THEN feed flowrate is not restricted, go to step 3.	<b>NOTE:</b> Feed flow will be unrestricted.
		IF feed flow to affected S/G is less than 50 gpm AND affected S/G level is less than 50 inches [100 inches adverse SNMT]. THEN perform the following:	
		<ul style="list-style-type: none"> <li>S/G feed flowrate to the affected S/G is restricted to less than or equal to 100 gpm until S/G level is greater than 50 inches [100 inches adverse CNMT].</li> </ul>	
		<ul style="list-style-type: none"> <li>WHEN affected S/G level is greater than 50 inches [100 inches adverse CNMT], THEN the feed flowrate restriction no longer applies.</li> </ul>	
		Go To Step 3.	
		(Step 3) Return To Procedure and Step in Effect.	
<b>FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK</b>			
	CO	(Step 6.d) Start selected SAFW pump(s) - PUMP(S) RUNNING	<b>NOTE:</b> The US will coordinate starting the pump with ATT-5.1.

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Event Description: **Condensate Header Break/A Main Feedwater Pump Trip/TDAFW Pump trips on Overspeed/ Automatic Rx Trip fails/No Manual Available/Loss of Bus 14**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 6.e) Check total available feed flow to S/Gs - GREATER THAN 215 GPM	
<b><u>Critical Task:</u></b>  <b>Establish feedwater flow into at least one Steam Generator before both Steam Generator Wide Range Levels lower to less than 120 inches [160 inches adverse CNMT]</b>  <p>Safety Significance: Failure to establish feedwater flow to any Steam Generator results in the crew's having to rely upon the lower-priority action of establishing RCS bleed and feed to minimize core uncover. This constitutes incorrect performance that "leads to degradation of any barrier to fission product release." Establishing feedwater flow into the SGs offers the most effective recovery action to restore the heat sink. The introduction of feedwater flow immediately restores SG inventory and re-establishes primary-to-secondary heat transfer, decreasing RCS pressure and cooling the core. The RCS pressure decrease then precludes the opening of the PORVs and degradation of the RCS barrier. If no form of feedwater flow is made available to the SGs, the crew must establish RCS bleed and feed on or before SG dryout. When the crew fails to simply establish available feedwater flow (as it could, given the postulated conditions) before SG dryout occurs, it "necessitates the crew taking compensating action which complicates the event mitigation strategy."</p>			
	US	(Step 6.f) Go to Step 12.	
	HCO/ CO	(Step 12) Check S/G Levels:	
		<ul style="list-style-type: none"> <li>Narrow range level in at least one S/G - GREATER THAN 7% [25% adverse CNMT]</li> </ul>	
		<ul style="list-style-type: none"> <li>Return to procedure and step in effect</li> </ul>	
<b>At the discretion of the Lead Examiner terminate the exam.</b>			

TURNOVER SHEET for NRC Exam Scenario #2

<p><u>Core Age: BOL</u></p> <p>70% Power, Equilibrium Xe</p> <p>Outside Air Temp = 51°F</p> <p>Water Temp = 45°F</p>	<p><u>Procedure in Use:</u></p>	<p><u>ACTIONS/NOTES:</u></p> <ul style="list-style-type: none"> <li>• The plant is at 70% power (BOL).</li> <li>• Plant power was lowered to 70% two hours ago due to abnormal noises on the A HDT Pump. The pump is stopped and investigation is on-going.</li> <li>• The area has experienced cool weather with no precipitation.</li> <li>• The crew is expected to remain at this power level while maintenance is completed during the shift.</li> <li>• The B MDAFW Pump is OOS for breaker maintenance</li> <li>• The Containment Recirculation Fan Cooler C is OOS for breaker maintenance.</li> <li>• The following Alarms are in: <ul style="list-style-type: none"> <li>• J-25, SAFEGUARDS EQUIPMENT LOCKED OFF (B MD AFW Pump OOS)</li> </ul> </li> <li>• Protected equipment IAW OPG Protected Equipment (B MDAFW Pump/A HDT Pump).</li> </ul>
<p>Boron: 1570 ppm</p> <p>BAST: 17,500 ppm</p> <p>RCS Activity: Normal</p>	<p><u>RCS LEAKAGE:</u> (gpm)</p> <p>Total: .021</p> <p>Identified: .003</p> <p>Unidentified: .018</p>	

TURNOVER SHEET for NRC Exam Scenario #2

<u>Equipment Problems/OOS:</u> See NOTES	<u>Planned Activities for Shift:</u> <ul style="list-style-type: none"> <li>Complete maintenance</li> </ul>	<u>Electrical System Operator Declarations</u> None in effect
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A-52.4					
EQUIPMENT	DATE/TIME OOS	LCO	TITLE	EXP DATE	ECD
B MDAFW Pump	Yesterday, 24hrs ago	3.7.5	Auxiliary Feedwater (AFW) System	7 days	18 hours
C CRFC	30 hours ago	3.6.6	Containment Spray (CS), Containment Recirculation Fan Cooler (CRFC), and NaOH Systems	7 days	42 hours
A-52.12					
EQUIPMENT	DATE/TIME OOS	TRM /ODCM	TITLE	EXP DATE	ECD

PROGRAM: Ginna Operations Training

MODULE: Initial License Operator Training Class 19-1

TOPIC: NRC Simulator Exam

**Scenario N20-1-3**

**REFERENCES:**

1. Technical Specification LCO 3.8.1, "AC Sources - MODES 1, 2, 3, and 4" (Amendment 109)
2. O-5.2, "Load Ascension" (Rev 083)
3. S-3.1, "Boron Concentration Control" (Rev 033)
4. AR-C-29, "MRPI SYSTEM FAILURE" (Rev 010)
5. AP-RCC.2, "RCC/RPI MALFUNCTION" (Rev 01400)
6. Technical Specification LCO 3.1.7, "Rod Position Indication" (Amendment 131)
7. AR-J-10, "GENERATOR VOLTAGE REGULATOR MANUAL" (Rev 00901)
8. AR-J-27, "GENERATOR VOLTAGE REGULATOR ALARM" (Rev 007)
9. A-503.1, "Emergency and Abnormal Operating Procedures Users Guide" (Rev 053)
10. AR-A-12, "NON-REGEN HX LETDOWN OUT HI TEMP 145°F," (Rev 01001)
11. AR-E-16, "RMS PROCESS MONITOR HIGH ACTIVITY" (Rev 01102)
12. AR-RMS-17, "R-17 COMPONENT COOLING" (Rev 5)
13. AP-CCW.1, "Leakage Into the Component Cooling Loop" (Rev 01901)
14. ATT-9.1, "Attachment Excess L/D" (Rev 00800)
15. AP-ELEC.1, "Loss of 12A and/or 12B Busses" (Rev 033)
16. ER-ELEC.1, "Restoration of Offsite Power" (Rev 01801)
17. Technical Requirements Manual, TR-3.8.1, "Offsite Power Sources" (Rev 70)
18. E-0, "Reactor Trip or Safety Injection" (Rev 049)
19. ECA-0.0, "Loss of All AC Power" (Rev 044)
20. ATT-8.3, "Attachment Nonvital" (Rev 005)
21. ECA-0.1, "Loss of All AC Power Recovery Without SI Required" (Rev 034)
22. ECA-0.2, "Loss of All AC Power Recovery With SI Required" (Rev 022)
23. E-1, "Loss of Reactor or Secondary Coolant" (Rev 043)

Validation Time: 96 minutes

Author: David Lazarony, Essential Training & Consulting, LLC

Facility Review: \_\_\_\_\_

Rev. 091020

### **Ginna 2020 NRC Scenario #3 Objectives:**

Given the simulator at an initial condition of 50% power evaluate:

1. the SRO's ability to supervise the control room team during the normal, abnormal, and emergency situations that arise, including compliance with all facility procedures, Technical Specifications, and other commitments.
2. each crew member's ability to effectively communicate as part of a control room team during the normal, abnormal, and emergency situations that arise.
3. each crew member's ability to conduct a load ascension in accordance with O-5.2, "Load Ascension," and S-3.1, "Boron Concentration Control."
4. each crew member's ability to effectively diagnose and the BOP's ability to mitigate the consequences of a Main Generator Voltage Regulator failure in accordance with Annunciator Response Procedures.
5. each crew member's ability to effectively diagnose and the RO's ability to mitigate the consequences of a Letdown Temperature Control Valve (TCV-130) Controller failure in accordance with Annunciator Response Procedures and A-503.1, "Emergency and Abnormal Operating Procedures Users Guide."
6. each crew member's ability to effectively diagnose and the RO's ability to mitigate the consequences of a leak in the NRHX in accordance with AP-CCW.1, "Leakage into the Component Cooling Loop."
7. each crew member's ability to effectively diagnose and mitigate the consequences of a loss of circuit 767 in accordance with AP-ELEC.1, "Loss of 12A and/or 12B Busses," and ER-ELEC.1, "Restoration of Offsite Power."
8. each crew member's ability to effectively diagnose a Station Blackout and the RO and BOP's ability to respond to such an event in accordance with ECA-0.0, "Loss of All AC Power."
9. the BOP's ability to determine that the TDAFW Pump has failed to automatically start on a Station Blackout and take action to manually start the pump.
10. the BOP's ability to determine that the Service Water Pumps have failed to automatically start upon manual start of an Emergency Diesel Generator and take action to manually start the pump(s).
11. each crew member's ability to recover from a Station Blackout and the RO and BOP's ability to respond to such an event in accordance with ECA-0.1, "Loss of All AC Power Recovery Without SI Required," or ECA-0.2, "Loss of All AC Power Recovery With SI Required."

Scenario Event Description  
NRC Scenario 3

Facility: <b>Ginna</b>		Scenario No.: <b>3</b>		Op Test No.: <b>N20-1</b>	
Examiners: _____		Operators: _____		(SRO)	
_____		_____		(RO)	
_____		_____		(BOP)	
Initial Conditions:		The plant is at 50% power (MOL). The plant was taken to 50% due to a failure of the A MFW Pump. Corrective maintenance has been performed and the A MFW Pump is operating. The area has experienced unseasonably cool weather with no precipitation. The crew is expected to raise power to 100% on this shift.			
Turnover:		The following equipment is Out-Of-Service: The A EDG (TS 3.8.1 Condition B Action B.1, B.2, B.3.1 or B.3.2 and B.4) is OOS for fuel pump replacement and is expected to be back in 90 minutes. The A Control Rod Shroud Fan is OOS for breaker maintenance.			
Critical Tasks:		See Below			
Event No.	Malf. No.	Event Type*	Event Description		
1	MAL ROD13A-K7	R-RO N-BOP N-SRO TS	Load Ascension/ MRPI System Failure		
2	MAL GEN03	C-BOP C-SRO	Main Generator Voltage Regulator Fails HIGH		
3	MAL CLG14A	I-RO I-SRO	Letdown Temperature Control Valve (TCV-130) Controller Failure		
4	MAL CLG03	C-RO C-SRO	Leak in the NRHX to CCW system		
5	MAL EDS01B	C-RO C-BOP C-SRO TS	Loss of Offsite circuit 767/Restore 4160 Bus 12B		
6	MAL EDS01A GEN04B	M-RO M-BOP M-SRO	B EDG Trips/Loss of 7T Circuit (CT-3)		
7	MAL RPS07M RPS07N	C-BOP C-SRO	TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A) (CT-1)		
8	MAL RPS07O	C-BOP C-SRO	Selected Service Water Pumps fail to start in Auto (CT-2)		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

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Scenario Event Description  
NRC Scenario 3

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**Ginna 2020 NRC Scenario #3**

The plant is at 50% power (MOL). The plant was taken to 50% due to a failure of the A MFW Pump. Corrective maintenance has been performed and the A MFW Pump is operating. The area has experienced unseasonably cool weather with no precipitation. The crew is expected to raise power to 100% on this shift.

The following equipment is Out-Of-Service: The A EDG (TS 3.8.1 Condition B Action B.1, B.2, B.3.1 or B.3.2 and B.4) is OOS for fuel pump replacement and is expected to be back in 90 minutes. The A Control Rod Shroud Fan is OOS for breaker maintenance.

Shortly after taking the watch, the operator will raise power in accordance with O-5.2, "Load Ascension." The operator will address S-3.1, "Boron Concentration Control," to start the load ascension using Alternate Dilute. During the load ascension, a MRPI System Failure will occur. The operator will address AR-C-29, "MRPI SYSTEM FAILURE," AP-RCC.2, "RCC/RPI Malfunction," and Technical Specification LCO 3.1.7, "Rod Position Indication."

Subsequently, the Main Generator Voltage Regulator will fail HIGH. The operator will respond in accordance with AR-J-10, "GENERATOR VOLTAGE REGULATOR MANUAL." The operator will reduce generator output voltage using the Base Adjuster and notify RG&E ECC per the NOTE in AR-J-10. The Voltage Regulator will remain in MANUAL throughout the remainder of the scenario.

Following this, the Letdown Temperature Control Valve (TCV-130) Controller will fail causing the TCV-130 to close, and actual letdown temperature to rise. The operator will respond in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," Section 5.3.A.5, and should re-open TCV-130 in manual to restore normal letdown temperature. The operator will address AR-A-12, "NON-REGEN HX LETDOWN OUT HI TEMP 145°F," and the TCV-130 Controller will remain in MANUAL throughout the remainder of the scenario.

Then, a 30 gpm leak will develop on the Non-Regenerative Heat Exchanger. The operator will respond in accordance with AR-E-16, "RMS PROCESS MONITOR HIGH ACTIVITY," and AR-RMS-17, "R-17 COMPONENT COOLING," which will direct the crew to AP-CCW.1, "Leakage Into the Component Cooling Loop." Per AP-CCW.1, letdown flow through the NRHX (and the leak) will be isolated and Excess Letdown will be placed in service.

After this, a loss of offsite power circuit 767 will occur, resulting in the loss of 4160 Bus 12B. The crew will respond per AP-ELEC.1, "Loss of 12A and/or 12B Busses," and restore power to 12B in accordance with ER-ELEC.1, "Restoration of Offsite Power," using circuit 7T. The operator will address Technical Specification LCO 3.8.1, "AC Sources - MODES 1, 2, 3, and 4," and Technical Requirements Manual, TR-3.8.1, "Offsite Power Sources."

Next, the B EDG will trip and the 7T line will be lost, resulting in a Station Blackout. The operator will enter ECA-0.0, "Loss of All AC Power." On the loss of power, the TDAFW Pump will fail to automatically start, and the operator will need to manually start the pump.

While in ECA-0.0 (at Step 13), the A EDG will become available. The operator will start the A EDG per Step 7 RNO actions and restore power to 480V vital busses 14 and 18. Upon restoration of power to Bus 18 the A SWP will fail to start automatically, requiring the operator to manually start the SWP. Following power restoration to Bus 14, recovery actions will continue with Step 34. The crew will likely transition to ECA-0.2, "Loss of All AC Power Recovery With SI Required,"



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Scenario Event Description  
NRC Scenario 3

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based on low Pressurizer level. On the other hand, there is a possibility that the crew could transition to ECA-0.1, "Loss of All AC Power Recovery Without SI Required."

The scenario will terminate upon completion of ECA-0.2, if the RCP Seal Injection Needle Valves are closed with no Charging Pump running. If these valves are not closed, the scenario should continue in E-1, Loss of Reactor or Secondary Coolant, until the point of Charging Pump start (Step 11). If the crew transitions to ECA-0.1, rather than ECA-0.2, terminate at Step 5 of ECA-0.1, after the crew has restored Charging flow.

**Critical Tasks:**

**Establish the minimum required AFW flowrate to the Steam Generators before Wide Range Level in BOTH Steam Generators lowers to 50 inches (100 inches Adverse Containment)**

Safety Significance: Failure to establish the minimum required AFW flowrate results in adverse consequences and/or a significant degradation of the mitigative capability of the plant. If AFW flow is not sufficient during a Station Blackout, then cooldown of the RCS cannot be accomplished, and the result would be increased thermal stress on the RCP Seals, and increase the likelihood of increased leakage. Failure to perform this task, when able to do so (i.e. manually opening TDAFW Pump Steam Supply Valve), results in mis-operation that unnecessarily reduces the margin to safety of the plant.

**Manually start a Service Water Pump prior to the running Emergency Diesel Generator trips due to damage caused by engine overheating**

Safety Significance: Failure to manually start the SW Pump under the postulated plant conditions means that the DG is running without ESW cooling (will result in the ONLY AC Power Source running loaded without cooling water). Running the DG loaded without SW cooling leads to a high-temperature condition that can result in DG failure due to damage caused by engine overheating. Under the postulated plant conditions, the running DG is the only operable DG. Thus, failure to perform the critical task constitutes "mis-operation or incorrect crew performance that leads to degraded emergency power capacity." Even if the crew does not start the SW pump until receipt of high-temperature alarm(s), the critical task is performed satisfactorily, provided that the DG does not fail because of damage caused by engine overheating. For Ginna no automatic trip occurs from high D/G temperature. The GE/ALCO Engineering analysis states that the maximum allowable temperature for the engine will be reached in approximately 4 minutes and 23 seconds for "initial standby to a full load condition (1950kW)". Simulator testing under the postulated plant conditions for the Scenario showed that the EDG trips in approximately 5 minutes and 30 seconds.

**Isolate RCP Seal Injection before a Charging Pump is Started**

Safety Significance: Failure to isolate RCP seal injection before starting a charging pump under the postulated plant conditions, can result in unnecessary and avoidable degradation of the RCS fission-product barrier, specifically at the point of the RCP seals, especially if RCPs are subsequently started. Additionally, failure to perform the critical task results in significant degradation in the mitigative capability of the plant in that the RCPs are not available for subsequent event recovery actions (except for a RED path condition on the core cooling CSF). Following restoration of ac power, it is desirable to restore RCP seal cooling as soon as practical to reduce seal temperatures and mitigate potential continued degradation of the RCP seals.

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## Scenario Event Description

### NRC Scenario 3

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However, field experience has shown that the restoration of seal cooling must be performed in a controlled manner to avoid thermal shock and related damage to pump parts. Proper restoration of RCP seal cooling is important since it (1) maximizes the availability of the RCPs if required for subsequent event recovery actions and (2) minimizes the possibility of seal damage that could limit subsequent plant operation due to down time to effect RCP repairs.

Scenario Event Description  
NRC Scenario 3

**SIMULATOR OPERATOR INSTRUCTIONS**

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>		<b>Reset to Temp IC 157 (Originally IC-21).</b>	<p><b>T = 0:</b></p> <p>Verify that the A &amp; D SWPs are Selected for Auto Operations</p> <p>Take the Control Rod Shroud Fan A Control Switch to the PULL STOP position. Insert MALF GEN04A=Trip All Conditions, A D/G OOS Pull Stop the following A D/G Control Switches: A D/G Control A D/G Bus 14 Breaker A D/G Bus 18 Breaker Insert OVR-IND-GEN24=OFF Insert OVR-IND-GEN25=OFF Hang LOTO Tags as necessary</p> <p>Insert MALF RPS07M, AUTO Failure, TDAFW STM SUP MOV-3504A Insert MALF RPS07N, AUTO Failure, TDAFW STM SUP MOV-3505A</p> <p>Insert MALF ROD13A-K7 on T-1 Insert MALF GEN03 (120%, No Ramp) on T-2 Insert MALF CLG14A (0, No Ramp) on T-3 Insert MALF CLG03 (30 gpm, No Ramp) on T-4 Insert MALF EDS01B on T-5 Insert MALF EDS01A and GEN04B=Trip All Conditions on T-6 Insert MALF RPS07O to prevent SWP A from Auto Starting on T-6</p>
<input type="checkbox"/>	Prior to Crew Briefing		<ul style="list-style-type: none"> <li>• Hang Protective Tags per OPG-Protected Equipment (EDG A P3 of 24 of Attachment 2).</li> <li>• Place Black Dot on MCB Annunciators J-24 and J-25.</li> </ul>
<input type="checkbox"/>	<p style="text-align: center;"><b>Crew Briefing</b></p> <ul style="list-style-type: none"> <li>• Assign Crew Positions based on evaluation requirements</li> <li>• Review the Shift Turnover Information with the crew.</li> <li>• Provide crew with marked up copy of O-5.2 and S-3.1.</li> <li>• Handout Reactivity Binder (MOL) and Reactivity Plan specific to this power maneuver.</li> </ul>		

Scenario Event Description  
NRC Scenario 3

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>	T-0	Begin Familiarization Period	
<input type="checkbox"/>	At direction of examiner	Event 1 Trigger #1 MALF ROD13A-K7	Load Ascension/ MRPI System Failure
<input type="checkbox"/>	At direction of examiner	Event 2 Trigger #2 GEN03 (120%, No Ramp)	Main Generator Voltage Regulator Fails HIGH
<input type="checkbox"/>	At direction of examiner	Event 3 Trigger #3 CLG14A (0, No Ramp)	Letdown Temperature Control Valve (TCV-130) Controller Failure
<input type="checkbox"/>	At direction of examiner	Event 4 Trigger #4 CLG03 (30 gpm, No Ramp)	Leak in the NRHX to CCW system
<input type="checkbox"/>	At direction of examiner	Event 5 Trigger #5 EDS01B	Loss of Offsite circuit 767/Restore 4160 Bus 12B
<input type="checkbox"/>	At direction of examiner	Event 6 Trigger #6 EDS01A and GEN04B (Trip All Conditions)	B EDG Trips/Loss of 7T Circuit
<input type="checkbox"/>	Post-Rx Trip	Event 7 RPS07M RPS07N	TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A) <b>Note: These malfunctions are inserted at T=0.</b>
<input type="checkbox"/>	Post-Rx Trip	Event 8 Trigger #6 RPS07O	Selected Service Water Pumps fail to start in Auto
<input type="checkbox"/>	Terminate the scenario upon direction of Lead Examiner		

Op Test No.: N20-1 Scenario # 3 Event # 1 Page 9 of 73Event Description: **Load Ascension/ MRPI System Failure**

Shortly after taking the watch, the operator will raise power in accordance with O-5.2, "Load Ascension." The operator will address S-3.1, "Boron Concentration Control," to start the load ascension using Alternate Dilute. During the load ascension, a MRPI System Failure will occur. The operator will address AR-C-29, "MRPI SYSTEM FAILURE," AP-RCC.2, "RCC/RPI Malfunction," and Technical Specification LCO 3.1.7, "Rod Position Indication."

**SIM DRIVER Instructions:** **NA****Indications Available:** **NA**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO		<p><b>NOTE:</b> it is expected that the HCO will place the Control Rods in MANUAL based on previous steps (6.3.5).</p> <p>The HCO will establish a Critical parameter of Tavg-Tref <math>\pm 1.5^{\circ}\text{F}</math>.</p>
<b>O-5.2, LOAD ASCENSION</b>			
	CO		<b>NOTE:</b> The CO will need to place the Turbine Controls in IMP IN.
	US	(Step 6.7.1) HOLD Reactor Power at less than 50% UNTIL secondary chemistry requirements are met.	<b>NOTE:</b> All Chemistry Requirements are met.
	CO	(Step 6.7.2) WHEN ready to raise load to greater than or equal to 50%, THEN PERFORM the following:	
<p align="center"><b>CAUTION</b></p> <ul style="list-style-type: none"> <li>IF VALVE POS LIMIT light is ILLUMINATED, THEN EH control REFERENCE AND SETTER adjustment will be required until VALVE POS LIMIT light is EXTINGUISHED.</li> <li>Raising Valve Position Limit with Valve Position Limit light ILLUMINATED will raise Turbine load at 200%/minute.</li> <li>WHEN raising turbine load, THEN VLV POSITION LIMIT SHALL be continuously monitored to ensure it is maintained approximately 10% above SETTER Value.</li> </ul>			

Op Test No.: N20-1 Scenario # 3 Event # 1 Page 10 of 73Event Description: **Load Ascension/ MRPI System Failure**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>VERIFY VALVE POS LIMIT light is EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>IF VALVE POS LIMIT light is ILLUMINATED, THEN LOWER EH Control UNTIL VALVE POS LIMIT light is EXTINGUISHED as follows; OTHERWISE, MARK this Step N/A</li> </ul>	<b>NOTE:</b> This step is NA.
<b>CAUTION</b> CV TRACKING not indicating approximately zero with SETTER AND REFERENCE matched and VALVE POS LIMIT light EXTINGUISHED indicates a system malfunction.			
		<ul style="list-style-type: none"> <li>VERIFY CV TRACKING Meter is indicating approximately zero.</li> </ul>	
		<ul style="list-style-type: none"> <li>RAISE VPL POSITION LIMIT as desired using VVE POS LIMIT (GREEN) ▲ pushbutton.</li> </ul>	
	CO	(Step 6.7.3) CONTINUE with load ascension as follows:	<b>NOTE:</b> The CO will initiate a Load Ascension.
		<ul style="list-style-type: none"> <li>RAISE SETTER setpoint to desired value using (ORANGE) ▲ pushbutton.</li> </ul>	
		<ul style="list-style-type: none"> <li>DEPRESS GO pushbutton.</li> </ul>	
		<ul style="list-style-type: none"> <li>ENSURE VLV POSITION LIMIT setpoint is adjusted as required.</li> </ul>	
		<ul style="list-style-type: none"> <li>OBSERVE turbine load rises at desired rate.</li> </ul>	
<b>S-3.1, BORON CONCENTRATION CONTROL</b> <b>ATTACHMENT 4, ALTERNATE DILUTION</b>			
			<b>NOTE:</b> The crew will perform dilutions based upon the Reactivity Plan provided.

Op Test No.: N20-1 Scenario # 3 Event # 1 Page 11 of 73Event Description: **Load Ascension/ MRPI System Failure**

Time	Pos.	Expected Actions/Behavior	Comments
<b>NOTE</b>			
Dilute and Alternate Dilute both accomplish the same purpose of lowering RCS boron concentration. The effect of Alternate Dilute is observed sooner, and tends to lower RCS hydrogen concentration, because part of dilution flow goes directly to Charging Pumps suction, whereas in Dilute mode, all flow goes to Volume Control Tank.			
	HCO	(Step 1) ENSURE Attachment 1, Makeup Determinations, is complete.	
	HCO	(Step 2) The board operator SHALL inform the US of the intent to change core reactivity.	
	HCO	(Step 3) The US SHALL acknowledge the reactivity manipulation and provide input and oversight.	
	HCO	(Step 4) PLACE RMW MODE SELECTOR control switch to ALT DIL position.	
	HCO	(Step 5) SET RMW TO BA BLENDER FLOW CONTROL VLV, HCV-111, controller to the desired flowrate.	
	HCO	(Step 6) SET RMW COUNTER, YIC-111, to the quantity determined in Attachment 1.	
<b>NOTE</b>			
<ul style="list-style-type: none"> <li>• Key parameters including Reactor Coolant Tavg AND control rod position indication OR subcritical count rate SHALL be observed as reactor makeup water is injected. [G0092] [G0132].</li> <li>• IF rod motion is blocked or movement is in wrong direction, OR IF subcritical count rate increases by a factor of two, THEN dilution operation SHALL be immediately stopped. [G0092] [G0132]</li> <li>• The first Dilution/Alternate Dilution following an Automatic OR Manual Makeup depending on time in core life, will contain approximately 8 gallons of borated water. Desired Temperature and Power response may not be obtained until Blender Piping has been flushed.</li> </ul>			

Op Test No.: N20-1 Scenario # 3 Event # 1 Page 12 of 73Event Description: **Load Ascension/ MRPI System Failure**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 7) PLACE RMW Control Switch to START position.	
	HCO	(Step 8) VERIFY the following:	
		<ul style="list-style-type: none"> <li>• RMW Pump 1A OR 1B STARTS</li> </ul>	
		<ul style="list-style-type: none"> <li>• REACTOR MAKEUP TO VCT, AOV-110C opens.</li> </ul>	
		<ul style="list-style-type: none"> <li>• RMW TO BA BLENDER FLOW CONTROL VLV, HCV-111, valve throttles to preset flow position.</li> </ul>	
		<ul style="list-style-type: none"> <li>• REACTOR MAKEUP TO CHG PUMP, AOV-110B, opens</li> </ul>	
	HCO	(Step 9.0) WHEN dilution is complete, THEN PERFORM the following:	
	HCO	(Step 9.1) PLACE RMW MODE SELECTOR control switch to AUTO position.	
	HCO	(Step 9.2) SET RMW TO BA BLENDER FLOW CONTROL VLV, HCV-111, controller to the desired setpoint, normally 40 GPM.	
	HCO	(Step 9.3) PLACE RMW CONTROL switch to START position, and VERIFY RMW control red light ILLUMINATED.	
	HCO	(Step 9.4) PLACE "ALTERNATE DILUTE" Human Performance Label next to RMW Mode Selector switch on MCB.	
	HCO	(Step 9.5) Board operator SHALL INFORM US reactivity manipulation is complete. [G0092]	



Op Test No.: N20-1 Scenario # 3 Event # 1 Page 13 of 73Event Description: **Load Ascension/ MRPI System Failure**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 9.6) RECORD amount of reactor makeup water added on S-12.4, RCS Leakage Surveillance Record Instructions, Attachment RCS Leakage Surveillance Record.	
<b>SIM DRIVER Instructions:</b> Once the Load Ascension is in progress and at the discretion of the Lead Examiner, OPERATE Trigger 1 (MALF ROD13A-K7).			
<b>Indications Available:</b>			
<ul style="list-style-type: none"> <li>AR-C-29 MRPI System Failure</li> <li>Blinking Red "System Alarm, Check System Status Pages" on MRPI Panel</li> </ul>			
			<b>NOTE:</b> The crew may go to HOLD on the Turbine.
<b>AR-C-29, MRPI SYSTEM FAILURE</b>			
<b>NOTE</b>			
<ul style="list-style-type: none"> <li>A red box with ERR in the center (located where the Rod Bottom indication would normally appear) AND a loss of that Rod's indication may indicate the failure of an individual MRPI coil stack. This may NOT necessarily result in a Turbine Runback.</li> <li>IF DATA RECEPTION STATUS is failed (SYSTEM STATUS page, under SERIAL COMMUNICATIONS LINK), THEN MRPI may display false Rod position information.</li> <li>Certain failures may cause MRPI to display the last accurate data received. The Rod position indications may appear normal but will NOT change in response to actual Rod motion.</li> <li>ROD POSITION pushbutton is used to toggle between "Rod Position" and "Shutdown Rod Position" Screens.</li> <li>SYSTEM STATUS pushbutton is used to review system related issues and is used to toggle between "System Status" and "Rod Data Values" pages.</li> </ul>			
	HCO	(Step 4.1) VERIFY rod indication using the MRPI CRT OR PPCS Computer.	<b>Examiner NOTE:</b> The HCO addresses the Status Page and determines that the Bus Monitor Failed for Control Rod K-7.
	HCO	(Step 4.2) PERFORM the following to VERIFY MRPI STATUS AND DOCUMENT any error messages in ESOMs log:	

Op Test No.: N20-1 Scenario # 3 Event # 1 Page 14 of 73Event Description: **Load Ascension/ MRPI System Failure**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>On "Rod Position" and "Shutdown Rod Position" Screens:</li> </ul>	
		<ul style="list-style-type: none"> <li>Review missing rod position bar</li> </ul>	
		<ul style="list-style-type: none"> <li>Review Rod Position alarms on the bottom of screen</li> </ul>	
		<ul style="list-style-type: none"> <li>On System Status page</li> </ul>	
		<ul style="list-style-type: none"> <li>Review "Data cabinet" alarms</li> </ul>	
		<ul style="list-style-type: none"> <li>Review "Serial connection link" alarms</li> </ul>	
		<ul style="list-style-type: none"> <li>Review "Display cabinet" alarms</li> </ul>	
		<ul style="list-style-type: none"> <li>On Rod Data Values page</li> </ul>	
		<ul style="list-style-type: none"> <li>Review Rod values showing error codes:</li> </ul>	
		<ul style="list-style-type: none"> <li>"FF" – missing detector interface card in the data cabinet</li> </ul>	
		<ul style="list-style-type: none"> <li>"ERR" - valid rod position is not available for a particular rod</li> </ul>	
		<ul style="list-style-type: none"> <li>"FC" - open or shorted coil in the detector stack or a fault in the cabling to the detector</li> </ul>	
<p style="text-align: center;"><b>NOTE</b></p> <p>For a single rod position indication failure, IF a fault occurs and clears within 5 minutes, THEN MRPI is considered OPERABLE.</p>			
	HCO	(Step 4.3) IF a single rod position indication failure occurs AND no other MRPI failures are indicated, THEN PERFORM the following: OTHERWISE, GO TO AP-RCC.2, RCC/RPI MALFUNCTION.	
		<ul style="list-style-type: none"> <li>CHECK associated rod position indication voltage on PPCS (ie CR111V) returns to pre-fault value.</li> </ul>	
		<ul style="list-style-type: none"> <li>CHECK MRPI rod position indication returns to pre-fault value.</li> </ul>	
	US	<ul style="list-style-type: none"> <li>VERIFY fault clears in less than 5 minutes, IF NOT, THEN GO TO AP-RCC.2, RCC/RPI MALFUNCTION. OTHERWISE, GO TO step 4.7.</li> </ul>	<b>NOTE:</b> The US will transition to AP-RCCS.2.

Op Test No.: N20-1 Scenario # 3 Event # 1 Page 15 of 73Event Description: **Load Ascension/ MRPI System Failure**

Time	Pos.	Expected Actions/Behavior	Comments
<b>AP-RCC.2, RCC/RPI MALFUNCTION</b>			
<b>CAUTION</b>			
BANK ROD WITHDRAWAL SHOULD NOT BE PERFORMED UNTIL DIRECTED PER APPLICABLE RECOVERY PROCEDURE.			
	HCO	(Step 1) Place Rods to Manual	<b>NOTE:</b> The HCO will place the Control Rods to M (Manual).
	HCO	(Step 2) Check Dropped Rod Indication:	
		<ul style="list-style-type: none"> <li>Annunciator E-28, POWER RANGE ROD DROP ROD STOP 5%/5 SECONDS - EXTINGUISHED</li> </ul>	<b>NOTE:</b> E-28 is extinguished.
		<ul style="list-style-type: none"> <li>Annunciator C-14, ROD BOTTOM ROD STOP - EXTINGUISHED</li> </ul>	<b>NOTE:</b> C-14 is NOT LIT.
	HCO	(*Step 3) Check Tav <sub>g</sub> – STABLE AT PROGRAM	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
	HCO	(Step 4) Check Steam Dump Status:	
		Verify Annunciator G-15, STEAM DUMP ARMED - EXTINGUISHED	
	US	(Step 4 RNO) IF steam dump required but NOT operating, THEN.....	<b>NOTE:</b> The Steam Dumps are NOT required.
	CO	(Step 5) Check Main Generator Load – GREATER THAN 15 MW.	
<b>NOTE</b>			
With PRZR pressure controller 431K in manual, PORV 431C will not operate in the automatic mode. (Refer to TR 3.4.3)			

Op Test No.: N20-1 Scenario # 3 Event # 1 Page 16 of 73Event Description: **Load Ascension/ MRPI System Failure**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 6) Establish Stable Plant Conditions:	
		<ul style="list-style-type: none"> <li>Tavg – TRENDING TO TREF</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR pressure – TRENDING TO 2235 PSIG IN AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL</li> </ul>	
		<ul style="list-style-type: none"> <li>MFW Regulation Valves – RESTORING S/G LEVEL TO 52% IN AUTO</li> </ul>	
	HCO	(Step 7) Check Control Rod Alignment:	
		<ul style="list-style-type: none"> <li>Verify all rods in affected group – WITHIN <math>\pm 12</math> STEPS OF ASSOCIATED GROUP STEP COUNTER</li> </ul>	
<p align="center"><b>NOTE</b></p> <p>Step 8 is an attempt to determine whether a rod is misaligned or whether the MRPI System is malfunctioning.</p>			
	HCO	(Step 8) Check QPTR – LESS THAN 1.02	<b>NOTE:</b> Since a Rod has NOT dropped, QPTR will NOT be > 1.02.
<p align="center"><b>NOTE</b></p> <p>If the MRPI CRT fails, THEN the PPCS can be used for rod position indication until the CRT is made operable. Rod position indication can be retrieved from the PPCS by selecting the "CBAW" display button.</p>			
	HCO	(Step 9) Verify All Individual Rod Position Indication Per Bank Operable:	
		<ul style="list-style-type: none"> <li>MRPI system – NO MRPI SYSTEM ALARMS</li> </ul>	
		<ul style="list-style-type: none"> <li>MRPI system – NOT KNOWN PROBLEMS WITH MRPI SYSTEM THAT COULD RENDER ROD POSITION INDICATION INOPERABLE</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 1 Page 17 of 73Event Description: **Load Ascension/ MRPI System Failure**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 9 RNO) Perform the following:	<b>Examiner NOTE:</b> Once the Technical Specifications are evaluated, the Lead Examiner may MOVE to Event 2.
		<ul style="list-style-type: none"> <li>Refer to ITS section 3.1.7 for required action.</li> </ul>	
		<ul style="list-style-type: none"> <li>Consult Reactor Engineer and plant staff to evaluate MRPI and to perform flux map per ITS.</li> </ul>	<b>NOTE:</b> The US may notify the WCC/IMD/RE. <b>SIM DRIVER:</b> as WCCS/IMD/RE, acknowledge.
	US	<ul style="list-style-type: none"> <li>Go to Step 11</li> </ul>	
	HCO	(Step 11) Verify Affected Group Step Counters Operable:	
		<ul style="list-style-type: none"> <li>Affected bank group step counter movement – CONSISTENT WITH MRPI TRANSITIONS (Evaluate affected bank using PT-1, ROD CONTROL SYSTEM).</li> </ul>	
		<ul style="list-style-type: none"> <li>Group step counters for affected bank – WITHIN 1 STEP OF EACH OTHER</li> </ul>	
	HCO	(Step 12) Check Reactor Conditions:	
		<ul style="list-style-type: none"> <li>Rod insertion limit alarms - EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>NIS PR <math>\Delta I</math> – WITHIN DESIRED OPERATING BAND</li> </ul>	
	US	(Step 13) Evaluated Plant Conditions:	
		<ul style="list-style-type: none"> <li>Rod/MRPI malfunction - REPAIRED</li> </ul>	<b>NOTE:</b> The MRPI problem will NOT be repaired.
	US	(Step 13 RNO) Return to Step 8	
<b>TECHNICAL SPECIFICATION 3.1.7, ROD POSITION INDICATION</b>			

Op Test No.: N20-1 Scenario # 3 Event # 1 Page 18 of 73Event Description: **Load Ascension/ MRPI System Failure**

Time	Pos.	Expected Actions/Behavior	Comments
	US	LCO 3.1.7 The Microprocessor Rod Position Indication (MRPI) System and the Demand Position Indication System shall be OPERABLE.	
	US	APPLICABILITY: MODES 1 and 2.	
		ACTIONS:	
CONDITION		REQUIRED ACTION	COMPLETION TIME
A. One MRPI per group inoperable for one or more groups.		A.1 Verify the position of the rods with inoperable position indicators by using movable incore detectors	Once per 8 hours
		OR A.2 Verify the position of the rods with inoperable MRPI indirectly by using the movable incore detectors.	8 hours AND Once per 31 EFPD thereafter AND 8 hours after discovery of each unintended rod movement AND 8 hours after each movement of rod with inoperable MRPI > 12 steps AND Prior to THERMAL POWER exceeding 50% RTP AND 8 hours after reaching RTP
		OR A.3 Reduce THERMAL POWER to ≤ 50% RTP	8 hours
			<b>NOTE:</b> The US will determine that Condition A is applicable.
<b>At the discretion of the Lead Examiner move to Event #2.</b>			

Op Test No.: N20-1 Scenario # 3 Event # 2 Page 19 of 73Event Description: **Main Generator Voltage Regulator Fails HIGH**

Subsequently, the Main Generator Voltage Regulator will fail HIGH. The operator will respond in accordance with AR-J-10, "GENERATOR VOLTAGE REGULATOR MANUAL." The operator will reduce generator output voltage using the Base Adjuster and notify RG&E ECC per the NOTE in AR-J-10. The Voltage Regulator will remain in MANUAL throughout the remainder of the scenario.

**SIM DRIVER Instructions:** **Operate Trigger #2 (GEN03 (120%, No Ramp))**

**Indications Available:**

- Main Generator VAR Loading goes from 50 IN to 300 OUT
- MCB Annunciator J-18, GENERATOR VOLTAGE REGULATOR FIELD FORCING
- MCB Annunciator J-20, GENERATOR TRANSFORMER OVEREXCITE
- MCB Annunciator J-27, GENERATOR VOLTAGE REGULATOR ALARM
- MCB Annunciator J-10, GENERATOR VOLTAGE REGULATOR MANUAL (After 40 seconds)
- Generator Regulator Red Status light goes DARK (After 40 seconds)
- Generator Regulator Green Status light is LIT (After 40 seconds)

Time	Pos.	Expected Actions/Behavior	Comments
			<b>NOTE:</b> The crew may go to HOLD on the Turbine.
<b>A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE</b>			
	HCO	(Step 5.3.A.5) Actions are permitted to mitigate or compensate for equipment or controller failures or to isolate leaks. Permitted actions include those actions necessary to take manual control and stabilize the affected parameters, or to isolate a leak. Examples include closing or isolating a failed open PORV, taking manual control of a failed FRV controller, etc. These deviations fall under the Maintenance Rule. Therefore 50.59 is not required.	<b>NOTE:</b> The CO may adjust VARs using the Base Adjuster based on this procedural allowance.
<b>AR-J-10, GENERATOR VOLTAGE REGULATOR MANUAL</b>			
	CO	(Step 1) Regulate voltage with BASE ADJUSTER.	<b>NOTE:</b> The CO will adjust the Base Adjuster as needed to restore Main Generator VARs to the pre-failure level.

Op Test No.: N20-1 Scenario # 3 Event # 2 Page 20 of 73Event Description: **Main Generator Voltage Regulator Fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
<b>NOTE</b> There is a North American Electric Reliability Corporation (NERC) requirement to notify RG&E Energy Control Center within 30 minutes anytime there is a change of status or capability of the Voltage Regulator. [G0001]			
	US	(Step 2) Notify the following:	
		<ul style="list-style-type: none"> <li>Electricians</li> </ul>	<b>NOTE:</b> The US may notify the WCC/Electricians. <b>SIM DRIVER:</b> as <b>WCCS</b> , acknowledge.
		<ul style="list-style-type: none"> <li>Electrical Planner</li> </ul>	
		<ul style="list-style-type: none"> <li>RG&amp;E Energy Control Center that the voltage regulator is in manual.</li> </ul>	<b>NOTE:</b> The US/CO may notify RG&E ECC. <b>SIM DRIVER:</b> as <b>RG&amp;E ECC</b> , acknowledge, and report that an adjustment was noticed in the Ginna output voltage.
	CO	(Step 3) Place Voltage Regulator in "OFF"	
<b>NOTE</b> If the Regulator tripped to Manual on a "Loss of Sensing" condition, THEN once the potential transformer deficiencies are corrected, the "Loss of Sensing" relays must be reset by operating the reset pushbutton on the "Loss of Sensing" module prior to going to Auto.			
	US	(Step 4) WHEN condition requiring manual operation is corrected, THEN refer to O-6.9.3, PLACING THE VOLTAGE REGULATOR TO EITHER AUTO OR MANUAL.	
<b>AR-J-27, GENERATOR VOLTAGE REGULATOR ALARM</b>			
	CO	(Step 1) VERIFY main generator voltage stable at desired value.	



Op Test No.: N20-1 Scenario # 3 Event # 2 Page 21 of 73Event Description: **Main Generator Voltage Regulator Fails HIGH**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 2) NOTIFY an EO to investigate alarm at the Generator Excitation Equipment Panel.	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as <b>EO</b> , acknowledge. After 2 Minutes report that following Annunciators are locked in: <ul style="list-style-type: none"> <li>REGULATOR TRIP TO MANUAL</li> <li>MXL LIMITING</li> <li>OXF INVERSE TIMER IS TIMING</li> <li>OXF UNIT TRIP</li> <li>ON LINE FORCING</li> </ul>
	CO	(Step 3) NOTIFY Electricians.	<b>NOTE:</b> The US may notify the WCC/Electricians. <b>SIM DRIVER:</b> as <b>WCCS</b> , acknowledge.
	CO	(Step 4) REFER to applicable "AR-VOLT-REG " alarm response procedure.	
			<b>NOTE:</b> The US/CO may contact RG&E ECC and ask for control parameters. <b>SIM DRIVER:</b> as <b>RG&amp;E ECC</b> , acknowledge, and report that Ginna should maintain an output voltage as necessary to maintain MVARs at 0-50 LAG OUT.
<b>At the discretion of the Lead Examiner move to Event #3.</b>			

Op Test No.: N20-1 Scenario # 3 Event # 3 Page 22 of 73Event Description: **Letdown Temperature Control Valve (TCV-130) Controller Failure**

Following this, the Letdown Temperature Control Valve (TCV-130) Controller will fail causing the TCV-130 to close, and actual letdown temperature to rise. The operator will respond in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," Section 5.3.A.5, and should re-open TCV-130 in manual to restore normal letdown temperature. The operator will address AR-A-12, "NON-REGEN HX LETDOWN OUT HI TEMP 145°F," and the TCV-130 Controller will remain in MANUAL throughout the remainder of the scenario.

**SIM DRIVER Instructions:** **Operate Trigger #3 (GLG14A (0, No Ramp))**

**Indications Available:**

- TI-130 indicates rising Letdown temperature
- Controller TCV-130 goes to full output (100%) – Fully Closed
- MCB Annunciator A-12, NON-REGEN HX LETDOWN OUT HI TEMP 145°F
- TCV-145 Red Status light LIT (Divert to VCT)
- VCT Temperature increases

Time	Pos.	Expected Actions/Behavior	Comments
<b>A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE</b>			
	HCO	(Step 5.3.A.5) Actions are permitted to mitigate or compensate for equipment or controller failures or to isolate leaks. Permitted actions include those actions necessary to take manual control and stabilize the affected parameters, or to isolate a leak. Examples include closing or isolating a failed open PORV, taking manual control of a failed FRV controller, etc. These deviations fall under the Maintenance Rule. Therefore 50.59 is not required.	<b>NOTE:</b> The HCO may place the TCV-130 Controller in MANUAL based on this procedural allowance.
<b>AR-A-12, NON-REGEN HX LETDOWN OUT HI TEMP 145°F</b>			
<b>NOTE</b>			
Adjustments made to reduce NRHX LTDN Outlet Temperature will also affect letdown DI boron concentration saturation levels. Anticipate changes to RCS Tavg and RCS reactivity when changing outlet temperature.			

Op Test No.: N20-1 Scenario # 3 Event # 3 Page 23 of 73Event Description: **Letdown Temperature Control Valve (TCV-130) Controller Failure**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 4.1) ENSURE LTDN DIVERT TO DI OR VCT, TCV-145 is diverting to VCT.	
	HCO	(Step 4.2) IF a loss of CCW has occurred,.....	<b>NOTE:</b> A loss of CCW has NOT occurred.
	HCO	(Step 4.3) MONITOR VCT temperature:	
<b>NOTE</b> IF the Charging Suction aligns to the RWST a load reduction will be required. REFER TO O-2.1 NORMAL SHUTDOWN TO HOT SHUTDOWN OR AP-TURB.5 RAPID LOAD REDUCTIONS			
		<ul style="list-style-type: none"> <li>IF BOTH VCT temperature indicators TI-145 (PPCS point T0145) and TI-140 are GREATER THAN 190°F THEN.....</li> </ul>	<b>NOTE:</b> It is expected that the HCO take manual control of TCV-130 to maintain both temperatures less than 190°F.
		<ul style="list-style-type: none"> <li>IF BOTH VCT temperature indicators TI-145 (PPCS point T0145) and TI-140 are LESS THAN 187°F then ENSURE Charging pump suction is aligned to the VCT.</li> </ul>	
		<ul style="list-style-type: none"> <li>VCT OUTLET VLV LCV-112C-OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>EMERG MAKEUP RWST TO CHARGING PUMP LCV-112B-CLOSED</li> </ul>	
<b>CAUTION</b> Maintaining NRHX LTDN outlet temp TCV-130 at the normal setpoint helps prevent unexpected changes in reactivity or RCP seal performance.			
	HCO	(Step 4.4) ADJUST NRHX LTDN outlet temp (TI-130) TCV-130 to MAINTAIN letdown temp at the normal value.	
	HCO	(Step 4.5) CHECK for proper charging and letdown flows, and temperatures.	

Op Test No.: N20-1 Scenario # 3 Event # 3 Page 24 of 73Event Description: **Letdown Temperature Control Valve (TCV-130) Controller Failure**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"><li>Charging Line Flow (FI-128B or FI-128C) ≈ 25 gpm.</li></ul>	
		<ul style="list-style-type: none"><li>LTDN Line Flow (FI-134)</li></ul>	
		<ul style="list-style-type: none"><li>NRHX LTDN Outlet Temp (TI-130)</li></ul>	
		(Step 4.6) REFER TO S-8A, COMPONENT COOLING WATER SYSTEM STARTUP AND NORMAL OPERATION VALVE ALIGNMENT.	
		(Step 4.7) IF NRHX LTDN Outlet Temp (TI-130) was observed to be < 600 F or > 1400 F, THEN INITIATE a Condition Report per CNG-CA-1.01-1000, CORRECTIVE ACTION PROGRAM	
			<b>NOTE:</b> The US may call WCC/Maintenance to address the controller. If so, <b>SIM DRIVER</b> acknowledge as WCC.
<b>At the discretion of the Lead Examiner move to Event #4.</b>			

Op Test No.: N20-1 Scenario # 3 Event # 4 Page 25 of 73Event Description: **Leak in the NRHX to CCW system**

Then, a 30 gpm leak will develop on the Non-Regenerative Heat Exchanger. The operator will respond in accordance with AR-E-16, "RMS PROCESS MONITOR HIGH ACTIVITY," and AR-RMS-17, "R-17 COMPONENT COOLING," which will direct the crew to AP-CCW.1, "Leakage Into the Component Cooling Loop." Per AP-CCW.1, letdown flow through the NRHX (and the leak) will be isolated and Excess Letdown will be placed in service.

**SIM DRIVER Instructions:** **Operate Trigger #4 (CLG03 (30 gpm, No Ramp))**

**Indications Available:**

- Letdown flow drops from 40 gpm to 16 gpm
- CCW Surge Tank Level starts to increase
- R-17 indication starts to increase
- MCB Annunciator E-16, RMS PROCESS MONITOR HIGH ACTIVITY

Time	Pos.	Expected Actions/Behavior	Comments
			<p><b>Examiner NOTE:</b> The crew may enter <b>AP-CCW.1</b> directly.</p> <p>OR</p> <p>The crew may enter <b>AP-CVCS.1 (Not Scripted)</b> as an alternative to AP-CCW.1.</p> <p>In either procedure, the crew will isolate normal letdown and place Excess Letdown in service per <b>ATT-9.1 (Page 30)</b>.</p>
<b>AR-E-16, RMS PROCESS MONITOR HIGH ACTIVITY</b>			
	HCO	(Step 1) ENSURE automatic actions have occurred where applicable.	<p><b>NOTE:</b> The US may direct the EO to report status of RCV-017.</p> <p>If so, <b>SIM DRIVER</b> acknowledge as EO, and report that the valve is <b>CLOSED</b>.</p>

Op Test No.: N20-1 Scenario # 3 Event # 4 Page 26 of 73Event Description: **Leak in the NRHX to CCW system**

Time	Pos.	Expected Actions/Behavior	Comments
	US/ HCO	(Step 2) NOTIFY the following to investigate the RMS Alarm.	<b>NOTE:</b> The US may call RP/EO to address the RMS alarm.  If so, <b>SIM DRIVER</b> acknowledge as RP and/or EO.
		• Radiation Protection	
		• Auxiliary Operators	
	US	(Step 3) REFER to the following	<b>NOTE:</b> The US may address any of these documents.
		• AR-RMS.11 through AR-RMS.20B and ER-RMS.1	
		• EPIP 1-13, Local Radiation Emergency and/or CNG-EP-1.01-1024, GNP Dose Assessment	
		• EPIP 1.0, Ginna Station Event Evaluation And Classification	
		• CNG-NL-1.01-1004, Regulatory Reporting (if necessary)	
		• CH-RETS-RMS-INOP, Actions for RMS Monitor Alarm or Inoperability	
		• ITS LCO 3.3.5 and 3.4.15	
		• ODCM, Offsite Dose Calculation Manual ODCM	
<b>AR-RMS-17, R-17 COMPONENT COOLING</b>			
	HCO	(Step 1) Verify RCV-017 closed	<b>NOTE:</b> The US may direct the EO to report status of RCV-017.  If so, <b>SIM DRIVER</b> acknowledge as EO, and report that the valve is CLOSED.
	US	(Step 2) GO TO AP-CCW.1	

Op Test No.: N20-1 Scenario # 3 Event # 4 Page 27 of 73Event Description: **Leak in the NRHX to CCW system**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 3) direct RP to perform CH-PRI-CCW-LEAK to determine CCW leakage.	<b>NOTE:</b> The US/CO will contact RP/Chemist. <b>SIM DRIVER:</b> as <b>RP/Chemist</b> , acknowledge.
			<b>NOTE:</b> The US will go to AP-CCW.1.
<b>AP-CCW.1, LEAKAGE INTO THE COMPONENT COOLING LOOP</b>			
<b>CAUTION</b> DURING THE PERFORMANCE OF THIS PROCEDURE, RCV-017 SHOULD BE MONITORED TO ENSURE CLOSURE ON CCW SYSTEM RADIATION MONITOR ALARM.			
	HCO	(Step 1) Check CCW Indications	
		<ul style="list-style-type: none"> <li>Check CCW surge tank level – RISING</li> </ul>	
		<ul style="list-style-type: none"> <li>Direct RP tech to perform CH-PRI-CCW-LEAK, DETERMINATION OF CCW SYSTEM LEAKAGE</li> </ul>	<b>NOTE:</b> The US/CO will contact RP/Chemist. <b>SIM DRIVER:</b> Using <b>TIME COMPRESSION</b> as <b>RP/Chemist</b> , acknowledge, and after 5 minutes report that leakage is 28.8 gpm.
		<ul style="list-style-type: none"> <li>CCW radiation monitor, R-17, RISING (PPCS Point L0618)</li> </ul>	
<b>CAUTION</b> IF EITHER RCP #1 SEAL OUTLET TEMPERATURE EXCEEDS 215°F, THEN THE AFFECTED RCP(S) SHOULD BE STOPPED.			
<b>NOTE</b> RCPs may be safely operated without CCW to the thermal barrier if seal injection flow is maintained.			
	HCO	(Step 2) Check RCP Thermal Barrier Indications:	
		<ul style="list-style-type: none"> <li>Labyrinth seal D/Ps – GREATER THAN 15 INCHES OF WATER AND APPROXIMATELY EQUAL</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 4 Page 28 of 73Event Description: **Leak in the NRHX to CCW system**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>RCP #1 seal leak off flows WITHIN THE NORMAL OPERATING RANGE OF FIG-4.0, FIGURE RCP SEAL LEAKOFF</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-7 (15), RCP A (B) CCW RETURN HI TEMP OR LO FLOW 165 GPM 125°F - EXTINGUISHED</li> </ul>	
	HCO	(Step 3) Check RCS temperature – GREATER THAN 350°F	
	HCO	(Step 4) Check NRHX For Leakage:	
		<ul style="list-style-type: none"> <li>Normal letdown – IN SERVICE</li> </ul>	
		<ul style="list-style-type: none"> <li>Check Letdown Indications:</li> </ul>	
		<ul style="list-style-type: none"> <li>Letdown line flow – APPROXIMATELY 40 GPM</li> </ul>	
	HCO	<ul style="list-style-type: none"> <li>(Step 4b RNO) Isolate Normal Letdown:</li> </ul>	
		<ul style="list-style-type: none"> <li>Close letdown isolation, AOV-427.</li> </ul>	<b>NOTE:</b> The HCO will isolate normal Letdown and stop the leak.
		<ul style="list-style-type: none"> <li>Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202).</li> </ul>	
		<ul style="list-style-type: none"> <li>Close letdown isolation, AOV-371.</li> </ul>	
		<ul style="list-style-type: none"> <li>Place Letdown Line Pressure Control Valve PCV-135 in Manual and Close the valve.</li> </ul>	
		<ul style="list-style-type: none"> <li>Close charging flow control valve, HCV-142 WHILE adjusting charging pump speed to maintain:</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP labyrinth seal D/P between 15 inches and 80 inches.</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR level at program</li> </ul>	
	US	<ul style="list-style-type: none"> <li>Go to Step 5.</li> </ul>	<b>NOTE:</b> The HCO may stop one of two running Charging Pumps when normal letdown is isolated (May Use AR-F-14).



Op Test No.: N20-1 Scenario # 3 Event # 4 Page 29 of 73Event Description: **Leak in the NRHX to CCW system**

Time	Pos.	Expected Actions/Behavior	Comments
<b>NOTE</b>			
If it is suspected that CCW Fluid will enter the WHUT, Notify the Chemistry Technician.			
	HCO	(Step 5) check If CCW Inleakage has Stopped:	
		<ul style="list-style-type: none"> <li>CCW surge tank level – STABLE</li> </ul>	<b>NOTE:</b> The leak has been stopped.
		<ul style="list-style-type: none"> <li>Restore an intact letdown flowpath if available (Refer to ATT-9.0, ATTACHMENT LETDOWN OR ATT-9.1, ATTACHMENT EXCESS L/D)</li> </ul>	
			<b>NOTE:</b> The US will hand this off to the HCO or the CO.
<b>ATT-9.1, ATTACHMENT EXCESS L/D</b>			
	HCO/CO	(Step A) The following conditions must be met to place excess letdown in service:	
		<ul style="list-style-type: none"> <li>IA to CNMT - ESTABLISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>CCW - IN SERVICE</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR level - GREATER THAN 13%</li> </ul>	
	HCO/CO	(Step B) Establish excess letdown:	
		<ul style="list-style-type: none"> <li>Ensure EXCESS LTDN LOOP A COLD TO Hx, AOV-310 is closed.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure EXCESS LTDN flow control valve, HCV-123 is closed, demand at 0.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure SEAL OR EXCESS LTDN RETURN ISOL VALVE, MOV-313, is open.</li> </ul>	
		<ul style="list-style-type: none"> <li>Place excess letdown divert valve, AOV-312, to DIVERT</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure CCW FROM EX LTDN Hx, AOV-745 – OPEN.</li> </ul>	
		<ul style="list-style-type: none"> <li>Open EXCESS LTDN LOOP A COLD TO HX, AOV-310.</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 4 Page 30 of 73Event Description: **Leak in the NRHX to CCW system**

Time	Pos.	Expected Actions/Behavior	Comments
<b>CAUTION</b> DIVERTING EXCESS LETDOWN TO RCDT WILL RESULT IN CVCS HUT LEVEL RISE OF APPROXIMATELY 4% PER HOUR.			
		<ul style="list-style-type: none"> <li>Flush approximately 10 gallons to RCDT as follows (3.2 gal/%, PPCS Point ID LI003).</li> </ul>	
		<ul style="list-style-type: none"> <li>Slowly open EXCESS LTDN flow control valve, HCV-123, to maintain excess letdown temperature less than 195°F and pressure less than 100 psig.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure approximately 10 gallons is flushed to the RCDT.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF RCP seal return has been established, THEN place EXCESS LTDN HX DIVERT TO VCT OR RCDT VALVE, AOV-312, to NORMAL.</li> </ul>	
		<ul style="list-style-type: none"> <li>Adjust charging pump speed to control PRZR level and labyrinth seal D/P.</li> </ul>	
<b>AP-CCW.1, LEAKAGE INTO THE COMPONENT COOLING LOOP</b>			
	HCO	<ul style="list-style-type: none"> <li>(Step 5.c) Check any letdown flowpath – RESTORED</li> </ul>	<b>NOTE:</b> Excess Letdown has been established.
		<ul style="list-style-type: none"> <li>Adjust charging flow to restore PRZR level</li> </ul>	<b>NOTE:</b> If not already done the HCO may elect to stop one Charging Pump for RCS inventory control.
<b>NOTE</b> With PRZR pressure controller 431K in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3)			
	HCO	(Step 6) Establish Stable Plant Conditions:	
		<ul style="list-style-type: none"> <li>Check Tavg – TRENDING TO TREF</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 4 Page 31 of 73Event Description: **Leak in the NRHX to CCW system**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Check PRZR pressure – TRENDING TO 2235 PSIG IN AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Check PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL</li> </ul>	<b>NOTE:</b> If PRZR level is being controlled manually, the RNO will be performed (manually control charging).
	HCO	(Step 6.c RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Place affected charging pumps in MANUAL</li> </ul>	
		<ul style="list-style-type: none"> <li>Adjust charging pump speed to restore PRZR level to program.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF PRZR level can NOT be controlled manually, THEN....</li> </ul>	
	US	<ul style="list-style-type: none"> <li>Go to Step 17.</li> </ul>	
	US	(Step 17) Evaluate Plant Conditions:	
		<ul style="list-style-type: none"> <li>CCW inleakage – IDENTIFIED AND ISOLATED</li> </ul>	<b>NOTE:</b> The leakage into the CCW System has been isolated.
		<ul style="list-style-type: none"> <li>Determine if operation can continue (Consult Plant staff if necessary) – OPERATION CAN CONTINUE</li> </ul>	
	HCO	(Step 18) Check CCW Surge Tank Level – APPROXIMATELY 50%	
	HCO	(Step 19) Establish Control Systems In Auto	
		<ul style="list-style-type: none"> <li>Verify rods in AUTO</li> </ul>	<b>NOTE:</b> The control rods are in MANUAL due to the load ascension/MRPI Failure.
		<ul style="list-style-type: none"> <li>Verify 431K in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify PRZR spray valves in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify PRZR heaters restored:</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR proportional heaters breaker – CLOSED</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 4 Page 32 of 73Event Description: **Leak in the NRHX to CCW system**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>PRZR backup heaters breaker – RESET, IN AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify one charging pump in AUTO</li> </ul>	<b>NOTE:</b> If PRZR level is being controlled manually, the RNO will be performed (Place Charging in AUTO if desired).
	HCO/ CO	(Step 20) Evaluate MCB Annunciator Status (Refer to AR Procedures)	
<b>NOTE</b> Refer to LS-AA-1020, REPORTABILITY TABLES AND DECISION TREES for reporting requirements.			
	US	(Step 21) Notify Higher Supervision	<b>NOTE:</b> The US may call WCC/Maintenance to address the letdown leak. If so, <b>SIM DRIVER</b> acknowledge as WCC.
	US	(Step 22) Return to Procedure or Guidance In Effect	
<b>At the discretion of the Lead Examiner move to Event #5.</b>			

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 33 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

After this, a loss of offsite power circuit 767 will occur, resulting in the loss of 4160 Bus 12B. The crew will respond per AP-ELEC.1, "Loss of 12A and/or 12B Busses," and restore power to 12B in accordance with ER-ELEC.1, "Restoration of Offsite Power," using circuit 7T. The operator will address Technical Specification LCO 3.8.1, "AC Sources - MODES 1, 2, 3, and 4," and Technical Requirements Manual, TR-3.8.1, "Offsite Power Sources."

**SIM DRIVER Instructions:** **Operate Trigger #5 (EDS01B)**

**Indications Available:**

- Multiple MCB Annunciators
- Bus 12B at 0 VAC
- Bus 12B at 0 amps
- B EDG Starts and loads onto Safeguards Buses

Time	Pos.	Expected Actions/Behavior	Comments
<b>AP-ELEC.1, LOSS OF 12A AND/OR 12B BUSES</b>			
<p align="center"><b>CAUTION</b></p> <ul style="list-style-type: none"> <li>• IF ANY RADIOACTIVE RELEASE IN PROGRESS, THEN IT SHOULD BE TERMINATED UNTIL SUPPORT CONDITIONS ARE EVALUATED.</li> <li>• OBSERVE D/G LOADING LIMITS OF 2300 KW FOR 1/2 HOUR, 2250 KW FOR 2 HOURS, AND 1950 KW FOR CONTINUOUS SERVICE.</li> </ul>			
<p align="center"><b>NOTE</b></p> <p>Conditions should be evaluated for site contingency reporting (Refer to EP-AA-1012 ADDENDUM 3, R.E. GINNA NUCLEAR POWER PLANT EMERGENCY ACTION LEVELS).</p>			
	HCO	(Step 1) Check RCS Temperature – GREATER THAN 350°F	
	HCO	(*Step 2) Monitor Tavg	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>• Place Rods in MANUAL</li> </ul>	<b>NOTE:</b> The Control Rods are likely in MANUAL.
		<ul style="list-style-type: none"> <li>• Manually move control rods to control Tavg</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 34 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 3) Verify RCPs – BOTH RUNNING	
	HCO/ CO	(Step 4) Verify Emergency D/G Associated With Deenergized Bus(es) - RUNNING	<b>NOTE:</b> The B D/G is powering Bus 16/17.
		<ul style="list-style-type: none"> <li>Bus 12A – D/G A</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 12B – D/G B</li> </ul>	
	CO	(Step 5) Verify Both Trains of AC Emergency Busses Energized To At Least 440 VOLTS:	
		<ul style="list-style-type: none"> <li>Bus 14 and bus 18</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 16 and bus 17</li> </ul>	
	CO	(Step 6) Verify Service Water System Operation:	
		<ul style="list-style-type: none"> <li>Check at least one SW pump running in each loop</li> </ul>	
		<ul style="list-style-type: none"> <li>A or B Pump in Loop A</li> </ul>	
		<ul style="list-style-type: none"> <li>C or D Pump in Loop B</li> </ul>	<b>NOTE:</b> The B and D SW Pumps are operating.
	CO	(Step 6.a RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Manually start pumps as necessary (257 kw each).</li> </ul>	
		<ul style="list-style-type: none"> <li>IF adequate cooling can NOT be supplied to a running D/G, THEN.....</li> </ul>	
		<ul style="list-style-type: none"> <li>IF no SW pumps can be operated, THEN....</li> </ul>	
	CO	<ul style="list-style-type: none"> <li>(Step 6.b) SW header pressure – GREATER THAN 40 PSIG IN EACH LOOP</li> </ul>	
	HCO	(Step 7) Check CCW Pump Status:	
		<ul style="list-style-type: none"> <li>At least one CCW pump – RUNNING</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 35 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSIG - EXTINGUISHED</li> </ul>	
	HCO	(Step 8) verify charging pump status – AT LEAST ONE RUNNING	<p><b>NOTE:</b> The RNO will be performed if no Charging Pumps running.</p> <p>Bus 16 momentarily lost power and caused the C Charging pump to stop. When the bus is re-powered it does not auto start the Charging Pump. Consequently, they may need to manually start a Charging Pump and re-establish Excess Letdown. This will be avoided if the crew leaves the A Charging (Bus 14) running.</p>
	HCO	(Step 8 RNO) Isolate letdown flowpaths:	
		<ul style="list-style-type: none"> <li>Close letdown isol, AOV-427</li> </ul>	
		<ul style="list-style-type: none"> <li>Close excess letdown, HCV-123</li> </ul>	
		<ul style="list-style-type: none"> <li>Close Loop A cold leg to excess letdown Hx, AOV-310</li> </ul>	
	HCO/CO	(Step 9) verify Annunciator H-16, INSTRUMENT AIR COMP – EXTINGUISHED	
	CO	(Step 10) Verify Bus 11A and 11B Normal Feed Breakers - CLOSED	
	CO	(Step 11) Check MFW Regulating Valves – RESTORING S/G LEVEL TO 52% IN AUTO	
<p align="center"><b>NOTE</b></p> <p>IF VCT level lowers to 5%, charging pump suction will swap to the RWST. This may require a load reduction.</p>			

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 36 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 12) check VCT Makeup System:	
		<ul style="list-style-type: none"> <li>Ensure the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>RMW mode selector switch in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>RMW control armed – RED LIGHT LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Check VCT level:</li> </ul>	
		<ul style="list-style-type: none"> <li>Level GREATER THAN 20%</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>Level – STABLE OR RISING</li> </ul>	
	HCO	(Step 13) Check Charging Pump Suction Aligned to VCT:	
		<ul style="list-style-type: none"> <li>VCT level – GREATER THAN 20%</li> </ul>	
		<ul style="list-style-type: none"> <li>Align charging pumps to VCT</li> </ul>	
		<ul style="list-style-type: none"> <li>LCV-112C open</li> </ul>	
		<ul style="list-style-type: none"> <li>LCV-112B closed</li> </ul>	
<p align="center"><b>NOTE</b></p> <p>When restarting equipment for recovery, it is preferable to start equipment on busses being supplied from offsite power.</p>			
	HCO	(Step 14) Check CVCS Operation:	
		<ul style="list-style-type: none"> <li>Charging pumps – AT LEAST ONE RUNNING</li> </ul>	<b>NOTE:</b> The RNO will be performed if no Charging Pumps running.
	HCO	(Step 14.a RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>IF all seal cooling has been lost to any RCP, THEN close seal injection to affected RCP(s)</li> </ul>	<p><b>NOTE:</b> The US/HCO may dispatch an EO.</p> <p><b>SIM DRIVER:</b> as EO, acknowledge and, if not previously performed, use REM-CVC019=0 and CVC020=0. After 3 Minutes report that V-300A and V-300B are CLOSED.</p>



Op Test No.: N20-1 Scenario # 3 Event # 5 Page 37 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>RCP A, V-300A</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP A, V-300B</li> </ul>	
		<ul style="list-style-type: none"> <li>Start one charging pump (75 kw).</li> </ul>	
		<ul style="list-style-type: none"> <li>IF no charging pumps can be operated, THEN....</li> </ul>	
		<ul style="list-style-type: none"> <li>Check letdown indications:</li> </ul>	
		<ul style="list-style-type: none"> <li>Check PRZR level – GREATER THAN 13%</li> </ul>	
		<ul style="list-style-type: none"> <li>Letdown flow – APPROXIMATELY 40 gpm</li> </ul>	<b>NOTE:</b> Normal Letdown was previously isolated.
	HCO	<ul style="list-style-type: none"> <li>(Step 14b RNO) Perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Close letdown isolation, AOV-427.</li> </ul>	
		<ul style="list-style-type: none"> <li>Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202)</li> </ul>	
		<ul style="list-style-type: none"> <li>Close letdown isolation, AOV-371</li> </ul>	
		<ul style="list-style-type: none"> <li>IF seal injection in service, THEN close charging flow control valve, HCV-142 WHILE adjusting charging pump speed to maintain:</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP labyrinth seal D/P between 15 inches and 80 inches</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR level at program</li> </ul>	
	US	<ul style="list-style-type: none"> <li>IF PRZR level greater than 13%, THEN go to Step 15.</li> </ul>	
	HCO	(Step 15) Establish Normal Letdown: (Refer to ATT-9.0, ATTACHMENT LETDOWN)	<b>NOTE:</b> Normal Letdown was previously isolated for a leak.
	US	(Step 15 RNO) IF normal letdown can NOT be established, THEN establish excess letdown. (Refer to ATT-9.1, ATTACHMENT EXCESS L/D)	<b>Examiner NOTE:</b> Excess Letdown may need to be re-established ( <b>See Pages 30-31</b> ).

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 38 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 16) Verify PRZR Heaters Restored:	
		<ul style="list-style-type: none"> <li>PRZR proportional heater breaker – CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR backup heater breaker – RESET/IN AUTO</li> </ul>	
	HCO	(Step 16 RNO) IF adequate D/G capacity available for PRZR heaters (400 kw each bank), THEN perform the following:	
		<ul style="list-style-type: none"> <li>Reset and close PRZR proportional heater breaker if necessary.</li> </ul>	
		<ul style="list-style-type: none"> <li>Reset PRZR backup heater breaker and return to AUTO if necessary.</li> </ul>	
		IF adequate D/G capacity NOT available,....	<b>NOTE:</b> There is adequate capacity on the DGs to energize the Pzr Heaters.
	HCO	(Step 17) Verify Normal Rod Control Restored:	
		<ul style="list-style-type: none"> <li>Annunciator C-5, PPCS ROD SEQUENCE OR ROD DEVIATION – EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator E-28, POWER RANGE ROD DROP ROD STOP - EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator F-15, RCS TAVG DEV 4°F – EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Place rods in AUTO if desired</li> </ul>	<b>NOTE:</b> The Control Rods are in Manual.
<b>NOTE</b> With PRZR pressure controller 431K in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3).			
	HCO	(Step 18) Establish Stable Plant Conditions:	
		<ul style="list-style-type: none"> <li>Check Tavg – TRENDING TO TREF</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 39 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Check PRZR pressure – TRENDING TO 2235 PISG IN AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Check PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL</li> </ul>	<b>NOTE:</b> The RNO may need to be performed.
	HCO	(Step 18.c RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Place affected charging pumps in MANUAL</li> </ul>	
		<ul style="list-style-type: none"> <li>Adjust charging pump speed to restore PRZR level to program</li> </ul>	
		<ul style="list-style-type: none"> <li>IF PRZR level can NOT be controlled manually, THEN.....</li> </ul>	
<p style="text-align: center;"><b>CAUTION</b></p> <p>ANYTIME EMERGENCY D/GS ARE THE ONLY SOURCE OF AC POWER TO THE PLANT, PERSONNEL SHOULD BE ASSIGNED TO MAINTAIN SURVEILLANCE OF THE D/GS. REFER TO T-27.4, DIESEL GENERATOR OPERATION.</p>			
			<p><b>NOTE:</b> The US may contact RG&amp;E ECC and check on the status of both the 7T and 767 Lines.</p> <p><b>SIM DRIVER:</b> as <b>RG&amp;E ECC</b>, acknowledge and report that the 7T line available and they are investigating the loss of Circuit 767.</p>
	CO	(Step 19) Restore Normal Electric System Alignment:	
		<ul style="list-style-type: none"> <li>Verify circuit 767 and/or 7T – AVAILABLE</li> </ul>	<b>NOTE:</b> The 7T Line is available.
		<ul style="list-style-type: none"> <li>Restore power to non-faulted Buses 12A and/or 12B (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)</li> </ul>	
			<b>NOTE:</b> The US will go to ER-ELEC.1.
<b>ER-ELEC.1, RESTORATION OF OFFSITE POWER</b>			

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 40 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 6.1.3.1) NOTIFY RG&E Energy Control Center that all offsite power to Ginna is being placed on CKT 7T.	<b>NOTE:</b> The CO will notify the RG&E ECC. <b>SIM DRIVER:</b> as <b>RG&amp;E ECC</b> , acknowledge.
	CO	(Step 6.1.3.2) ENSURE OPEN AND RESET BUS 12A ALT FEED FROM 767 52/12BY.	
	CO	(Step 6.1.3.3) ENSURE OPEN AND RESET BUS 12B NORMAL FEED FROM 767 52/12BX.	
	CO	(Step 6.1.3.4) ENSURE CLOSED Bkr 7T13A72 at Station 13a (PPCS Point BKR 7T).	
	CO	(Step 6.1.3.5) ENSURE CLOSED CIRCUIT BKR 7T1352 34kv Bus.	
	CO	(Step 6.1.3.6) VERIFY CIRCUIT 7T VOLTMETER 34.5kv is approximately 34kv.	
	CO	(Step 6.1.3.7) IF BUS 12A NORMAL FEED FROM 7T 52/12AY is OPEN THEN.....	<b>NOTE:</b> The 52/12AY is CLOSED.
	CO	(Step 6.1.3.8) IF BUS 12B ALT FEED FROM 7T 52/12AX is OPEN THEN PERFORM the following:	
		<ul style="list-style-type: none"> <li>PLACE IN ON BUS 12B ALT FEED FROM 7T 52/12AX SYNCHROSCOPE</li> </ul>	
		<ul style="list-style-type: none"> <li>CLOSE BUS 12B ALT FEED FROM 7T 52/12AX.</li> </ul>	
		<ul style="list-style-type: none"> <li>VERIFY BUS 12B VOLTMETER 4160V is approximately 4kv.</li> </ul>	
		<ul style="list-style-type: none"> <li>PLACE IN OFF BUS 12B ALT FEED FROM 7T 52/12AX SYNCHROSCOPE.</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 41 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>GO TO Step 6.2.</li> </ul>	<b>NOTE:</b> The US may go to Step 6.2, however all 480 Volt Safeguards Buses are energized.
			<b>NOTE:</b> The US will return to AP-ELEC.1.
<b>AP-ELEC.1, LOSS OF 12A AND/OR 12B BUSES</b>			
	CO	<ul style="list-style-type: none"> <li>(Step 19.c) Verify all AC bus normal feed breakers - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 13</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 14</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 15</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 16</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 17</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 18</li> </ul>	
	CO	<ul style="list-style-type: none"> <li>(Step 19.c RNO) Restore all AC busses and MCCs to normal power supply (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)</li> </ul>	<b>Examiner NOTE:</b> The US will continue to restore AC Buses to normal power supply, HOWEVER, moving to the next event will negate these actions.
			<b>Examiner NOTE:</b> Since the electric plant is still being recovered, the US may NOT evaluate the Technical Specifications until power is restored.  IF it is apparent that the US will not evaluate TS, THEN move to next event and check TS evaluation after the scenario.
<b>TECHNICAL SPECIFICATION LCO 3.8.1, AC SOURCES – MODES 1, 2, 3 AND 4</b>			

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 42 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
	US	<p>LCO 3.8.1 The following AC electrical sources shall be OPERABLE:</p> <p>a. One qualified independent offsite power circuit connected between the offsite transmission network and each of the onsite 480 V safeguards buses required by LCO 3.8.9, "Distribution Subsystems - MODES 1, 2, 3, and 4"; and</p> <p>b. Two emergency diesel generators (DGs) capable of supplying their respective onsite 480 V safeguards buses required by LCO 3.8.9.</p>	
		MODES 1, 2, 3, and 4.	
		ACTIONS:	
CONDITION		REQUIRED ACTION	COMPLETION TIME
A. Offsite power to one or more 480 V safeguards bus(es) inoperable.		<p>A.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p>AND</p> <p>A.2 Restore offsite circuit to OPERABLE status.</p>	<p>12 hours from discovery of Condition A concurrent with inoperability of redundant required feature(s)</p> <p>72 hours</p>
C. Offsite power to one or more 480 V safeguards bus(es) inoperable.		NOTE - Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - MODES 1, 2, 3, and 4," when Condition C is entered with no AC power source to one distribution train.	
AND			
One DG inoperable.		<p>C.1 Restore required offsite circuit to OPERABLE status.</p> <p>OR</p> <p>C.2 Restore DG to OPERABLE status.</p>	<p>12 hours</p> <p>12 hours</p>

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 43 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
			<p><b>NOTE:</b> The US will determine that Condition A&amp;C must be entered based on circuit 767 being inoperable UNTIL Bus 16/17 are powered from 7T.</p> <p>In accordance with Technical Specification LCO 3.8.1 Basis (page 3.8.1-5) "One qualified independent offsite power circuit connected between the offsite transmission network and the onsite 480V safeguards buses and separate and independent DGs for each train ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA." Therefore, while offsite power is NOT connected to Buses 16 and 17, LCO 3.8.1, Condition A applies. Required Action A.1, though not currently necessary for plant conditions, must be entered due to a potential future event.</p>
<b>TECHNICAL REQUIREMENT 3.8.1, OFFSITE POWER SOURCES</b>			
	US	TR 3.8.1 Two qualified independent offsite power circuits shall be OPERABLE	
		APPLICABILITY: MODES 1, 2, and 3.	
		ACTIONS:	
CONDITION		REQUIRED ACTION	COMPLETION TIME

Op Test No.: N20-1 Scenario # 3 Event # 5 Page 44 of 73Event Description: **Loss of Offsite circuit 767/Restore 4160 Bus 12B**

Time	Pos.	Expected Actions/Behavior	Comments
A. One offsite power circuit inoperable.		A.1 Initiate action to verify reliability of OPERABLE offsite power circuit.	Immediately
		AND	
		A.2.1 Establish pre-conditions necessary to complete backfeed procedure in 8 hours or less	72 Hours
		OR	
		A.2.2 Restore Offsite Power Circuit to OPERABLE status	72 Hours
			<b>NOTE:</b> The US will determine that Condition A must be entered based on circuit 767 being inoperable.
<b>At the discretion of the Lead Examiner move to Events #6-8.</b>			



Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 45 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Next, the B EDG will trip and the 7T line will be lost, resulting in a Station Blackout. The operator will enter ECA-0.0, "Loss of All AC Power." On the loss of power, the TDAFW Pump will fail to automatically start, and the operator will need to manually start the pump. While in ECA-0.0 (at Step 13), the A EDG will become available. The operator will start the A EDG per Step 7 RNO actions, and restore power to 480V vital busses 14 and 18. Upon restoration of power to Bus 18 the A SWP will fail to start automatically, requiring the operator to manually start the SWP. Following power restoration to Bus 14, recovery actions will continue with Step 34. The crew will likely transition to ECA-0.2, "Loss of All AC Power Recovery With SI Required," based on low Pressurizer level. On the other hand, there is a possibility that the crew could transition to ECA-0.1, "Loss of All AC Power Recovery Without SI Required." The scenario will terminate upon completion of ECA-0.2, if the RCP Seal Injection Needle Valves are closed with no Charging Pump running. If these valves are not closed, the scenario should continue in E-1, Loss of Reactor or Secondary Coolant, until the point of Charging Pump start (Step 11). If the crew transitions to ECA-0.1, rather than ECA-0.2, terminate at Step 5 of ECA-0.1, after the crew has restored Charging flow.

**SIM DRIVER Instructions:**

**Operate Trigger #6 (EDS01A and GEN04B = Trip All Conditions)**

**Indications Available:**

- Circuit Breaker 7T1352 indicates OPEN
- Bus 12A and 12B are de-energized
- B EDG load drops to 0
- All Safeguards Buses are de-energized.

Time	Pos.	Expected Actions/Behavior	Comments
			<b>NOTE:</b> The US may enter E-0 first, but the crew will enter ECA-0.0 at Step 3 of E-0.
<b>ECA-0.0, LOSS OF ALL AC POWER</b>			
<p align="center"><b>CAUTION</b></p> <p>DUE TO POTENTIALLY EXTREME ENVIRONMENTAL CONDITIONS, CAUTION SHOULD BE USED WHEN ENTERING THE INTERMEDIATE BLDG FOR LOCAL ACTIONS.</p>			
<p align="center"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• CSFSTs should be monitored for information only. FR procedures should not be implemented.</li> <li>• Local actions may require portable lighting and communication devices.</li> <li>• FOLDOUT page should be open AND monitored periodically.</li> </ul>			

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 46 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of ECA-0.0.
		ALTERNATE S/G FEED STRATEGY Entry Conditions	
		ELAP DC BUS LOAD SHED/MANAGEMENT Entry Conditions	
		LOW DECAY HEAT TEMPERATURE CONTROL Entry Conditions	
		AFW SUPPLY SWITCHOVER CRITERIA	
		ALTERNATE SAFW DI Water Storage Tank MAKEUP Entry Conditions	
		MULTIPLE FUNCTION LOSS CRITERIA	
	HCO	(Step 1) Verify Reactor Trip:	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>At least one train of reactor trip breakers – OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>Neutron flux – LOWERING</li> </ul>	
		<ul style="list-style-type: none"> <li>MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM</li> </ul>	<b>NOTE:</b> MRPI is de-energized.
	CO	(Step 2) Verify Turbine Stop Valves - CLOSED	<b>Immediate Action</b>
	HCO/ CO	(*Step 3) Check RCS Temperature Control:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>S/G ARVs operating properly to stabilize Tavg</li> </ul>	<b>NOTE:</b> The CO will operate the ARVs as needed.
		<ul style="list-style-type: none"> <li>Adjust S/G ARVs to control Tavg at approximately 547°F</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 47 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 4) Stop Both RCPs	
<p style="text-align: center;"><b>NOTE</b></p> <p>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</p>			
	HCO	(Step 5) Check If RCS Is Isolated:	
		<ul style="list-style-type: none"> <li>Verify RCS isolation valves closed:</li> </ul>	
		<ul style="list-style-type: none"> <li>Place letdown orifice valve switches to CLOSE</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-200A</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-200B</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-202</li> </ul>	
		<ul style="list-style-type: none"> <li>Place letdown isolation valve switches to CLOSE</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-371</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-427</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR PORVs – CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Place excess letdown isolation valve switch to CLOSE (AOV-310)</li> </ul>	
<p style="text-align: center;"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>IF ATT-5.5, ATTACHMENT SAFW WITH SUCTION FROM DI WATER STORAGE TANK DURING SBO is performed to locally establish SAFW feed for S/Gs, THEN a Control Room operator should monitor S/G levels and direct SAFW flow changes as necessary.</li> <li>Feed flow should be initiated to both S/Gs if possible to prevent stagnation in the RCS loop in which the S/G is not being fed and to maintain both loop Tcolds less than 550°F.</li> </ul>			
	CO	(Step 6) Verify Adequate TDAFW Flow:	
		<ul style="list-style-type: none"> <li>Verify TDAFW pump - RUNNING</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 48 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	<ul style="list-style-type: none"> <li>(Step 6a RNO) Perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify governor valve, V-3652, latched.</li> </ul>	
		<ul style="list-style-type: none"> <li>Manually or locally open at least one TDAFW pump steam supply valve.</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-3505A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-3504A</li> </ul>	
	US	<ul style="list-style-type: none"> <li>IF TDAFW pump starts, THEN go to step 6b.</li> </ul>	
<b><u>Critical Task:</u></b>  <b>Establish the minimum required AFW flowrate to the Steam Generators before Wide Range Level is BOTH Steam Generators lowers to 50 inches (100 inches Adverse Containment)</b>  Safety Significance: Failure to establish the minimum required AFW flowrate results in adverse consequences and/or a significant degradation of the mitigative capability of the plant. If AFW flow is not sufficient during a Station Blackout, then cooldown of the RCS cannot be accomplished, and the result would be increased thermal stress on the RCP Seals, and increase the likelihood of increased leakage. Failure to perform this task, when able to do so (i.e. manually opening TDAFW Pump Steam Supply Valve), results in mis-operation that unnecessarily reduces the margin to safety of the plant.			
	CO	<ul style="list-style-type: none"> <li>(Step 6.B) Verify TDAFW pump flow – GREATER THAN 200 GPM</li> </ul>	
<b>NOTE</b> <ul style="list-style-type: none"> <li>Conditions should be evaluated for Site Contingency Reporting (Refer to EP-AA-1012 ADDENDUM 3, R.E. GINNA NUCLEAR POWER PLANT EMERGENCY ACTION LEVELS).</li> <li>IF the TDAFW pump is running, THEN an EO should frequently monitor the pump until AC power is restored.</li> </ul>			
	HCO/CO	(Step 7) Try To Restore Power to any Train of AC Emergency Busses:	<b>NOTE:</b> The A D/G is OOS, and the B D/G has tripped.

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 49 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Verify emergency D/G aligned for unit operation</li> </ul>	
		<ul style="list-style-type: none"> <li>Mode switch in UNIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Voltage control selector in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Check emergency D/Gs – BOTH D/G RUNNING</li> </ul>	<b>NOTE:</b> Neither D/G is running.
	HCO/CO	<ul style="list-style-type: none"> <li>(Step 7 RNO) IF any D/G becomes available, THEN perform the following:</li> </ul>	<b>NOTE:</b> This step will be performed later when the A D/G is restored.
		<ul style="list-style-type: none"> <li>Depress D/G FIELD RESET pushbutton</li> </ul>	
		<ul style="list-style-type: none"> <li>Depress D/G RESET pushbutton</li> </ul>	
		<ul style="list-style-type: none"> <li>Start D/G</li> </ul>	
		<ul style="list-style-type: none"> <li>IF D/G starts, THEN go to Step 7c.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF neither D/G available, THEN perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Dispatch operator to locally attempt to restore emergency D/Gs (Refer to ER-D/G.1, RESTORING D/G).</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge (The A D/G will become available at ECA-0.0 Step 13).
	US	<ul style="list-style-type: none"> <li>Go to Step 8.</li> </ul>	
<b>CAUTION</b> <ul style="list-style-type: none"> <li>WHEN POWER IS RESTORED TO BUS 14 AND/OR BUS 16, RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH STEP 34.</li> <li>IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS.</li> </ul>			
	HCO/CO	(Step 8) Establish the Following Equipment Alignment:	
		<ul style="list-style-type: none"> <li>Pull stop AC emergency bus loads</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 50 of 73

Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>RHR pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT RECIRC fans</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT spray pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>SI pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>CCW pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>Charging pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>MDAFW pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>CREATS Fans</li> </ul>	
		<ul style="list-style-type: none"> <li>Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL)</li> </ul>	
			<p><b>NOTE:</b> The US will hand this off to the HCO or the CO.</p> <p><b>Examiner</b> following operator performing ATT-8.3 continue below.</p> <p><b>Examiner</b> following operator NOT performing ATT-8.3 continue at <b>Page 52</b>.</p>
<b>ATT-8.3, ATTACHMENT NONVITAL</b>			
<p align="center"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The following are loads that may AUTO start upon resumption of power to the respective busses.</li> <li>This attachment may be entered with one or more buses energized. It is NOT necessary to lockout equipment powered by an energized bus.</li> </ul>			
	HCO/ CO	(Step 1) Lockout the following equipment from the control board by placing the respective switches in PULL STOP or OFF as necessary:	
		<ul style="list-style-type: none"> <li>EH pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>Turning gear oil pump</li> </ul>	
		<ul style="list-style-type: none"> <li>Hi Press seal oil backup pump</li> </ul>	
		<ul style="list-style-type: none"> <li>Condensate pumps</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 51 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>• RCDT pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>• MFP AC oil pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>• PRZR heaters</li> </ul>	
		<ul style="list-style-type: none"> <li>• Boric acid transfer pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>• RMW pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>• AUX BLDG sump pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>• Air compressors</li> </ul>	
		<ul style="list-style-type: none"> <li>• Containment sump pumps</li> </ul>	
	HCO/ CO	(Step 2) Consideration should be given to locking out the following loads locally,	<b>NOTE:</b> The HCO/CO will dispatch an EO. <b>SIM DRIVER:</b> as <b>EO</b> , acknowledge (Components not modeled).
<b>ECA-0.0, LOSS OF ALL AC POWER</b>			
			<b>Examiner</b> following operator NOT performing ATT-8.3 continue <b>HERE</b> .
	HCO/ CO	<ul style="list-style-type: none"> <li>• (Step 8.c) Place SW pump switches to STOP, then return to AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>• Momentarily place switch for MOV-313, RCP seal return isolation valve, to CLOSE</li> </ul>	
		<ul style="list-style-type: none"> <li>• Momentarily place to CLOSE switches for RCP CCW return valves</li> </ul>	
		<ul style="list-style-type: none"> <li>• MOV-749A</li> </ul>	
		<ul style="list-style-type: none"> <li>• MOV-749B</li> </ul>	
		<ul style="list-style-type: none"> <li>• MOV-759A</li> </ul>	
		<ul style="list-style-type: none"> <li>• MOV-759B</li> </ul>	
<b>NOTE</b> Temporary power may be provided to Bus 13 by performing procedure ER-ELEC.5 at the Shift Manager's discretion.			

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 52 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	(Step 9) Try To Restore Offsite Power:	
		<ul style="list-style-type: none"> <li>Consult RG&amp;E Energy Control Center to determine if either normal offsite power supply - AVAILABLE</li> </ul>	<b>NOTE:</b> The CO will notify the RG&E ECC. <b>SIM DRIVER:</b> as <b>RG&amp;E ECC</b> , acknowledge, and report that offsite power will be available in 1-2 hours.
		<ul style="list-style-type: none"> <li>12B transformer via breaker 76702</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>12A transformer via breaker 7T1352</li> </ul>	
		<ul style="list-style-type: none"> <li>(Step 9a RNO) IF normal offsite power supply NOT readily available, THEN perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Restore IA system using the Diesel Air Compressor (Refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR).</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as <b>EO</b> , acknowledge and use <b>REM-MIS042 = OPEN</b> . After 5 Minutes report that the Diesel Air Compressor is running.
		<ul style="list-style-type: none"> <li>Evaluate Main transformer backfeed for long term concerns (Refer to ER-ELEC.3, EMERGENCY OFFSITE BACKFEED VIA MAIN &amp; UNIT TRANSFORMER).</li> </ul>	<b>NOTE:</b> The US may call WCC/SM to address the potentiality of backfeeding. If so, <b>SIM DRIVER</b> acknowledge as WCC/SM.
		<ul style="list-style-type: none"> <li>Go to Step 10.</li> </ul>	
	HCO/ CO	(Step 10) Initiate Local Action to Isolate RCS And To Provide Cooling To Vital Areas And Equipment	
		<ul style="list-style-type: none"> <li>Open all Reactor Protection and Control System rack doors in the Control Room.</li> </ul>	<b>NOTE:</b> The HCO/CO may be assigned to open doors as needed.



Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 53 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Direct Security personnel to open the following vital area doors to enhance cooling:</li> </ul>	<b>NOTE:</b> The US will contact Security. <b>SIM DRIVER:</b> as <b>Security</b> , acknowledge.
		<ul style="list-style-type: none"> <li>Control Room Door S51</li> </ul>	
		<ul style="list-style-type: none"> <li>Intermediate Bldg Door S37 (AFW pump area)</li> </ul>	
		<ul style="list-style-type: none"> <li>Intermediate Bldg Door S44 (Steam Header area)</li> </ul>	
		<ul style="list-style-type: none"> <li>Intermediate Bldg Top Floor Overhead Door S55</li> </ul>	
		<ul style="list-style-type: none"> <li>Dispatch EO To Locally Isolate RCP Seals (Refer to ATT-21.0, ATTACHMENT RCS ISOLATION)</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as <b>EO</b> , acknowledge, and <b>RUN Schedule RCSISOL</b> , and report when complete.

**Critical Task:****Isolate RCP Seal Injection before a Charging Pump is Started**

Safety Significance: Failure to isolate RCP seal injection before starting a charging pump under the postulated plant conditions, can result in unnecessary and avoidable degradation of the RCS fission-product barrier, specifically at the point of the RCP seals, especially if RCPs are subsequently started. Additionally, failure to perform the critical task results in significant degradation in the mitigative capability of the plant in that the RCPs are not available for subsequent event recovery actions (except for a RED path condition on the core cooling CSF). Following restoration of ac power, it is desirable to restore RCP seal cooling as soon as practical to reduce seal temperatures and mitigate potential continued degradation of the RCP seals. However, field experience has shown that the restoration of seal cooling must be performed in a controlled manner to avoid thermal shock and related damage to pump parts. Proper restoration of RCP seal cooling is important since it (1) maximizes the availability of the RCPs if required for subsequent event recovery actions and (2) minimizes the possibility of seal damage that could limit subsequent plant operation due to down time to effect RCP repairs.

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Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 54 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>IF TDAFW pump is feeding S/G(s), dispatch AO to align backup cooling water to TDAFW Pump (Refer to ATT-5.2, ATTACHMENT ALTERNATE COOLING TO TDAFW PUMP)</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as <b>EO</b> , acknowledge (Not Modeled).
<b>NOTE</b> <ul style="list-style-type: none"> <li>An Extended Loss of AC Power (ELAP) should be declared within 1 Hour to ensure adequate time to implement Flexible Coping Strategies (FLEX) and request Phase 3 equipment from the SAFER Response Center per CC-GI-118-1001.</li> <li>IF the loss of power is expected to continue beyond 4 hours, THEN degassing of main generator should commence as soon as personnel become available (Refer to ATT-8.2, ATTACHMENT GEN DEGAS).</li> </ul>			
	CO	(Step 11) Check Status Of Power restoration – POWER CAN BE RESTORED WITHIN 4 HOURS	<b>NOTE:</b> The CO will notify the RG&E ECC. <b>SIM DRIVER:</b> as <b>RG&amp;E ECC</b> , acknowledge, and report that offsite power will be available in 1-2 hours.
	CO	(Step 12) Isolate Makeup And Reject From Hotwell To CST By Placing Hotwell Level Controller (LC-107) In Manual AT 50%	
	CO	(Step 13) Isolate S/G:	
		<ul style="list-style-type: none"> <li>Manually close both MSIVs</li> </ul>	
		<ul style="list-style-type: none"> <li>Depress MANUAL pushbuttons for the A and B S/G MFW regulating and bypass valve controllers AND adjust to 0% demand</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G A, HCV-466 and HCV-480</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G B, HCV-476 and HCV-481</li> </ul>	
		<ul style="list-style-type: none"> <li>Place MCB master switch for S/G blowdown and sample valves to CLOSE</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 55 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
<p><b>SIM DRIVER Instructions:</b></p> <p>Clear Malf - GEN04A, OVR-IND-GEN24 and OVR-IND-GEN25</p> <p>Insert REM-GEN11 (Local Panel Alarm Reset)</p> <p>AS Work Control Center take the following actions:</p> <ul style="list-style-type: none"> <li>▪ Remove the Info Tag from the DG A START Pushbutton</li> <li>▪ Remove the info Tag from the DG A Bus 14 Supply Breaker and place control switch in AUTO.</li> <li>▪ Remove the info Tag from the DG A Bus 18 Supply Breaker and place control switch in AUTO.</li> <li>▪ Remove the info Tag from the DG A Start Control Switch and leave in PULL-STOP.</li> <li>▪ Report to US that the Tags have been removed and the A DG is ready to be started.</li> </ul> <p><b>NOTE:</b> It is expected that the crew return to ECA-0.0, Step 7.b, and attempt to start the A EDG.</p>			
			<b>Examiner NOTE:</b> It is expected that the crew return to ECA-0.0, Step 7.b, and attempt to start the A EDG.
<b>ECA-0.0, LOSS OF ALL AC POWER</b>			
	HCO/CO	<ul style="list-style-type: none"> <li>• (Step 7.b RNO) IF any D/G becomes available, THEN perform the following:</li> </ul>	<b>NOTE:</b> The HCO will need to place the A DG, the A DG Bus 14 Breaker and the A DG Bus 18 Breaker Control Switches in AUTO.
		<ul style="list-style-type: none"> <li>• Depress D/G FIELD RESET pushbutton</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 56 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Depress D/G RESET pushbutton</li> </ul>	
		<ul style="list-style-type: none"> <li>Start D/G</li> </ul>	
		<ul style="list-style-type: none"> <li>IF D/G starts, THEN go to Step 7c.</li> </ul>	<b>NOTE:</b> The A D/G will start.
	HCO/ CO	<ul style="list-style-type: none"> <li>(Step 7.c) Check D/G voltage and frequency</li> </ul>	
		<ul style="list-style-type: none"> <li>Voltage APPROXIMATELY 480v</li> </ul>	
		<ul style="list-style-type: none"> <li>Frequency – APPROXIMATELY 60 Hz</li> </ul>	<b>Examiner NOTE:</b> The US may move to ECA-0.0, Step 34, as directed by the CAUTION prior to Step 8 (Page 58). If not, continue.
		<ul style="list-style-type: none"> <li>Verify adequate D/G cooling</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 17 and/or Bus 18 – ENERGIZED</li> </ul>	<b>NOTE:</b> Bus 18 is energized
		<ul style="list-style-type: none"> <li>One SW Pump running for each running D/G</li> </ul>	<b>NOTE:</b> The A SW Pump will fail to start automatically, and the CO will need to start either the A or the C SW Pump manually.
		<ul style="list-style-type: none"> <li>(Step 7.d.RNO) Manually energize busses and start SW Pumps.</li> </ul>	
		IF adequate cooling can NOT be supplied to a running D/G,.....	<b>NOTE:</b> Once one SW Pump is started, adequate cooling for the D/G will exist.

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 57 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
<b><u>Critical Task:</u></b>			
<b>Manually start a Service Water Pump prior to the running Emergency Diesel Generator trips due to damage caused by engine overheating</b>			
<p>Safety Significance: Failure to manually start the SW Pump under the postulated plant conditions means that the DG is running without ESW cooling (will result in the ONLY AC Power Source running loaded without cooling water). Running the DG loaded without SW cooling leads to a high-temperature condition that can result in DG failure due to damage caused by engine overheating. Under the postulated plant conditions, the running DG is the only operable DG. Thus, failure to perform the critical task constitutes "mis-operation or incorrect crew performance that leads to degraded emergency power capacity." Even if the crew does not start the SW pump until receipt of high-temperature alarm(s), the critical task is performed satisfactorily, provided that the DG does not fail because of damage caused by engine overheating. For Ginna no automatic trip occurs from high D/G temperature. The GE/ALCO Engineering analysis states that the maximum allowable temperature for the engine will be reached in approximately 4 minutes and 23 seconds for "initial standby to a full load condition (1950kW)". Simulator testing under the postulated plant conditions for the Scenario showed that the EDG trips in approximately 5 minutes and 30 seconds.</p>			
		<ul style="list-style-type: none"> <li>(Step 7.e) Verify at least one train of AC emergency busses - ENERGIZED</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 14 and Bus 18</li> </ul>	<b>NOTE:</b> Buses 14 and 18 are energized.
		<ul style="list-style-type: none"> <li>Bus 16 and Bus 17</li> </ul>	
	US	<ul style="list-style-type: none"> <li>Return to procedure and step in effect.</li> </ul>	<b>Examiner NOTE:</b> The US will move to ECA-0.0, Step 34, as directed by the CAUTION prior to Step 8.
<b>CAUTION</b>			
BUS 16 SHALL NOT BE CONSIDERED RESTORED IF POWERED FROM THE TSC DIESEL GENERATOR.			
<b>NOTE</b>			
A RVLIS level less than 93% with RCS pressure less than 500 psig indicates the potential for the onset of reflux flow.			
	CO	(Step 34) Check If AC Emergency Power Is Restored:	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 58 of 73

Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Verify Bus 14 OR Bus 16 - ENERGIZED</li> </ul>	
	US	<ul style="list-style-type: none"> <li>Check FSGs - ANY IMPLEMENTED</li> </ul>	
	US	(Step 34 RNO) Go to Step 35.	
	CO	(Step 35) Manually Control S/G ARVs To Stabilize S/G Pressures	
<p style="text-align: center;"><b>NOTE</b></p> <p>SW isolation may occur when power is restored to AC emergency buses.</p>			
	CO	(Step 36) Verify SW System Operation:	
		<ul style="list-style-type: none"> <li>Check Bus 17 and Bus 18 – AT LEAST ONE ENERGIZED</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify two SW pumps - RUNNING</li> </ul>	<b>NOTE:</b> If both the A and/or C SW Pumps were not previously started, they will be started here by performing the RNO.
	CO	(Step 36.b RNO) IF normal power available, THEN establish two SW pumps running.	
		<ul style="list-style-type: none"> <li>IF normal power NOT available, THEN establish one SW pump running for each operating D/G.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF only one SW pump running THEN perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Manually perform SW isolation</li> </ul>	
		<ul style="list-style-type: none"> <li>Refer to AP-SW.2, LOSS OF SERVICE WATER.</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 59 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
<b><u>Critical Task:</u></b>			
<b>Manually start a Service Water Pump prior to the running Emergency Diesel Generator trips due to damage caused by engine overheating</b>			
<p>Safety Significance: Failure to manually start the SW Pump under the postulated plant conditions means that the DG is running without ESW cooling (will result in the ONLY AC Power Source running loaded without cooling water). Running the DG loaded without SW cooling leads to a high-temperature condition that can result in DG failure due to damage caused by engine overheating. Under the postulated plant conditions, the running DG is the only operable DG. Thus, failure to perform the critical task constitutes "mis-operation or incorrect crew performance that leads to degraded emergency power capacity." Even if the crew does not start the SW pump until receipt of high-temperature alarm(s), the critical task is performed satisfactorily, provided that the DG does not fail because of damage caused by engine overheating. For Ginna no automatic trip occurs from high D/G temperature. The GE/ALCO Engineering analysis states that the maximum allowable temperature for the engine will be reached in approximately 4 minutes and 23 seconds for "initial standby to a full load condition (1950kW)". Simulator testing under the postulated plant conditions for the Scenario showed that the EDG trips in approximately 5 minutes and 30 seconds.</p>			
	CO	(Step 37) Verify Following Equipment Loaded On Available AC Emergency Busses:	
		<ul style="list-style-type: none"> <li>480 volt MCCs - ENERGIZED</li> </ul>	
		<ul style="list-style-type: none"> <li>MCC C from Bus 14</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify Instrument busses - ENERGIZED</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus A from MCC C</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus B from MCC C</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus C from MCC D</li> </ul>	
		<ul style="list-style-type: none"> <li>Dispatch personnel to verify proper operation of battery chargers</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge.
	HCO	(Step 38) Select Recovery Procedure:	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 60 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Check RCS subcooling based on core exit T/Cs – GREATER THAN 0°F USING FIG-1.0, FIGURE MIN SUBCOOLING</li> </ul>	
		<ul style="list-style-type: none"> <li>Check PRZR level – GREATER THAN 10% [30% adverse CNMT]</li> </ul>	<b>NOTE:</b> It is likely that PRZR level will be less than 10%.
		<ul style="list-style-type: none"> <li>Check SI and RHR Pumps – NONE RUNNING</li> </ul>	
	US	<ul style="list-style-type: none"> <li>Go to ECA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, Step 1.</li> </ul>	
			<b>Examiner NOTE:</b> It is likely that the US will transition to ECA-0.2. If not, and ECA-0.1 is selected, proceed to <b>Page 66.</b>
<b>ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED</b>			
<p align="center"><b>CAUTION</b></p> <p>DUE TO POTENTIALLY EXTREME ENVIRONMENTAL CONDITIONS, CAUTION SHOULD BE USED WHEN ENTERING THE INTERMEDIATE BLDG FOR LOCAL ACTIONS.</p>			
<p align="center"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>CSFSTs should be monitored for information only. FR procedures should not be implemented prior to completion of Step 10.</li> <li>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</li> <li>FOLDOUT page should be open and monitored periodically.</li> </ul>			
	HCO/CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of ECA-0.2.
		LOSS of SW CRITERIA	
	HCO	(Step 1) Reset SI	



Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 61 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 2) Check RCP CCW Isolation Status:	
		<ul style="list-style-type: none"> <li>CCW pumps – BOTH PUMPS OFF</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP CCW supply and return valves - CLOSED</li> </ul>	<b>NOTE:</b> The US/HCO may dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge and, if not previously performed, use: REMCLG040=disengaged REMCLG041=0 REMCLG042=disengaged REMCLG043=0 REMCLG059=disengaged REMCLG060=0 REMCLG061=disengaged REMCLG062=0 Report that all valves are CLOSED.
		<ul style="list-style-type: none"> <li>MOV-749A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-749B</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-759A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-759B</li> </ul>	
	HCO	(Step 3) Check RWST level – GREATER THAN 28%	
<b>NOTE</b>			
SI actuation to establish safeguards valve alignment is not recommended.			
	HCO	(Step 4) Manually Align SI and RHR Pumps to Establish SI Injection	
		<ul style="list-style-type: none"> <li>SI pump suction valves from RWST - OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-825A</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify SI pump C discharge valves - OPEN</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 62 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>MOV-871A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV -871B</li> </ul>	
		<ul style="list-style-type: none"> <li>RHR pump discharge to Rx vessel deluge - OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-852A</li> </ul>	<b>NOTE:</b> MOV-852A is CLOSED.
	HCO	(Step 4.c RNO) Ensure at least one deluge valve open.	
		<ul style="list-style-type: none"> <li>MOV-852A</li> </ul>	
<b>CAUTION</b> THE LOADS PLACED ON THE ENERGIZED AC EMERGENCY BUS SHOULD NOT EXCEED THE CAPACITY OF THE POWER SOURCE.			
	HCO	(Step 5) Manually Load Following Safeguards Equipment on AC Emergency Bus:	
		<ul style="list-style-type: none"> <li>Start all SI pumps</li> </ul>	<b>NOTE:</b> The B SI Pump is NOT available.
	HCO	(Step 5.a RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Start available SI pumps.</li> </ul>	<b>NOTE:</b> The HCO will start the A and C SI Pumps.
		<ul style="list-style-type: none"> <li>IF SI pump A or B NOT available, THEN verify SI pump C aligned as follows:</li> </ul>	<b>NOTE:</b> The B SI Pump is NOT available.
		<ul style="list-style-type: none"> <li>IF SI pump B NOT available, THEN ensure MOV-871A closed.</li> </ul>	
	HCO	(Step 5.b) Check RCS pressure:	
		<ul style="list-style-type: none"> <li>Pressure – GREATER THAN 300 psig</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure – STABLE OR RISING</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 63 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Place RHR pump switches in AUTO</li> </ul>	<b>NOTE:</b> The A RHR Pump will be placed in AUTO.
		<ul style="list-style-type: none"> <li>Start all available CNMT RECIRC fans</li> </ul>	<b>NOTE:</b> The A&D CRCFs are available to start.
	CO	<ul style="list-style-type: none"> <li>Start both CREATS fans</li> </ul>	<b>NOTE:</b> The A CREATS Fan is available to start.
<p style="text-align: center;"><b>CAUTION</b></p> <ul style="list-style-type: none"> <li>IF CST LEVEL LOWERS TO LESS THAN 5 FEET, THEN ALTERNATE WATER SOURCES FOR AFW PUMPS WILL BE NECESSARY (REFER TO ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).</li> <li>IF S/G NR LEVEL LOWERS TO LESS THAN 7% [25% ADVERSE CNMT] AND FEED FLOW IS LESS THAN 200 GPM, THEN THE MDAFW PUMPS SHOULD BE MANUALLY LOADED ON AC EMERGENCY BUS TO SUPPLY WATER TO THE S/G(S).</li> </ul>			
<p style="text-align: center;"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>If MDAFW pump operation is not required, pump switches should be maintained in PULL-STOP to prevent automatic start.</li> <li>TDAFW pump flow control AOVs may drift open on loss of IA.</li> </ul>			
	CO	(*Step 6) Monitor Intact S/G Levels:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Narrow range level – GREATER THAN 7% [ 25% adverse CNMT]</li> </ul>	
		<ul style="list-style-type: none"> <li>Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%</li> </ul>	
	HCO	(Step 7) Verify CI and CVI:	<b>NOTE:</b> CV and CVI has NOT occurred.
		<ul style="list-style-type: none"> <li>CI and CVI annunciators - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-26, CNMT ISOLATION</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-25, CONTAINMENT VENTILATION ISOLATION</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 64 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 7.a RNO) Depress manual CI pushbutton.	<b>NOTE:</b> Will be performed if needed.
	HCO	(Step 7 Continued) Verify CI and CVI valve status lights - BRIGHT	
		<ul style="list-style-type: none"> <li>• CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT</li> </ul>	
		<ul style="list-style-type: none"> <li>• AOV-4561</li> </ul>	
		<ul style="list-style-type: none"> <li>• AOV-4562</li> </ul>	
	HCO	(Step 7.c RNO) Dispatch EO to locally fail open valves.	<b>NOTE:</b> The US may dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge and use REM-CLG031 and 032 =1. After 3 Minutes report that AOV-4561 and 4562 are OPEN.
	HCO	(Step 8) Verify CNMT Spray Not Required:	
		<ul style="list-style-type: none"> <li>• Annunciator A-27, CNMT SPRAY - EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>• CNMT pressure – LESS THAN 28 PSIG</li> </ul>	
	HCO	(Step 9) Place CNMT Spray Pumps in AUTO	
	HCO	(Step 10) CHECK RCP Seal Injection Needle Valves - CLOSED	<b>NOTE:</b> The US/HCO may dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge and, if not previously performed, use REM-CVC019=0 and CVC020=0. Report that V-300A and V-300B are CLOSED.

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 65 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>V-300A</li> </ul>	
		<ul style="list-style-type: none"> <li>V-300B</li> </ul>	
<b><u>Critical Task:</u></b>  <b>Isolate RCP Seal Injection before a Charging Pump is Started</b>  <p>Safety Significance: Failure to isolate RCP seal injection before starting a charging pump under the postulated plant conditions, can result in unnecessary and avoidable degradation of the RCS fission-product barrier, specifically at the point of the RCP seals, especially if RCPs are subsequently started. Additionally, failure to perform the critical task results in significant degradation in the mitigative capability of the plant in that the RCPs are not available for subsequent event recovery actions (except for a RED path condition on the core cooling CSF). Following restoration of ac power, it is desirable to restore RCP seal cooling as soon as practical to reduce seal temperatures and mitigate potential continued degradation of the RCP seals. However, field experience has shown that the restoration of seal cooling must be performed in a controlled manner to avoid thermal shock and related damage to pump parts. Proper restoration of RCP seal cooling is important since it (1) maximizes the availability of the RCPs if required for subsequent event recovery actions and (2) minimizes the possibility of seal damage that could limit subsequent plant operation due to down time to effect RCP repairs.</p>			
<b>NOTE</b>			
FR procedures may now be implemented as necessary.			
		(Step 11) Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1	<b>Examiner NOTE:</b> If RCP Seal Isolation valves are CLOSED (As expected), Terminate Exam.  If they are NOT Closed, continue to E-1 and ensure that these valves are closed prior to starting a Charging Pump in Step 11.
<b>ECA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED</b>			

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 66 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
<b>CAUTION</b> <ul style="list-style-type: none"> <li>IF AN SI SIGNAL IS ACTUATED PRIOR TO PERFORMING STEP 10 OF THIS PROCEDURE, THEN SI SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS.</li> <li>DUE TO POTENTIALLY EXTREME ENVIRONMENTAL CONDITIONS, CAUTION SHOULD BE USED WHEN ENTERING THE INTERMEDIATE BLDG FOR LOCAL ACTIONS.</li> </ul>			
<b>NOTE</b> <ul style="list-style-type: none"> <li>CSFSTs should be monitored for information only. FR procedures should not be implemented prior to completion of Step 10.</li> <li>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</li> <li>FOLDOUT page should be open and monitored periodically.</li> </ul>			
	HCO/ CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of ECA-0.1.
		LOSS of SW CRITERIA	
	HCO	(Step 1) Check RCP Seal Isolation Status:	
		<ul style="list-style-type: none"> <li>RCP seal injection needle valves - CLOSED</li> </ul>	<b>NOTE:</b> The US/HCO may dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge and, if not previously performed, use REM-CVC019=0 and CVC020=0. Report that V-300A and V-300B are CLOSED.
		<ul style="list-style-type: none"> <li>V-300A</li> </ul>	
		<ul style="list-style-type: none"> <li>V-300B</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 67 of 73

Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>RCP CCW return valves - CLOSED</li> </ul>	<p><b>NOTE:</b> The US/HCO may dispatch an EO.</p> <p><b>SIM DRIVER:</b> as <b>EO</b>, acknowledge and, if not previously performed, use:            REMCLG040=disengaged            REMCLG041=0            REMCLG042=disengaged            REMCLG043=0            After 3 Minutes report that MOV-759A and MOV-759B are CLOSED.</p>
		<ul style="list-style-type: none"> <li>MOV-759A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-759B</li> </ul>	
			<p><b>Examiner NOTE:</b> If RCP Seal Isolation valves are CLOSED (As expected), Terminate Exam.            If they are NOT Closed, continue to Step 5.</p>
	HCO/CO	(Step 2) Check CI ANNUNCIATOR A-26, CONTAINMENT ISOLATION - EXTINGUISHED	
	HCO/CO	(Step 3) establish IA to CNMT:	
		<ul style="list-style-type: none"> <li>Verify non-safeguards busses energized from offsite power</li> </ul>	
		<ul style="list-style-type: none"> <li>Bus 13 normal feed – CLOSED</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>Bus 15 normal feed – CLOSED</li> </ul>	
	CO	(Step 3.a RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Close non-safeguards bus tie breakers:</li> </ul>	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 68 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Bus 13 to Bus 14 tie</li> </ul>	<b>NOTE:</b> The US may try to restore power to Bus 13 to get IA back. However, the Diesel IA Compressor is likely running.
		<ul style="list-style-type: none"> <li>Bus 15 to Bus 16 tie</li> </ul>	
	CO	(Step 3.b) Check SW pumps – AT LEAST TWO PUMPS RUNNING	<b>NOTE:</b> Only one SW Pump may be running.
	CO	(Step 3.b RNO) Manually start SW pumps as power supply permits (257 kw each).	
		<ul style="list-style-type: none"> <li>IF less than two SW pumps running, THEN....</li> </ul>	
	CO	(Step 3.c) Verify turbine building SW isolation valves – OPEN:	
		<ul style="list-style-type: none"> <li>MOV-4613 and MOV-4670</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-4614 and MOV-4664</li> </ul>	
	CO	(Step 3.c RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Manually align valves.</li> </ul>	
		<ul style="list-style-type: none"> <li>Dispatch EO to locally reset compressors as necessary.</li> </ul>	<b>NOTE:</b> The US/HCO may dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge.
		<ul style="list-style-type: none"> <li>Start adequate air compressor(s) (75 kw each)</li> </ul>	<b>NOTE:</b> The Diesel IA Compressor started previously may be sufficient.
		<ul style="list-style-type: none"> <li>Check IA supply:</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure – GREATER THAN 60 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure – STABLE OR RISING</li> </ul>	



Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 69 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Reset both trains of XY relays for IA to CNMT (AOV-5392) if necessary</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify IA to CNMT AOV-5392</li> </ul>	
<b>CAUTION</b> THE LOADS PLACED ON THE ENERGIZED AC EMERGENCY BUS SHOULD NOT EXCEED THE CAPACITY OF THE POWER SOURCE.			
	HCO	(Step 4) Manually Load Following Equipment On AC Emergency Busses:	
		<ul style="list-style-type: none"> <li>Start one CCW pump (122 kw)</li> </ul>	
	CO	<ul style="list-style-type: none"> <li>Energize MCCs as power supply</li> </ul>	<b>NOTE:</b> The US may elect NOT to energize based on the risk of losing the only D/G operating.
		<ul style="list-style-type: none"> <li>MCC A from Bus 13</li> </ul>	
		<ul style="list-style-type: none"> <li>MCC B from Bus 15</li> </ul>	
		<ul style="list-style-type: none"> <li>MCC E from Bus 15</li> </ul>	
		<ul style="list-style-type: none"> <li>MCC F from Bus 15</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify instrument bus D – ENERGIZED</li> </ul>	
	CO	(Step 4.c RNO) Restore power to instrument bus D from MCC B or MCC A (maintenance supply).	
	HCO	(Step 4.d) WHEN bus 15 restored, THEN reset control room lighting	
		<ul style="list-style-type: none"> <li>Start at least one CNMT RECIRC fan</li> </ul>	
		<ul style="list-style-type: none"> <li>Restore Rx head cooling as power supply permits:</li> </ul>	
		<ul style="list-style-type: none"> <li>Start one Rx compartment cooling fan (23 kw each)</li> </ul>	
		<ul style="list-style-type: none"> <li>Start both control rod shroud fans (45 kw each)</li> </ul>	<b>NOTE:</b> This fan cannot be started if Bus 13 or 15 is de-energized.

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 70 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	<ul style="list-style-type: none"> <li>Dispatch EO to establish normal shutdown alignment (Refer to ATT-17.0, ATTACHMENT SD-1)</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge, and use Schedule File SD-1.sch.
	HCO	(Step 5) Check If Charging Flow Has Been Established:	
		<ul style="list-style-type: none"> <li>Charging pumps – ANY RUNNING</li> </ul>	
	HCO	(Step 5a RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Ensure seal injection needle valves to both RCPs isolated:</li> </ul>	<b>NOTE:</b> The US/HCO may dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge and, if not previously performed, use REM-CVC019=0 and CVC020=0. After 3 Minutes report that V-300A and V-300B are CLOSED.
		<ul style="list-style-type: none"> <li>RCP A, V-300A</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP B, V-300B</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure HCV-142 open, demand at 0%.</li> </ul>	
		<ul style="list-style-type: none"> <li>(Step 5.b) Charging pump suction aligned to RWST:</li> </ul>	
		<ul style="list-style-type: none"> <li>LCV-112B – OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>LCV-112C - CLOSED</li> </ul>	
	HCO	(Step 5.b RNO) Manually align valves as necessary.	
		IF LCV-112B can NOT be opened, THEN...	
		IF LCV-112C can NOT be closed, THEN....	

Op Test No.: N20-1 Scenario # 3 Event # 6, 7, & 8 Page 71 of 73Event Description: **B EDG Trips/Loss of 7T Circuit/ TDAFW Steam Supply Valves fail to Auto OPEN (3504A and 3505A)/ Selected Service Water Pumps fail to start in Auto**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Start charging pumps (75 kw each) as necessary and adjust charging flow to restore PRZR level</li> </ul>	
<b><u>Critical Task:</u></b>  <b>Isolate RCP Seal Injection before a Charging Pump is Started</b>  <p>Safety Significance: Failure to isolate RCP seal injection before starting a charging pump under the postulated plant conditions, can result in unnecessary and avoidable degradation of the RCS fission-product barrier, specifically at the point of the RCP seals, especially if RCPs are subsequently started. Additionally, failure to perform the critical task results in significant degradation in the mitigative capability of the plant in that the RCPs are not available for subsequent event recovery actions (except for a RED path condition on the core cooling CSF). Following restoration of ac power, it is desirable to restore RCP seal cooling as soon as practical to reduce seal temperatures and mitigate potential continued degradation of the RCP seals. However, field experience has shown that the restoration of seal cooling must be performed in a controlled manner to avoid thermal shock and related damage to pump parts. Proper restoration of RCP seal cooling is important since it (1) maximizes the availability of the RCPs if required for subsequent event recovery actions and (2) minimizes the possibility of seal damage that could limit subsequent plant operation due to down time to effect RCP repairs.</p>			
<b>At the discretion of the Lead Examiner terminate the exam.</b>			

TURNOVER SHEET for NRC Exam Scenario #3

<p><u>Core Age: MOL</u></p> <p>50% Power, Equilibrium Xe</p> <p>Outside Air Temp = 45°F</p> <p>Water Temp = 45°F</p>	<p><u>Procedure in Use:</u></p> <p>O-5.2</p> <p>S-3.1</p>	<p><u>ACTIONS/NOTES:</u></p> <ul style="list-style-type: none"> <li>• The plant is at 50% power (MOL).</li> <li>• The plant was taken to 50% due to a failure of the A MFW Pump. Corrective maintenance has been performed and the A MFW Pump is operating.</li> <li>• The area has experienced cool weather with no precipitation.</li> <li>• The crew is expected to raise power to 100% on this shift.</li> <li>• The use of Alternate Dilute has been authorized for the Load Ascension.</li> <li>• All Secondary Chemistry requirements for load ascension have been met.</li> <li>• The calorimetric required by Step 6.7.4 of O-5.2 has already been performed.</li> <li>• The A EDG is OOS for fuel pump replacement.</li> <li>• SR 3.8.1.1 was performed an hour ago.</li> <li>• The A Control Rod Shroud Fan is OOS for breaker maintenance.</li> <li>• The following Alarms are in: <ul style="list-style-type: none"> <li>• J-24, EMERGENCY DIESEL GEN 1A PANEL</li> <li>• J-25, SAFEGUARDS EQUIPMENT LOCKED OFF (A D/G OOS)</li> </ul> </li> <li>• Protected equipment IAW OPG Protected Equipment.</li> </ul>
<p>Boron: 976 ppm</p> <p>BAST: 17,500 ppm</p> <p>RCS Activity: Normal</p>	<p><u>RCS LEAKAGE:</u> (gpm)</p> <p>Total: .021</p> <p>Identified: .003</p> <p>Unidentified: .018</p>	

TURNOVER SHEET for NRC Exam Scenario #3

<u>Equipment Problems/OOS:</u> See NOTES	<u>Planned Activities for Shift:</u> <ul style="list-style-type: none"> <li>Raise power to 100%</li> </ul>	<u>Electrical System Operator Declarations</u> None in effect
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A-52.4					
EQUIPMENT	DATE/TIME OOS	LCO	TITLE	EXP DATE	ECD
A EDG	Yesterday, 24hrs ago	3.8.1	AC Sources - MODES 1, 2, 3, and 4	7 days	18 hours
A-52.12					
EQUIPMENT	DATE/TIME OOS	TRM /ODCM	TITLE	EXP DATE	ECD
A CRDM Shroud Fan	Yesterday	NA	NA	NA	Indefinitely

PROGRAM: Ginna Operations Training

MODULE: Initial License Operator Training Class 19-1

TOPIC: NRC Simulator Exam

**Scenario N20-1-5**

**REFERENCES:**

1. Technical Specification LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation" (Amendment 112)
2. O-5.2, "Load Ascension" (Rev 083)
3. S-3.1, "Boron Concentration Control" (Rev 033)
4. AR-L-23, "BUS 18 UNDER VOLTAGE SAFEGUARDS" (Rev 01102)
5. Technical Specification LCO 3.3.4, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation" (Amendment 109)
6. A-503.1, "Emergency and Abnormal Operating Procedures Users Guide" (Rev 053)
7. AP-CVCS.1, "CVCS Leak" (Rev 016)
8. ER-NIS.3, "PR Malfunction" (Rev 027)
9. Technical Specification LCO 3.0.3, "Applicability" (Amendment 104)
10. Technical Requirement 3.2.3, "Axial Flux Difference (AFD) Monitor" (Rev 31)
11. AR-PPCS-L2022A, "CONDENSATE STORAGE TANK A LEVEL" (Rev 005)
12. AR-J-16, "MOTOR OFF CW-EH EMERG OIL SEAL OIL BU" (Rev 6)
13. AP-CW.1, "Loss of a Circ Water Pump" (Rev 01400)
14. AP-TURB.4, "Loss of Condenser Vacuum" (Rev 021)
15. FIG-13.0, "Figure Back Pressure" (Rev 0)
16. AP-TURB.5, "Rapid Load Reduction" (Rev 020)
17. E-0, "Reactor Trip or Safety Injection" (Rev 049)
18. FR-S.1, "Response to Reactor Restart/ATWS" (Rev 025)
19. ATT-27.0, "Attachment Automatic Action Verification" (Rev 00400)
20. E-2, "Faulted Steam Generator Isolation" (Rev 014)
21. ECA-2.1, "Uncontrolled Depressurization of Both Steam Generators" (Rev 037)

Validation Time: 74 minutes

Author: David Lazarony, Essential Training & Consulting, LLC

Facility Review: \_\_\_\_\_

Rev. 091120

## **Ginna 2020 NRC Scenario #5 Objectives:**

Given the simulator at an initial condition of 70% power evaluate:

1. the SRO's ability to supervise the control room team during the normal, abnormal, and emergency situations that arise, including compliance with all facility procedures, Technical Specifications, and other commitments.
2. each crew member's ability to effectively communicate as part of a control room team during the normal, abnormal, and emergency situations that arise.
3. each crew member's ability to conduct a load ascension in accordance with O-5.2, "Load Ascension," and S-3.1, "Boron Concentration Control."
4. each crew member's ability to effectively diagnose and the RO's ability to mitigate the consequences of a failed VCT Divert Control Valve (LCV-112A) in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and/or AP-CVCS.1, "CVCS Leak."
5. each crew member's ability to effectively diagnose a Power Range Channel failure leading in accordance with ER-NIS.3, "PR Malfunction."
6. each crew member's ability to effectively diagnose and the BOP's ability to mitigate the consequences of a failed Hotwell Level Controller in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and/or Annunciator Response Procedures.
7. each crew member's ability to effectively diagnose and mitigate the consequences of a Circ Water Pump Trip and a loss of vacuum in accordance with AP-CW.1, "Loss of a Circ Water Pump," and/or AP-TURB.4, "Loss of Condenser Vacuum."
8. each crew member's ability to conduct a rapid downpower in accordance with AP-TURB.5, "Rapid Load Reduction," whenever plant conditions dictate the need to do so.
9. each crew member's ability to effectively diagnose an inadvertent Steam Line Isolation Signal coupled with an ATWS and the RO and BOP's ability to respond to such an event in accordance with E-0, "Reactor Trip or Safety Injection," and FR-S.1, "Response to Reactor Restart/ATWS."
10. each crew member's ability to mitigate the effects of two faulted Steam Generators in accordance with E-2, "Faulted Steam Generator Isolation," and ECA-2.1, "Uncontrolled Depressurization of Both Steam Generators."

Scenario Event Description  
NRC Scenario 5

Facility:	<b>Ginna</b>	Scenario No.:	<b>5</b>	Op Test No.:	<b>N20-1</b>
Examiners:	_____	Operators:	_____	(SRO)	
	_____		_____	(RO)	
	_____		_____	(BOP)	

Initial Conditions:	The plant is at 70% power (BOL). The area has experienced steady Thunderstorms for the past 2 hours, with wind from the West at 10-20 mph, and this is expected to continue throughout the shift. It is expected to raise power to 100% on this shift.
Turnover:	The following equipment is Out-Of-Service: Power Range Channel N44 is removed from service per ER-NIS.3 (TS LCO 3.3.1 Condition A/D/S and Action A.1, D.1 and S.1) and the QPTR Monitor has been declared inoperable. Condensate Booster Pump B is OOS for impeller replacement.
Critical Tasks:	See Below

Event No.	Malf. No.	Event Type*	Event Description
1	MAL A-EDS40	R-RO N-BOP N-SRO TS	Load Ascension/ Bus 18 Undervoltage Relay Failure
2	MAL CVC09	C-RO C-SRO	VCT Divert Control Valve (LVC-112A) Failure
3	MAL NIS06C	I-SRO TS	Power Range N42 Upper Detector Failure
4	OVR CND11B	C-BOP C-SRO	Hotwell Level Controller fails to Full Makeup
5	MAL CRC01A CND07B	C-RO C-BOP C-SRO	Circ Water Pump A Trips/Loss of Vacuum
6	MAL STM05A/B	M-RO M-BOP M-SRO	Inadvertent Steam Line Isolation Signal
7	MAL RPS05A/B	C-RO C-BOP C-SRO	Failure of the Reactor to trip from the Control Room/ATWS (CT-1)
8	MAL STM09A/B	C-BOP C-SRO	One S/G Safety Valve on each S/G Lifts and sticks partially OPEN (CT-2)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor
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Scenario Event Description  
NRC Scenario 5

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**Ginna 2020 NRC Scenario #5**

The plant is at 70% power (BOL). The area has experienced steady Thunderstorms for the past 2 hours, with wind from the West at 10-20 mph, and this is expected to continue throughout the shift. It is expected to raise power to 100% on this shift.

The following equipment is Out-Of-Service: Power Range Channel N44 is removed from service per ER-NIS.3 (TS LCO 3.3.1 Condition A/D/S and Action A.1, D.1 and S.1) and the QPTR Monitor has been declared inoperable. Condensate Booster Pump B is OOS for impeller replacement.

Shortly after taking the watch, the operator will raise power in accordance with O-5.2, "Load Ascension." The operator will address S-3.1, "Boron Concentration Control," to start the load ascension using Alternate Dilute. During the load ascension, a Bus 18 Undervoltage Relay will fail. The operator will address Technical Specification LCO 3.3.4, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation."

Shortly after this, VCT or Holdup Tank Divert Valve, LCV-112A, will fail to the FULL DIVERT position. The operator will respond in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and place the control switch for LCV-112A to the VCT position. The operator will enter AP-CVCS.1, "CVCS Leak."

Following this, the N42 Power Range Upper Detector will fail LOW. The operator will enter ER-NIS.3, "PR Malfunction," however, removing N42 from service per this procedure will result in a plant trip. The operator will address Technical Specification LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation," and implement Technical Specification LCO 3.0.3. The operator will also address Technical Requirement 3.2.3, "Axial Flux Difference (AFD) Monitor."

Then, the Hotwell Level Controller will fail to Full Makeup. The operator will respond in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and/or AR-PPCS-L2022A and B, "CONDENSATE STORAGE TANK A(B) LEVEL," and manually control the hotwell level for the remainder of the scenario.

Next, the A Circ Water Pump will trip. Simultaneously, a Condenser Expansion Joint low-level condition will occur. The crew will respond in accordance with AR-J-16, "MOTOR OFF CW-EH EMERG OIL SEAL OIL BU," and enter AP-CW.1, "Loss of a Circ Water Pump," and/or AP-TURB.4, "Loss of Condenser Vacuum." The crew will reduce load per AP-TURB.5, "Rapid Load Reduction," as needed to stabilize Turbine Backpressure.

After this, an inadvertent Steam Line Isolation Signal will occur and both MSIVs will close. The reactor will fail to automatically trip, and the operator will attempt to trip the reactor manually. The crew will enter E-0, "Reactor Trip or Safety Injection."

The reactor will fail to trip manually from the control room, and the crew will enter FR-S.1, "Response to Reactor Restart/ATWS." On the trip one S/G Safety Valve on each S/G lifted and stuck partially OPEN.

The crew will successfully de-energize the Rod Drive MG set(s) causing the control rods to drop into the core. Upon completion of FR-S.1, the crew will transition back to E-0, and then to E-2, "Faulted Steam Generator Isolation." While implementing E-2, the crew will recognize that both S/Gs are faulted and transition to ECA-2.1, "Uncontrolled Depressurization of Both Steam Generators." The crew may take a pre-emptive action of throttling AFW flow to both S/Gs per A-503.1, "Emergency and Abnormal Operating Procedures Users Guide."

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Scenario Event Description  
NRC Scenario 5

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The scenario will terminate at Step 7 of ECA-2.1, after the crew has stopped the RHR Pumps.

**Critical Tasks:**

**Upon diagnosing an ATWS, manually insert the control rods within 1 minute, and continue insertion until the reactor is tripped or the rods are on the bottom**

Safety Significance: failure to insert negative reactivity, under the postulated plant conditions, results in an unnecessary situation in which the reactor power remains higher than it otherwise would if the action is taken. Performance of the critical task would move the reactor power lower to prevent a subsequent and unnecessary challenge to reactor core operational limits. A failure to insert negative reactivity constitutes a mis-operation or incorrect crew performance which leads to incorrect reactivity control. According to Section 15.8.3.2 of the Ginna UFSAR it is assumed that manual rod insertion of at least one bank is initiated within the first 60 seconds of the ATWS event.

**Control the AFW flowrate to 50 gpm per SG in order to minimize the RCS Cooldown rate before a severe challenge (Orange Path) develops to the integrity CSF**

Safety Significance: Failure to control the AFW flow rate to the SGs leads to an unnecessary and avoidable extreme challenge to the integrity CSF. Also, failure to perform the Critical Task increases challenges to the SUBCRITICALITY Critical Safety Function which otherwise would not occur. If the action is not taken an unnecessary Orange Path could develop on the RCS Integrity Critical Safety Function requiring a substantial change in the mitigation strategy.

Scenario Event Description  
NRC Scenario 5

**SIMULATOR OPERATOR INSTRUCTIONS**

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>		Reset to Temp IC 143 (Originally IC-013).	<p>T = 0:</p> <p>Remove Power Range Channel N44 from service per Attachment 1 of ER-NIS.3 Take B CB Pump Control Switch to TRIP Insert OVR-CND05A=OFF Hang LOTO Tags as necessary</p> <p>Insert MALF RPS05A, No Manual, Reactor Trip BKR A Failure Insert MALF RPS05B, No Manual, Reactor Trip BKR B Failure Insert OVR-EDS47D and 47G = FALSE (Bus 15 Low Side Breaker) Insert OVR-EDS34D and 34G = FALSE (Bus 15 High Side Breaker) Insert MALF STM09A, 30%, 0 ramp, T-6, 20 Seconds Delayed; (Safety valve 3508 on B SG opens after Rx trip) Insert MALF STM09B, 30%, 0 ramp, T-6, 20 Seconds Delayed; (Safety valve 3509 on A SG opens after Rx trip) Insert MALF CVC09 = 0 (VCT Divert Control Valve Failure (LCV-112A)) on T-30 Set T-30 to X07I210A==1 (LCV-112A to VCT)</p> <p>Insert MALF A-EDS40=ON, on T-1 Insert MALF CVC09 = 100 (VCT Divert Control Valve Failure (LCV-112A)) on T-2 Insert MALF NIS06C = 0, on T-3 Insert OVR-CND11B (100, No Ramp) on T-4 Insert MALF CRC01A (CW Pump Trips) and CND07B, 900, 240 Second Ramp (Condenser Expansion Joint Level) on T-5 Insert MALF STM05A (0%, No Ramp) on T-6 Insert MALF STM05B (0%, No Ramp) on T-6</p>
<input type="checkbox"/>	Prior to Crew Briefing		<ul style="list-style-type: none"> <li>Hang Protective Tags per OPG-Protected Equipment (B CBP Pump P16 of 24 of Attachment 2, N44 P21&amp;23 of 24).</li> <li>Place Black Dot on all required MCB Annunciators (E-7, E-18, E-19, E-21, E-28, F-23).</li> </ul>

Scenario Event Description  
NRC Scenario 5

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>	<b>Crew Briefing</b> <ul style="list-style-type: none"> <li>Assign Crew Positions based on evaluation requirements</li> <li>Review the Shift Turnover Information with the crew.</li> <li>Provide crew with marked up copy of O-5.2 and S-3.1.</li> <li>Handout Reactivity Binder (BOL) and Reactivity Plan specific to this power maneuver.</li> </ul>		
<input type="checkbox"/>	T-0	Begin Familiarization Period	
<input type="checkbox"/>	At direction of examiner	<b>Event 1</b> <b>Trigger#1</b> <b>MALF A-EDS40=ON</b>	Load Ascension/ Bus 18 Undervoltage Relay Failure
<input type="checkbox"/>	At direction of examiner	<b>Event 2</b> <b>Trigger#2</b> <b>MALF CVC09 = 100</b>	VCT Divert Control Valve (LVC-112A) Failure
<input type="checkbox"/>	At direction of examiner	<b>Event 3</b> <b>Trigger#3</b> <b>MALF NIS06C = 0</b> <b>No Ramp</b>	Power Range N42 Upper Detector Failure
<input type="checkbox"/>	At direction of examiner	<b>Event 4</b> <b>Trigger #4</b> <b>OVR-CND11B (100, No Ramp)</b>	Hotwell Level Controller fails to Full Makeup
<input type="checkbox"/>	After ≈5 minutes of lowering power, or at direction of examiner	<b>Event 5</b> <b>Trigger#5</b> <b>CRC01A, CND07B, 900, 240 Second Ramp</b>	Circ Water Pump A Trips/Loss of Vacuum  <b>NOTE: If Condenser Backpressure stabilizes prior to the crew initiating a downpower at Step 3 of AP-CW.1, USE REM-CND50 = 0.5 (5 Second Ramp) as needed to keep Backpressure rising and force the downpower.</b>

Scenario Event Description  
NRC Scenario 5

	Bench Mark	ACTIVITY	DESCRIPTION
<input type="checkbox"/>	At direction of examiner	<b>Event 6</b> <b>Trigger #6</b> <b>STM05A (0%, No Ramp)</b> <b>STM05B (0%, No Ramp)</b>	Inadvertent Steam Line Isolation Signal
<input type="checkbox"/>	Post-Rx Trip	<b>Event 7</b> <b>RPS05A, No Manual</b> <b>RPS05B, No Manual</b>	Failure of the Reactor to trip from the Control Room/ATWS  <b>Note: These malfunctions are inserted at T=0.</b>
<input type="checkbox"/>	Post-Rx Trip	<b>Event 8</b> <b>Trigger #6</b> <b>STM09A, 30%, 0 ramp</b> <b>STM09B, 30%, 0 ramp</b>	One S/G Safety Valve on each S/G Lifts and sticks partially OPEN
<input type="checkbox"/>	<b>Terminate the scenario upon direction of Lead Examiner</b>		

Op Test No.: N20-1 Scenario # 5 Event # 1 Page 9 of 62Event Description: **Load Ascension/ Bus 18 Undervoltage Relay Failure**

Shortly after taking the watch, the operator will raise power in accordance with O-5.2, "Load Ascension." The operator will address S-3.1, "Boron Concentration Control," to start the load ascension using Alternate Dilute. During the load ascension, a Bus 18 Undervoltage Relay will fail. The operator will address Technical Specification LCO 3.3.4, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation."

**SIM DRIVER Instructions:** **NA****Indications Available:** **NA**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO		<b>NOTE:</b> it is expected that the HCO will place the Control Rods in MANUAL based on previous steps (6.3.5).
<b>O-5.2, LOAD ASCENSION</b>			
	CO		<b>NOTE:</b> The CO will need to place the Turbine Controls in IMP IN.
	US	(Step 6.7.1) HOLD Reactor Power at less than 50% UNTIL secondary chemistry requirements are met.	<b>NOTE:</b> All Chemistry Requirements are met.
<b>CAUTION</b>			
<ul style="list-style-type: none"> <li>IF VALVE POS LIMIT light is ILLUMINATED, THEN EH control REFERENCE AND SETTER adjustment will be required until VALVE POS LIMIT light is EXTINGUISHED.</li> <li>Raising Valve Position Limit with Valve Position Limit light ILLUMINATED will raise Turbine load at 200%/minute.</li> <li>WHEN raising turbine load, THEN VLV POSITION LIMIT SHALL be continuously monitored to ensure it is maintained approximately 10% above SETTER Value.</li> </ul>			
	CO	(Step 6.7.2) WHEN ready to raise load to greater than or equal to 50%, THEN PERFORM the following:	
		<ul style="list-style-type: none"> <li>VERIFY VALVE POS LIMIT light is EXTINGUISHED</li> </ul>	

Op Test No.: N20-1 Scenario # 5 Event # 1 Page 10 of 62Event Description: **Load Ascension/ Bus 18 Undervoltage Relay Failure**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>IF VALVE POS LIMIT light is ILLUMINATED, THEN LOWER EH Control UNTIL VALVE POS LIMIT light is EXTINGUISHED as follows; OTHERWISE, MARK this Step N/A</li> </ul>	<b>NOTE:</b> This step is NA.
<b>CAUTION</b> CV TRACKING not indicating approximately zero with SETTER AND REFERENCE matched and VALVE POS LIMIT light EXTINGUISHED indicates a system malfunction.			
		<ul style="list-style-type: none"> <li>VERIFY CV TRACKING Meter is indicating approximately zero.</li> </ul>	
	CO	<ul style="list-style-type: none"> <li>RAISE VPL POSITION LIMIT as desired using VVE POS LIMIT (GREEN) ▲ pushbutton.</li> </ul>	
	CO	(Step 6.7.3) CONTINUE with load ascension as follows:	
		<ul style="list-style-type: none"> <li>RAISE SETTER setpoint to desired value using (ORANGE) ▲ pushbutton.</li> </ul>	
		<ul style="list-style-type: none"> <li>DEPRESS GO pushbutton.</li> </ul>	
		<ul style="list-style-type: none"> <li>ENSURE VLV POSITION LIMIT setpoint is adjusted as required.</li> </ul>	
		<ul style="list-style-type: none"> <li>OBSERVE turbine load rises at desired rate.</li> </ul>	
			<b>Examiner NOTE:</b> The US may continue in O-5.2 (Not Scripted).
<b>NOTE</b> <ul style="list-style-type: none"> <li>Calorimetric is required to be performed within 12 hours after Thermal Power is greater than or equal to 50% RTP.</li> <li>IF Reactor Engineering AND on duty SRO agree that NIS is adjusted conservatively as compared to calorimetric power, THEN stopping power ascension when reactor power is between 50% and 55% for purpose of obtaining a calorimetric is NOT necessary and Steps 6.7.4.1 through 6.7.4.3 may be marked N/A. Determination of conservatism SHALL take into consideration, at a minimum, NIS power as compared to calorimetric power AND radial xenon distribution.</li> </ul>			

Op Test No.: N20-1 Scenario # 5 Event # 1 Page 11 of 62Event Description: **Load Ascension/ Bus 18 Undervoltage Relay Failure**

Time	Pos.	Expected Actions/Behavior	Comments
<b>S-3.1, BORON CONCENTRATION CONTROL ATTACHMENT 4, ALTERNATE DILUTION</b>			
			<b>NOTE:</b> The crew will perform dilutions based upon the Reactivity Plan provided.
<b>NOTE</b> Dilute and Alternate Dilute both accomplish the same purpose of lowering RCS boron concentration. The effect of Alternate Dilute is observed sooner, and tends to lower RCS hydrogen concentration, because part of dilution flow goes directly to Charging Pumps suction, whereas in Dilute mode, all flow goes to Volume Control Tank.			
	HCO	(Step 1) ENSURE Attachment 1, Makeup Determinations, is complete.	
	HCO	(Step 2) The board operator SHALL inform the CRS of the intent to change core reactivity.	
	HCO	(Step 3) The CRS SHALL acknowledge the reactivity manipulation and provide input and oversight.	
	HCO	(Step 4) PLACE RMW MODE SELECTOR control switch to ALT DILUTE position.	
	HCO	(Step 5) SET RMW TO BA BLENDER FLOW CONTROL VLV, HCV-111, controller to the desired flowrate.	
	HCO	(Step 6) SET the RMW COUNTER, YIC-111, to the quantity determined in Attachment 1.	



Op Test No.: N20-1 Scenario # 5 Event # 1 Page 12 of 62Event Description: **Load Ascension/ Bus 18 Undervoltage Relay Failure**

Time	Pos.	Expected Actions/Behavior	Comments
<b>NOTE</b> <ul style="list-style-type: none"> <li>Key parameters including Reactor Coolant Tavg AND control rod position indication OR subcritical count rate SHALL be observed as reactor makeup water is injected. [G0092] [G0132].</li> <li>IF rod motion is blocked or movement is in wrong direction, OR IF subcritical count rate increases by a factor of two, THEN dilution operation SHALL be immediately stopped. [G0092] [G0132]</li> <li>The first Dilution/Alternate Dilution following an Automatic OR Manual Makeup depending on time in core life, will contain approximately 8 gallons of borated water. Desired Temperature and Power response may not be obtained until Blender Piping has been flushed.</li> </ul>			
	HCO	(Step 7) PLACE RMW Control Switch to START position.	
	HCO	(Step 8) VERIFY the following:	
		<ul style="list-style-type: none"> <li>RMW Pump 1A OR 1B STARTS</li> </ul>	
		<ul style="list-style-type: none"> <li>REACTOR MAKEUP TO VCT, AOV-110C opens.</li> </ul>	
		<ul style="list-style-type: none"> <li>RMW TO BA BLENDER FLOW CONTROL VALVE, HCV-111, valve throttles to preset flow rate.</li> </ul>	
		<ul style="list-style-type: none"> <li>REACTOR MAKEUP TO CHG PUMP, AOV-110B, opens</li> </ul>	
	HCO	(Step 9.0) WHEN dilution is complete, THEN PERFORM the following:	
	HCO	(Step 9.1) PLACE RMW MODE SELECTOR control switch to AUTO position.	
	HCO	(Step 9.2) SET RMW TO BA BLENDER FLOW CONTROL VALVE, HCV-111, controller to the desired setpoint, normally 40 GPM.	

Op Test No.: N20-1 Scenario # 5 Event # 1 Page 13 of 62Event Description: **Load Ascension/ Bus 18 Undervoltage Relay Failure**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 9.3) PLACE RMW CONTROL switch to START position, and VERIFY RMW control red light ILLUMINATED.	
	HCO	(Step 9.4) PLACE "ALTERNATE DILUTE" Human Performance Label next to RMW Mode Selector switch on MCB.	
	HCO	(Step 9.5) Board operator SHALL INFORM US reactivity manipulation is complete. [G0092]	
	HCO	(Step 9.6) RECORD amount of reactor makeup water added on S-12.4, RCS Leakage Surveillance Record Instructions, Attachment RCS Leakage Surveillance Record.	
<b>SIM DRIVER Instructions: Once the Load Ascension is in progress, OPERATE Trigger #1 (MALF A-EDS40=ON)</b>			
<b>Indications Available:</b>			
<ul style="list-style-type: none"> <li>MCB Annunciator AR-L-23, BUS 18 UNDER VOLTAGE SAFEGUARDS</li> </ul>			
<b>AR-L-23, BUS 18 UNDER VOLTAGE SAFEGUARDS</b>			
<b>NOTE</b>			
This alarm is expected during the performance of STP-I-9.1.18, UNDERVOLTAGE PROTECTION - 480 VOLT SAFEGUARD BUS 18. IF this alarm is due to testing DO NOT PERFORM this procedure			
	US	(Step 4.1) IF either L-20, 12A XFMR OR 12A BUS TROUBLE OR L-28, 12B XFMR OR 12B BUS TROUBLE- IS LIT, THEN.....	
<b>NOTE</b>			
Bus 14 Phase voltages are checked to ensure that an issue with offsite power is not affecting both Train A safeguards buses.			

Op Test No.: N20-1 Scenario # 5 Event # 1 Page 14 of 62Event Description: **Load Ascension/ Bus 18 Undervoltage Relay Failure**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 4.2) IF D/G A ties onto Bus 18 THEN....	
	US	(Step 4.3) IF D/G does not start THEN PERFORM the following:	
	CO	<ul style="list-style-type: none"> <li>CHECK all 3 phases of Bus 18 Voltage [G0431]</li> </ul>	
		<ul style="list-style-type: none"> <li>IF any phase is &lt; 440 volts THEN GO TO AP-ELEC.2, SAFEGUARD BUSES LOW VOLTAGE OR SYSTEM LOW FREQUENCY.</li> </ul>	
		<ul style="list-style-type: none"> <li>CHECK the local Bus 18 UV cabinet to determine which relay is causing the condition.</li> </ul>	<b>NOTE:</b> The US will dispatch and EO. <b>SIM DRIVER</b> as EO, report that "The Relay X1/18 on the Bus 18 Undervoltage Cabinet Yellow UV light is LIT."
		<ul style="list-style-type: none"> <li>IF Necessary REFER TO ER-UV.1, TRIP OF FAILED AC EMERGENCY UV RELAY to place a failed relay in the trip condition.</li> </ul>	<b>NOTE:</b> The US may direct the EO to perform Attachment 4 of ER-UV.1. <b>SIM DRIVER</b> as EO, acknowledge (No Action to take).
		<ul style="list-style-type: none"> <li>REFER TO Tech Spec 3.3.4</li> </ul>	
		<ul style="list-style-type: none"> <li>NOTIFY Operation Management by sending an Operation Management page</li> </ul>	<b>NOTE:</b> The US will contact the WCCS/Operations Management. <b>SIM DRIVER</b> as WCCS acknowledge as appropriate.
		<ul style="list-style-type: none"> <li>REFER TO CNG-NL-1.01-1004, REGULATORY REPORTING</li> </ul>	
<b>TECHNICAL SPECIFICATION 3.3.4, LOSS OF POWER (LOP) DIESEL GENERATOR (DG) START INSTRUMENTATION</b>			
	US	LCO 3.3.4 Each 480 V safeguards bus shall have two OPERABLE channels of LOP DG Start Instrumentation.	

Op Test No.: N20-1 Scenario # 5 Event # 1 Page 15 of 62Event Description: **Load Ascension/ Bus 18 Undervoltage Relay Failure**

Time	Pos.	Expected Actions/Behavior	Comments
		APPLICABILITY: MODES 1, 2, 3, and 4, When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - MODES 5 and 6."	
		ACTIONS:	
CONDITION		REQUIRED ACTION	COMPLETION TIME
A. One or more 480 V bus(es) with one channel inoperable.		A.1 Place channel(s) in trip.	6 Hours
			<b>NOTE:</b> The US will recognize that Condition A is applicable.
			<b>NOTE:</b> The US may call WCCS/Supervision to address the failure. <b>If so, SIM DRIVER</b> acknowledge as WCCS/Plant Supervision.
			<b>Examiner NOTE:</b> The US/BOP may start the Condensate Booster Pumps while Event 2 is being diagnosed using Section 6.8 of O-5.2. (Not Scripted)
<b>At the discretion of the Lead Examiner move to Event #2.</b>			

Op Test No.: N20-1 Scenario # 5 Event # 2 Page 16 of 62Event Description: **VCT Divert Control Valve (LVC-112A) Failure**

Shortly after this, VCT or Holdup Tank Divert Valve, LCV-112A, will fail to the FULL DIVERT position. The operator will respond in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and place the control switch for LCV-112A to the VCT position. The operator will enter AP-CVCS.1, "CVCS Leak."

**SIM DRIVER Instructions:**

**Operate Trigger #2 CVC09 = 100 (VCT Divert Control Valve Failure (LCV-112A))**

**Indications Available:**

- LCV-112A Red Light LIT, Green Light Extinguished
- VCT level lowers on MCB LI-112
- PPCS LWRN P0139, LOW WRN VCT PRESSURE, at 20 psig

Time	Pos.	Expected Actions/Behavior	Comments
<b>A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE</b>			
	HCO	(Step 5.3.A.5) Actions are permitted to mitigate or compensate for equipment or controller failures or to isolate leaks. Permitted actions include those actions necessary to take manual control and stabilize the affected parameters, or to isolate a leak. Examples include closing or isolating a failed open PORV, taking manual control of a failed FRV controller, etc. These deviations fall under the Maintenance Rule. Therefore, 50.59 is not required.	<b>NOTE:</b> It is expected that the HCO will place control switch for LCV-112A, VCT or Holdup Tank Divert Valve, to the VCT position.
			<b>NOTE:</b> The US may notify the WCC/IMD. <b>SIM DRIVER:</b> as <b>WCCS/IMD</b> , acknowledge
<b>SIM DRIVER Instructions:</b>		<b>When HCO has placed control switch for LCV-112A to VCT, ENSURE T-30 initiates</b>	
<b>AP-CVCS.1, CVCS LEAK</b>			

Op Test No.: N20-1 Scenario # 5 Event # 2 Page 17 of 62Event Description: **VCT Divert Control Valve (LVC-112A) Failure**

Time	Pos.	Expected Actions/Behavior	Comments
<b>NOTE</b>			
<ul style="list-style-type: none"> <li>Conditions should be evaluated for site contingency reporting (Refer to EP-AA-1012 ADDENDUM 3, R.E. GINNA NUCLEAR POWER PLANT EMERGENCY ACTION LEVELS).</li> <li>A local radiation emergency should be declared for any unexplained area radiation monitor alarm.</li> </ul>			
	HCO	(*Step 1) Monitor PRZR Level – STABLE AT PROGRAM LEVEL.	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
<b>NOTE</b>			
IF VCT level lowers to 5%, charging pump suction will swap to the RWST. This may require a load reduction.			
	HCO	(Step 2) Check VCT Makeup System:	
		<ul style="list-style-type: none"> <li>Verify VCT level – GREATER THAN 5%</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>RMW mode selector switch in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>RMW control armed – RED LIGHT LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Check VCT level:</li> </ul>	
		<ul style="list-style-type: none"> <li>Level – GREATER THAN 20%</li> </ul>	
		-OR-	
		<ul style="list-style-type: none"> <li>Level – STABLE OR RISING</li> </ul>	
	HCO	(Step 2.c RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Ensure letdown divert valve, LCV-112A, aligned to VCT.</li> </ul>	<b>NOTE:</b> LCV-112A was failed to divert. If not previously repositioned, the HCO will position here.
		<ul style="list-style-type: none"> <li>Manually raise VCT makeup flow as follows:</li> </ul>	<b>NOTE:</b> This will not be required.
<b>NOTE</b>			
A load reduction may be required if charging pump suction is aligned to the RWST.			

Op Test No.: N20-1 Scenario # 5 Event # 2 Page 18 of 62Event Description: **VCT Divert Control Valve (LVC-112A) Failure**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 3) Check Charging Pump Suction Aligned to VCT:	
		<ul style="list-style-type: none"><li>VCT level – GREATER THAN 20%</li></ul>	
		<ul style="list-style-type: none"><li>Align charging pumps to VCT</li></ul>	
		<ul style="list-style-type: none"><li>LCV-112C open</li></ul>	
		<ul style="list-style-type: none"><li>LCV-112B closed</li></ul>	
			<b>NOTE:</b> The remaining Steps of AP-CVCS.1 contain no further actions by the operators and are not scripted.
<b>At the discretion of the Lead Examiner move to Event #3.</b>			

Op Test No.: N20-1 Scenario # 5 Event # 3 Page 19 of 62Event Description: **Power Range N42 Upper Detector Failure**

Following this, the N42 Power Range Upper Detector will fail LOW. The operator will enter ER-NIS.3, "PR Malfunction," however, removing N42 from service per this procedure will result in a plant trip. The operator will address Technical Specification LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation," and implement Technical Specification LCO 3.0.3. The operator will also address Technical Requirement 3.2.3, "Axial Flux Difference (AFD) Monitor."

**SIM DRIVER Instructions:** **Operate Trigger #3 (MALF NIS06C = 0, No Ramp)**

**Indications Available:**

- MCB Annunciator E-26, POWER RANGE CHANNEL DEV  $\pm 2\%$ .
- N42 Upper Detector indication lowers.

Time	Pos.	Expected Actions/Behavior	Comments
			<b>NOTE:</b> The US will transition to ER-NIS.3.
<b>ER-NIS.3, PR MALFUNCTION</b>			
	US	(Step 4.2) Careful consideration should be given prior to defeating two (2) failed channels to prevent an inadvertent Reactor Trip OR Safety Injection	<b>NOTE:</b> The US will recognize that if N42 is defeated per ER-NIS.3, a Rx Trip will occur; and decide not to defeat the channel.
			<b>NOTE:</b> The US may call SM to address the failed channel. If so, <b>SIM DRIVER</b> acknowledge as SM (What do you recommend?).
	HCO	(Step 6.1) PLACE the Rod Control Bank Selector switch in M (MANUAL).	
	HCO	(Step 6.2) ADJUST Tavg to Tref.	
	US	(Step 6.3) IF hot leg streaming has been causing single channel $\Delta T$ runback signals, THEN...	



Op Test No.: N20-1 Scenario # 5 Event # 3 Page 20 of 62Event Description: **Power Range N42 Upper Detector Failure**

Time	Pos.	Expected Actions/Behavior	Comments
<b>NOTE</b> <ul style="list-style-type: none"> <li>Completing the defeat attachment changes the <math>\Delta T</math> runback and the rod stop logic to 2/3, and the <math>\Delta T</math> reactor trip logics to 1/3.</li> <li>AFD monitor is operable provided PPCS is receiving valid inputs from the upper and lower detectors of three or more operable power range channels. (TR 3.2.3 Basis)</li> <li>AFD shall be considered outside limits when two or more operable excore channels indicate AFD to be outside limits. (LCO 3.2.3 Note)</li> <li>QPTR monitor is inoperable for any PR failure, even after the channel is defeated. (TRM TR-3.2.4)</li> </ul>			
			<b>Examiner NOTE:</b> The US may direct that the HCO use Attachment 1 of S-26.2 to track the 15-minute Surveillance on AFD.
	US	(Step 6.4) DEFEAT the inoperable Power Range per appropriate attachment:	<b>NOTE:</b> The US will recognize that if N42 is defeated per ER-NIS.3, a Rx Trip will occur; and decide not to defeat the channel.
			<b>NOTE:</b> The US may call WCC/Maintenance to address the failed Channel. If so, <b>SIM DRIVER</b> acknowledge as WCC.
			<b>NOTE:</b> The US will address Technical Specifications.
<b>TECHNICAL SPECIFICATION LCO 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION</b>			
	US	LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.	
	US	APPLICABILITY: According to Table 3.3.1-1.	
		ACTIONS:	
CONDITION		REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel inoperable. OR		A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s).	Immediately

Op Test No.: N20-1 Scenario # 5 Event # 3 Page 21 of 62Event Description: **Power Range N42 Upper Detector Failure**

Time	Pos.	Expected Actions/Behavior	Comments
Two source range channels inoperable.			
			The US will recognize that Condition A does not apply (Two Channels failed) and apply LCO 3.0.3.
<b>TECHNICAL SPECIFICATION LCO 3.0.3</b>			
		When an LCO is not met and (1) the associated ACTIONS are not met, (2) an associated ACTION is not provided, or (3) if directed by the associated ACTIONS, the plant shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated to place the plant, as applicable, in:	The US will recognize that LCO 3.0.3 applies.
		<ul style="list-style-type: none"> <li>• MODE 3 within 6 hours;</li> </ul>	
		<ul style="list-style-type: none"> <li>• MODE 4 within 12 hours: and</li> </ul>	
		<ul style="list-style-type: none"> <li>• MODE 5 within 36 hours.</li> </ul>	
			<b>NOTE:</b> The US may call WCCS/Supervision to address the Tech Spec Required Shutdown. If so, <b>SIM DRIVER</b> acknowledge as WCCS/Plant Supervision; and state that management will call back with a Shutdown direction.
<b>TECHNICAL REQUIREMENT 3.2.3, AXIAL FLUX DIFFERENCE (AFD) MONITOR</b>			
	US	TR 3.2.3: The AFD monitor alarm shall be OPERABLE.	
	US	APPLICABILITY: MODE 1 with THERMAL POWER $\geq$ 50%	
		ACTIONS:	

Op Test No.: N20-1 Scenario # 5 Event # 3 Page 22 of 62Event Description: **Power Range N42 Upper Detector Failure**

Time	Pos.	Expected Actions/Behavior	Comments
CONDITION		REQUIRED ACTION	COMPLETION TIME
A.AFD monitor alarm inoperable.		A.1 Perform TSR 3.2.3.2.	Once every 15 minutes
			The US will recognize that Condition A is applicable.
At the discretion of the Lead Examiner move to Event #4.			

Op Test No.: N20-1 Scenario # 5 Event # 4 Page 23 of 62Event Description: **Hotwell Level Controller fails to Full Makeup**

Then, the Hotwell Level Controller will fail to Full Makeup. The operator will respond in accordance with A-503.1, "Emergency and Abnormal Operating Procedures Users Guide," and/or AR-PPCS-L2022A and B, "CONDENSATE STORAGE TANK A(B) LEVEL," and manually control the hotwell level for the remainder of the scenario.

**SIM DRIVER Instructions:****Trigger #4 (OVR-CND11B =100)****Indications Available:**

- Hotwell level controller output rising to 100%
- PPCS Annunciator L2022A, CONDENSATE STORAGE TANK LEVEL A, alarms
- PPCS Annunciator L2022B, CONDENSATE STORAGE TANK LEVEL B, alarms
- Both MCB Hotwell Level indications start to rise
- MCB Annunciator H-13, CONDENSATE STORAGE TANK HI-LOW LEVEL 18' 4" 22' 4", alarms if prolonged

Time	Pos.	Expected Actions/Behavior	Comments
<b>A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE</b>			
	HCO	(Step 5.3.A.5) Actions are permitted to mitigate or compensate for equipment or controller failures or to isolate leaks. Permitted actions include those actions necessary to take manual control and stabilize the affected parameters, or to isolate a leak. Examples include closing or isolating a failed open PORV, taking manual control of a failed FRV controller, etc. These deviations fall under the Maintenance Rule. Therefore, 50.59 is not required.	<b>NOTE:</b> It is expected that the CO will take manual control of LC-107 and stabilize Hotwell level.
			<b>NOTE:</b> The US may notify the WCC/IMD. <b>SIM DRIVER:</b> as <b>WCCS/IMD</b> , acknowledge
<b>AR-PPCS-L2022A, CONDENSATE STORAGE TANK A LEVEL</b>			

Op Test No.: N20-1 Scenario # 5 Event # 4 Page 24 of 62Event Description: **Hotwell Level Controller fails to Full Makeup**

Time	Pos.	Expected Actions/Behavior	Comments
<b>NOTE</b> <ul style="list-style-type: none"> <li>Condensate Storage Tanks (CSTs) will overflow into floor drain at 23'0" level.</li> <li>ITS LCO 3.7.6, Condensate Storage Tanks (CSTs), required volume is 24,350 gallons: <ul style="list-style-type: none"> <li>See O-6.13, DAILY SURVEILLANCE LOG, for required level values.</li> </ul> </li> <li>Closing the MCB Master switch for STEAM GEN BLOWDOWN VLVS also closes the S/G Sample VLVS, removing R-19 sample flow.</li> </ul>			
	CO	(Step 4.1) NOTIFY EOs to IMMEDIATELY perform the following:	<b>NOTE:</b> The CO may dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge.
		<ul style="list-style-type: none"> <li>TRANSFER water to CSTs from Outside Condensate Storage Tank (refer to T-6.12, DI HEADER SYSTEM OPERATIONS AND ALIGNMENT)</li> </ul>	
		<ul style="list-style-type: none"> <li>CHECK for proper operation of GE BETZ</li> </ul>	
		<ul style="list-style-type: none"> <li>IF GE BETZ has tripped, THEN.....</li> </ul>	<b>NOTE:</b> The GE BETZ has NOT tripped.
		<ul style="list-style-type: none"> <li>IF required, THEN COMPLETE applicable sections of T-14N, S/G BLOWDOWN SYSTEM FLOW CHANGES.</li> </ul>	<b>NOTE:</b> This action will not be required.
	CO	(Step 4.2) PERFORM the following in the Control Room.	
		<ul style="list-style-type: none"> <li>ENSURE Hotwell Level Controller, LC-107, is NOT causing abnormal makeup to the condenser.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF hotwell level is not being maintained in AUTO, THEN PLACE Hotwell Level Controller, LC-107 in MANUAL and CONTROL hotwell level as necessary.</li> </ul>	<b>NOTE:</b> The CO will take manual control of LC-107 and stabilize Hotwell level.
		<ul style="list-style-type: none"> <li>IF CST level continues to lower, THEN EVALUATE the need to reject water from the hotwell AND SLOWLY REJECT water back to the CST(s) if necessary.</li> </ul>	

Op Test No.: N20-1 Scenario # 5 Event # 4 Page 25 of 62Event Description: **Hotwell Level Controller fails to Full Makeup**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"><li>IF IMMEDIATE blowdown isolation is required, THEN.....</li></ul>	<b>NOTE:</b> This action will not be required.
		<ul style="list-style-type: none"><li>REFER to ITS LCO 3.7.6, Condensate Storage Tanks (CSTs)</li></ul>	<b>NOTE:</b> The LCO will NOT be entered unless both tanks are <13.6 ft.
		<ul style="list-style-type: none"><li>IF Blowdown sample flow is isolated, THEN.....</li></ul>	<b>NOTE:</b> Blowdown sample flow will not be isolated.
		<ul style="list-style-type: none"><li>NOTIFY Chemistry</li></ul>	<b>NOTE:</b> The CO may contact the WCCS/Chemistry. <b>SIM DRIVER:</b> as <b>WCCS</b> , acknowledge.
	US	<ul style="list-style-type: none"><li>NOTIFY Shift Manager</li></ul>	<b>NOTE:</b> The US may contact the SM. <b>SIM DRIVER:</b> as <b>SM</b> , acknowledge.
<b>At the discretion of the Lead Examiner move to Event #5.</b>			

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 26 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Next, the A Circ Water Pump will trip. Simultaneously, a Condenser Expansion Joint low-level condition will occur. The crew will respond in accordance with AR-J-16, "MOTOR OFF CW-EH EMERG OIL SEAL OIL BU," and enter AP-CW.1, "Loss of a Circ Water Pump," and/or AP-TURB.4, "Loss of Condenser Vacuum." The crew will reduce load per AP-TURB.5, "Rapid Load Reduction," as needed to stabilize Turbine Backpressure.

**SIM DRIVER Instructions:** **Operate Trigger #5 (CRC01A, CND07B, 900, 240 Second Ramp)**

**NOTE: If Condenser Backpressure stabilizes prior to the crew initiating a downpower at Step 3 of AP-CW.1, USE REM-CND50 = 0.5 (5 Second Ramp) as needed to keep Backpressure rising and force the downpower.**

**Indications Available:**

- MCB Annunciator J-16, MOTOR OFF CW-EH EMERG OIL SEAL OIL BU
- MCB Annunciator I-19, CONDENSER EXP JOINT B LO LEVEL
- A Circ Water Pump Green and White status lights are LIT, Red status light is OFF
- Condenser Backpressure is rising

Time	Pos.	Expected Actions/Behavior	Comments
			<b>Examiner NOTE:</b> At any time during this event, the US may enter AP-TURB.4. If so, follow the actions on <b>Page 39</b> .
			<b>NOTE:</b> The US may directly enter AP.CW.1.
<b>AR-J-16, MOTOR OFF CW-EH EMERG OIL SEAL OIL BU</b>			
	CO	(Step 1) IF a Circ Water pump trips, THEN go to AP-CW.1, LOSS OF A CIRC WATER PUMP.	<b>NOTE:</b> The A CW Pump has tripped.
		(Step 2) Determine cause of pump trip	<b>NOTE:</b> The US may call an EO to address the Pump failure.  If so, <b>SIM DRIVER</b> acknowledge as EO. After <b>3 minutes</b> report that there are <b>no abnormal indications at the Pump</b> .

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 27 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
			<b>NOTE:</b> The US may call WCC/Maintenance to address the Pump failure. If so, <b>SIM DRIVER</b> acknowledge as WCC.
	US	(Step 3) Attempt to restore to normal	
			<b>NOTE:</b> The US will transition to AP-CW.1.
<b>AP-CW.1, LOSS OF A CIRC WATER PUMP</b>			
	CO	(Step 1) Verify One Circ Water Pump - RUNNING	<b>NOTE:</b> The B CW Pump is running.
	HCO	(Step 2) Check Reactor Power – LESS THAN 50%	<b>NOTE:</b> Power level is ≈70%.
	US	(Step 2 RNO) Reduce reactor power at approx. 5%/min. using AP-TURB.5, RAPID LOAD REDUCTION while continuing with this procedure.	<b>Examiner NOTE:</b> The US will initiate a Rapid Load Reduction per AP-TURB.5 (Page 29) while continuing with Step 3.
<b>CAUTION</b> <ul style="list-style-type: none"> <li>TURBINE LOAD REDUCTIONS SHOULD BE COMPLETED AS QUICKLY AS POSSIBLE WHILE MINIMIZING THE AMOUNT OF STEAM DUMP OPERATION.</li> <li>EXCESSIVE BACK PRESSURE MAY RESULT IN SEVERE TURBINE BLADE VIBRATION. MINIMIZE TIME OUTSIDE THE SATISFACTORY OPERATING REGION.</li> <li>LOAD REDUCTION RATE IS TO BE ADJUSTED AS NECESSARY TO PREVENT EXCEEDING 5 MINUTES IN THE DO NOT OPERATE REGION.</li> </ul>			
	CO	(*Step 3) Check Condenser Indications:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Turbine back pressure – EACH CONDENSER WITHIN THE SATISFACTORY OPERATING REGION OF FIG-13.0, FIGURE BACK PRESSURE</li> </ul>	<b>NOTE:</b> It will be observed that Turbine backpressure is within the operating range.



Op Test No.: N20-1 Scenario # 5 Event # 5 Page 28 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Condenser vacuum – STABLE OR IMPROVING</li> </ul>	<b>NOTE:</b> It will be observed that Turbine backpressure is slowly degrading (rising).
	CO	(Step 3.b RNO) IF greater than 50% power then continue to reduce power at 5%/min.	<b>NOTE:</b> Power level is >50%.
			<b>NOTE:</b> The US may elect to perform ATT-23.0 prior to performing the AP. If so, the US will hand this off to the CO, and continue in the AP with the HCO. <b>HCO Examiner move to Page 29.</b>
<b>ATT-23.0, ATTACHMENT TRANSFER 4160V LOADS</b>			
	CO	(Step 1) Place Bus 12A – BUS 11A TIE SYNCHROSCOPE to ON.	
	CO	(Step 2) Close BUS 12A – BUS 11A TIE 4160V.	
	CO	(Step 3) Place BUS 12A – BUS 11A TIE SYNCHROSCOPE to OFF.	
	CO	(Step 4) Open BUS 11A NORMAL FEED 4160V.	
	CO	(Step 5) Place BUS 11B – BUS 12B TIE synchroscope to on.	
	CO	(Step 6) Close BUS 11B – BUS 12B TIE 4160V.	
	CO	(Step 7) Place BUS 11B 12B TIE SYNCHROSCOPE to OFF.	

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 29 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 8) Open BUS 11B NORMAL FEED 4160V.	
	CO	(Step 9) Reset alarms L-20 AND L-28, locally in the Relay Room Addition.	<b>NOTE:</b> The CO will dispatch an EO. <b>SIM DRIVER:</b> as <b>EO</b> , acknowledge, and use REM EDS049 and EDS050 = RESET, to reset alarms.
<b>AP-TURB.5, RAPID LOAD REDUCTION</b>			
			<b>Examiner NOTE:</b> Once the Turbine backpressure is stabilized, the US will return to AP-CW.1. When this occurs Move Forward to AP-CW.1 actions on <b>Page 35</b> .
<b>CAUTION</b> IF MAIN FEEDWATER FLOW SHOULD LOWER TO 25% OF FULL POWER FLOW (1x10 <sup>6</sup> LB/HR) PRIOR TO THE AMSAC SYSTEM AUTOMATICALLY BLOCKING AT 40% POWER, THEN A TURBINE TRIP AND AUX FEED PUMPS START COULD RESULT.			
<b>NOTE</b> <ul style="list-style-type: none"> <li>IF the turbine is to be taken offline, THEN transfer of 4160V loads may be performed at any time. Refer to ATT-23.0, ATTACHMENT TRANSFER 4160V LOADS.</li> <li>A maximum continuous load reduction rate of greater than 5%/min should not be used unless directed by the Shift Manager.</li> <li>Perform a Load Reduction Brief per A-503.1 Emergency and Abnormal Procedures User Guide Attachment 1.</li> </ul>			
	HCO	(Step 1) Initiate Load Reduction	
		<ul style="list-style-type: none"> <li>Verify rods in AUTO</li> </ul>	
	HCO	(Step 1.a RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Place rods to MANUAL.</li> </ul>	
		<ul style="list-style-type: none"> <li>Adjust Rods to match Tavg and Tref.</li> </ul>	

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 30 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
		(Step 1.b) Initiate boration at the rate determined in OPG-REACTIVITY-CALC.	<b>NOTE:</b> The HCO will initiate a boration.
<b>S-3.1, BORON CONCENTRATION CONTROL ATTACHMENT 2, NORMAL BORATION</b>			
	HCO	(Step 1) ENSURE Attachment 1, Makeup Determinations, is complete.	
	HCO	(Step 2) Board operator SHALL inform US of intent to change core reactivity.	
		<ul style="list-style-type: none"> <li>US SHALL acknowledge reactivity manipulation and provide input and oversight. [G0092].</li> </ul>	
	HCO	(Step 3) PLACE RMW MODE SELECTOR control switch to BORATE position.	
	HCO	(Step 4) SET BA TO BA BLENDER FLOW CONTROL VALVE, HCV-110A, controller to flow rate determined in Attachment 1, Makeup Determinations, Step 1.1.	
	HCO	(Step 5) SET BA COUNTER, YIC-110, to quantity determined in Attachment 1.	
<b>NOTE</b> Key parameters including Reactor Coolant Tavg AND control rod position indication, OR subcritical count rate SHALL be observed as boric acid is injected to ensure proper response. [G0092] [G0132]			
	HCO	(Step 6) PLACE RMW CONTROL switch to START position.	
	HCO	(Step 7) VERIFY the following:	

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 31 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>BORIC ACID TRANSFER PUMP A OR B starts.</li> </ul>	
		<ul style="list-style-type: none"> <li>BA TO BA BLENDER FLOW CONTROL VLV, HCV-110A, throttles open to preset flow position.</li> </ul>	
		<ul style="list-style-type: none"> <li>REACTOR MAKEUP TO CHG PUMP, AOV-110B, opens.</li> </ul>	
	HCO	(Step 8) WHEN boration is complete, THEN PERFORM the following:	
		<ul style="list-style-type: none"> <li>PLACE RMW MODE SELECTOR control switch to AUTO position.</li> </ul>	
		<ul style="list-style-type: none"> <li>PLACE RMW CONTROL switch to START position and VERIFY RMW control red light ILLUMINATED.</li> </ul>	
		<ul style="list-style-type: none"> <li>SET BA TO BA BLENDER FLOW CONTROL VLV, HCV-110A, for current RCS boron concentration PER Boration/Dilution tables OR PPCS Engineering Menu Boration/Dilution display.</li> </ul>	
	HCO	(Step 9) PLACE "BORATE" Human Performance Label next to RMW Mode Selector switch on MCB.	
	HCO	(Step 10) Board operator SHALL inform US that reactivity manipulation is complete. [G0092]	
	HCO	(Step 11) RECORD amount of boric acid added on S-12.4, RCS Leakage Surveillance Record Instructions, Attachment RCS Leakage Surveillance Record.	
<b>AP-TURB.5, RAPID LOAD REDUCTION</b>			

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 32 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 1.c) Reduce turbine load in Auto as follows:	
		<ul style="list-style-type: none"> <li>Place Turbine EH Control in OPER PAN., IMP PRESS IN, if desired.</li> </ul>	
		<ul style="list-style-type: none"> <li>Select desired rate on thumbwheel</li> </ul>	<b>NOTE:</b> The CO will select 5%/Minute.
		<ul style="list-style-type: none"> <li>Reduce the setter to the desired load</li> </ul>	
		<ul style="list-style-type: none"> <li>Depress the GO button</li> </ul>	<b>NOTE:</b> The CO will start the load decrease.
	HCO	<ul style="list-style-type: none"> <li>Place PRZR backup heaters switch to ON</li> </ul>	
			<b>Examiner NOTE:</b> After ≈5 minutes of power reduction, or at the discretion of the Lead Examiner move to Events #6-8.
<b>CAUTION</b> EXTREME AND RAPID ROD MOTION TO MITIGATE TAVG SWINGS MAY RESULT IN LARGE POWER EXCURSIONS AND SHOULD BE AVOIDED.			
	HCO	(*Step 2) Monitor RCS Tavg <ul style="list-style-type: none"> <li>Tavg- GREATER THAN 545°F</li> <li>Tavg- LESS THAN 579°F</li> </ul>	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
	HCO	(Step 3) Adjust Boric Acid Addition Rate As Necessary To (refer to OPG-REACTIVITY-CALC): <ul style="list-style-type: none"> <li>Maintain rods above the insertion limit</li> <li>Match Tavg and Tref</li> <li>Compensate for Xenon</li> </ul>	
<b>NOTE</b> With PRZR pressure controller in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3)			

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 33 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(*Step 4) Monitor PRZR Pressure-TRENDING TO 2235 PSIG IN AUTO	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
	CO	(*Step 5) Monitor MFW Regulating Valves-RESTORING S/G LEVEL TO 52% IN AUTO	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
	HCO	(*Step 6) Monitor PRZR Level- TRENDING TO PROGRAM IN AUTO CONTROL	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
<b>NOTE</b> It is permissible to operate RCPs for limited periods without seal injection, provided CCW is being supplied to the thermal barriers.			
	CO	(Step 7) Check IA Available To CNMT	
		<ul style="list-style-type: none"> <li>IA pressure - GREATER THAN 60 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Instr Air to CNMT Isol Valve, AOV-5392 - OPEN</li> </ul>	
	HCO/CO	(*Step 8) Check Steam Dump Status:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Annunciator G-15, STEAM DUMP ARMED - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Steam dump operating properly in AUTO</li> </ul>	
	HCO/CO	(Step 8 RNO) IF steam dump required but NOT operating, THEN....	

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 34 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
<b>CAUTION</b>			
MANUAL REJECT MAY BE REQUIRED TO PREVENT SIGNIFICANT AFFECT ON CONDENSATE PRESSURE			
	CO	(Step 9) Check Hotwell Level:	
		<ul style="list-style-type: none"> <li>Hotwell level controller in AUTO</li> </ul>	<b>NOTE:</b> The Hotwell Level Controller is in MANUAL from a previous malfunction.
		<ul style="list-style-type: none"> <li>Controller demand LESS THAN 60%</li> </ul>	
		<ul style="list-style-type: none"> <li>Hotwell level at setpoint</li> </ul>	
	CO	(Step 9 RNO) IF controller demand approaching 70% (Large Reject Valve Opens), THEN place controller in Manual and control level.	
<b>NOTE</b>			
The load reduction should not be delayed to perform the remaining steps.			
	US/ CO	(*Step 10) Check If Condensate Booster Pumps Should Be Secured	
		Condensate booster pumps – 2 PUMPS RUNNING	<b>NOTE:</b> If the Condensate Booster Pumps are running, continue to stop the pumps below,  If there are NO Condensate Booster Pumps running, Perform Step 10 RNO.
		<ul style="list-style-type: none"> <li>Verify the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify reactor power is 70%-75%</li> </ul>	
		<ul style="list-style-type: none"> <li>Trim valve controller set at 400 psig</li> </ul>	
		<ul style="list-style-type: none"> <li>Trim valve, AOV-9508G - GREATER THAN 80% open</li> </ul>	
		<ul style="list-style-type: none"> <li>PI-4017, CNDST BSTR DISCH PRESS greater than 395 psig</li> </ul>	
		<ul style="list-style-type: none"> <li>Place the auto condensate booster pump to the trip position</li> </ul>	
		<ul style="list-style-type: none"> <li>Stop one condensate booster pump</li> </ul>	

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 35 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Verify the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Condensate pressure – STABLE <b>OR</b> RISING</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify Trim valves AOV-9508D/9508G - CLOSED <b>OR</b> STABILIZED at new position</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify HDT level (L2013A) greater than 50% and STABLE <b>OR</b> RISING</li> </ul>	
		<ul style="list-style-type: none"> <li>Stop the remaining condensate booster pump</li> </ul>	
	US	(Step 10.a RNO) IF only 1 Condensate Booster Pump running, THEN go to step 10e. IF no pumps running THEN go to step 11.	
	HCO/CO	(Step 11) Check If One MFW Pump Should Be Secured	<b>NOTE:</b> It is likely that Rx power will be > 50%.
		<ul style="list-style-type: none"> <li>Power LESS THAN 50%</li> </ul>	
	US	(Step 11.a RNO) Go to Step 18.	
	US	(Step 18) Evaluate Plant Status	
		IF load was reduced more than 15% RTP in one hour, THEN notify RP to obtain primary samples required by ITS LCO 3.4.16	<b>NOTE:</b> The US may call Chemistry to address the samples. If so, <b>SIM DRIVER</b> acknowledge as Chemistry
<b>AP-CW.1, LOSS OF A CIRC WATER PUMP</b>			
			<b>Examiner NOTE:</b> Follow action of AP-CW.1 Step 3 and beyond starting <b>HERE</b> .
	CO	<ul style="list-style-type: none"> <li>(*Step 3.c) Determine if Load Reduction Can Be Stopped:</li> </ul>	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Monitor Condenser Indications:</li> </ul>	



Op Test No.: N20-1 Scenario # 5 Event # 5 Page 36 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Condenser back pressure – EACH CONDENSER WITHIN THE SATISFACTORY OPERATING REGION OF FIG-13.0, FIGURE BACK PRESSURE</li> </ul>	<b>NOTE:</b> It will be observed that Turbine backpressure is within the operating range.
		<ul style="list-style-type: none"> <li>Vacuum – STABLE OR IMPROVING</li> </ul>	<b>NOTE:</b> It will be observed that Turbine backpressure is stable.
	HCO	(*Step 4) Monitor RCS Tavg:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Tavg – GREATER THAN 545°F</li> </ul>	
		<ul style="list-style-type: none"> <li>Tavg – LESS THAN 579°F</li> </ul>	
	HCO	(Step 5) Check Rod Control:	
		<ul style="list-style-type: none"> <li>Rods in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Control rods stepping to control Tavg</li> </ul>	
	HCO	(Step 5 RNO) Ensure rods in manual and adjust rods to control Tavg and minimize condenser steam dump.	
	CO	(*Step 6) Monitor SG Level – GREATER THAN 20%	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
	CO	(Step 7) Monitor S/G Level Control:	
		<ul style="list-style-type: none"> <li>S/G levels – TRENDING TO 52%</li> </ul>	
		<ul style="list-style-type: none"> <li>MFV regulating valves – CONTROLLING IN AUTO</li> </ul>	
	HCO	(Step 8) Verify Tavg – TRENDING TO TREF	

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 37 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 9) Isolate S/G Blowdowns to the Affected Waterbox:	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as <b>EO</b> , acknowledge and use REM-SGN30=0. After 3 Minutes report that V-3175E is CLOSED.
		<ul style="list-style-type: none"> <li>IF CW Pump A off, THEN close V-3175E</li> </ul>	
	CO	(Step 10) Dispatch EO to Align the Circulating Water System for one Pump Operation (Refer to T-8A, STARTUP AND SHUTDOWN A AND B CIRCULATING WATER PUMPS).	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as <b>EO</b> , acknowledge.
	CO	(Step 11) Determine If Load Reduction Can Be Stopped:	
		<ul style="list-style-type: none"> <li>Monitor Condenser Indications:</li> </ul>	
		<ul style="list-style-type: none"> <li>Condenser back pressure – EACH CONDENSER WITHIN THE SATISFACTORY OPERATING REGION OF FIG-13.0, FIGURE BACK PRESSURE</li> </ul>	<b>NOTE:</b> It will be observed that Turbine backpressure is within the operating range.
		<ul style="list-style-type: none"> <li>Vacuum – STABLE OR IMPROVING</li> </ul>	<b>NOTE:</b> It will be observed that Turbine backpressure is stable.
		<ul style="list-style-type: none"> <li>Stop the load reduction</li> </ul>	
<p align="center"><b>NOTE</b></p> <p>With PRZR pressure controller 431K in MANUAL, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3)</p>			
	HCO	(*Step 12) Establish Stable Plant Conditions:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 38 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>PRZR pressure – TRENDING TO 2235 PSIG IN AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL</li> </ul>	
		<ul style="list-style-type: none"> <li>Rod insertion limit alarms - EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>NIS PR ΔI – WITHIN ± 5% OF TARGET VALUE</li> </ul>	
		<ul style="list-style-type: none"> <li>Steam dump valves - CLOSED</li> </ul>	
	HCO/ CO	(Step 13) Establish Control Systems In Auto	
		<ul style="list-style-type: none"> <li>Verify 431K in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify PRZR spray valves in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify PRZR heaters restored:</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR proportional heater breaker - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>PRZR backup heater breaker – RESET, IN AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify one charging pump in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify MFW regulating valves in AUTO</li> </ul>	
		<ul style="list-style-type: none"> <li>Restore EH controls</li> </ul>	
		<ul style="list-style-type: none"> <li>Place in OP PAN, IMP OUT</li> </ul>	
		<ul style="list-style-type: none"> <li>Place load rate thumbwheel to 10%/hr</li> </ul>	
		<ul style="list-style-type: none"> <li>Match setter and reference</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify Annunciator G-15, STEAM DUMP ARMED - EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify rods in AUTO</li> </ul>	
	HCO/ CO	(Step 14) Evaluate MCB Annunciator Status (Refer to AR Procedures)	

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 39 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 15) Evaluate Status of Affected CW Pump:	
		<ul style="list-style-type: none"> <li>Dispatch EO to locally check CW pump and breaker</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge and report acrid odor around CW Pump motor.
		<ul style="list-style-type: none"> <li>Notify electricians</li> </ul>	<b>NOTE:</b> The US may call WCC/Maintenance to address the Pump failure. If so, <b>SIM DRIVER</b> acknowledge as WCC.
	US	(Step 16) Perform Notifications:	
		<ul style="list-style-type: none"> <li>Notify higher supervision</li> </ul>	<b>NOTE:</b> The US may call WCC/Supervision to address the Pump failure. If so, <b>SIM DRIVER</b> acknowledge as WCC.
		<ul style="list-style-type: none"> <li>Request Turbine System Engineer evaluate effect of backpressure transient on the turbine.</li> </ul>	<b>NOTE:</b> The US may call WCC/SE to address the Pump failure. If so, <b>SIM DRIVER</b> acknowledge as WCC.
	US	(Step 17) Refer to O-5.1, LOAD REDUCTION, For addition Guidance.	
	US	(Step 18) Return To Procedure Or Guidance In Effect	
			<b>Examiner NOTE:</b> At any time during this event, the US may enter AP-TURB.4. If so follow these actions.
<b>AP-TURB.4, LOSS OF VACUUM</b>			
	CO	(Step 1) Check Condenser Circulating Water System	

Op Test No.: N20-1 Scenario # 5 Event # 5 Page 40 of 62Event Description: **Circ Water Pump A Trips/Loss of Vacuum**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"><li>CW pump discharge valves – BOTH OPEN</li></ul>	
		<ul style="list-style-type: none"><li>CW pumps – BOTH RUNNING</li></ul>	<b>NOTE:</b> Only the B CW Pump is running.
		(Step 1 RNO) IF a loss of circulating water has occurred, THEN to AP-CW.1, LOSS OF A CIRC WATER PUMP.	<b>NOTE:</b> The US will transition to AP-CW.1.
<b>After ≈5 minutes of power reduction, or at the discretion of the Lead Examiner move to Events #6-8.</b>			

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 41 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

After this, an inadvertent Steam Line Isolation Signal will occur and both MSIVs will close. The reactor will fail to automatically trip, and the operator will attempt to trip the reactor manually. The crew will enter E-0, "Reactor Trip or Safety Injection." The reactor will fail to trip manually from the control room, and the crew will enter FR-S.1, "Response to Reactor Restart/ATWS." On the trip one S/G Safety Valve on each S/G lifted and stuck partially OPEN. The crew will successfully de-energize the Rod Drive MG set(s) causing to control rods to drop into the core. Upon completion of FR-S.1, the crew will transition back to E-0, and then to E-2, "Faulted Steam Generator Isolation." While implementing E-2, the crew will recognize that both S/Gs are faulted and transition to ECA-2.1, "Uncontrolled Depressurization of Both Steam Generators." The crew may take a pre-emptive action of throttling AFW flow to both S/Gs per A-503.1, "Emergency and Abnormal Operating Procedures Users Guide." The scenario will terminate at Step 7 of ECA-2.1, after the crew has stopped the RHR Pumps.

**SIM DRIVER Instructions:**

**Operate Trigger #6 (STM05A (0%, No Ramp) and STM05B (0%, No Ramp))**

**Indications Available:**

- Both MSIVs Closed (Green status lights are LIT; Red status lights are DARK)
- All Steam Dump Valves are full Open (Red status lights are LIT)
- RCS Pressure is increased to greater than 2335 psig
- Both Pzr Spray valves full Open
- Pzr PORVs full Open
- RTBs are CLOSED
- ARVs/Safeties lifting, Steam Noise

Time	Pos.	Expected Actions/Behavior	Comments
<b>E-0, REACTOR TRIP OR SAFETY INJECTION</b>			
	HCO	(Step 1) Verify Reactor Trip:	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>• At least one train of reactor trip breakers – OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>• Neutron flux – LOWERING</li> </ul>	
		<ul style="list-style-type: none"> <li>• MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM with no instrument fluctuations concurrent with fire.</li> </ul>	

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 42 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	(Step 1 RNO) Manually trip reactor.	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>IF reactor trip breakers NOT open, or there is a fire in the power block, THEN perform the following:</li> </ul>	
		<ul style="list-style-type: none"> <li>Open Bus 13 and Bus15 normal feed breakers.</li> </ul>	<b>NOTE:</b> The BUS 15 normal feeder breaker did NOT open.
		<ul style="list-style-type: none"> <li>IF Bus 13 or Bus 15 indicating lights are extinguished or flickering, THEN .....</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify rod drive MG sets tripped.</li> </ul>	
		<ul style="list-style-type: none"> <li>Close Bus 13 and Bus15 normal feed breakers.</li> </ul>	<b>NOTE:</b> The HCO/CO may re-close breakers for Bus 13.
		<ul style="list-style-type: none"> <li>Reset lighting breakers.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF the reactor will NOT trip OR IF power range NIS indicates greater than 5%, THEN go to FR-S.1, RESPONSE TO REACTOR RESTART/ATWS, Step1.</li> </ul>	<b>NOTE:</b> The US will transition to FR-S.1.
			<b>NOTE:</b> The US may direct the EO to open BOTH Control Rod Drive MG Set Breakers locally. If so, <b>SIM DRIVER</b> acknowledge as EO, <b>WAIT three Minutes</b> and <b>Insert MALF-ROD06B</b> . THEN report that the <b>RTBs have been opened locally</b> .
<b>FR-S.1, RESPONSE TO REACTOR RESTART/ATWS</b>			
<b>CAUTION</b>			
RCPS SHOULD NOT BE TRIPPED WITH REACTOR POWER GREATER THAN 5%			
<b>NOTE</b>			
Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.			
	HCO	(Step 1) Verify Reactor Trip:	<b>Immediate Action</b>

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 43 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>At least one train of reactor trip breakers – OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>Neutron flux – LOWERING</li> </ul>	
		<ul style="list-style-type: none"> <li>MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM with no instrument fluctuations concurrent with fire.</li> </ul>	
	HCO	(Step 1 RNO) Manually trip reactor.	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>IF reactor trip breakers NOT open, THEN manually insert control rods.</li> </ul>	<b>NOTE:</b> The US may direct the EO to open BOTH Control Rod Drive MG Set Breakers locally. If so, <b>SIM DRIVER</b> acknowledge as EO, <b>WAIT three Minutes</b> and <b>Insert MALF-ROD06B</b> . THEN report that the <b>RTBs have been opened locally</b> .

**Critical Task:**

**Upon diagnosing an ATWS, manually insert the control rods within 1 minute, and continue insertion until the reactor is tripped or the rods are on the bottom**

Safety Significance: failure to insert negative reactivity, under the postulated plant conditions, results in an unnecessary situation in which the reactor power remains higher than it otherwise would if the action is taken. Performance of the critical task would move the reactor power lower to prevent a subsequent unnecessary challenge to reactor core operational limits. A failure to insert negative reactivity constitutes a misoperation or incorrect crew performance which leads to incorrect reactivity control. According to Section 15.8.3.2 of the Ginna UFSAR is assumed that manual rod insertion of at least one bank is initiated within the first 60 seconds of the ATWS event.

	CO	(Step 2) Verify Turbine Stop Valves - CLOSED	<b>Immediate Action</b>
	CO	(Step 2 RNO) Manually trip turbine.	<b>Immediate Action</b>



Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 44 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>IF turbine trip can NOT be verified...</li> </ul>	
	CO	(Step 3) Check AFW Pumps Running:	<b>Immediate Action</b>
	CO	(Step 3.a) MDAFW pumps - RUNNING	<b>Immediate Action</b>
	CO	(Step 3.a RNO) Manually start MDAFW pumps.	<b>Immediate Action</b>
	CO	(Step 3.b) TDAFW pump – RUNNING IF NECESSARY	<b>Immediate Action</b>
	CO	(Step 3.b RNO) Manually open steam supply valves.	<b>Immediate Action</b>
		<ul style="list-style-type: none"> <li>MOV-3505A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-3504A</li> </ul>	
<p style="text-align: center;"><b>CAUTION</b></p> <ul style="list-style-type: none"> <li>ACTIONS TAKEN TO INITIATE RCS BORATION SHALL NOT BE REVERSED WHEN PERFORMING STEPS 3 through 7 of E-0, REACTOR TRIP OR SAFETY INJECTION</li> <li>IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)</li> </ul>			
<p style="text-align: center;"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>If offsite power is lost coincident with SI, then MCC C and MCC D lockout relays must be reset to restore BA and RMW pumps.</li> <li>Foldout page should be open and monitored periodically.</li> </ul>			
	HCO/CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of FR-S.1.
		LOSS OF SW CRITERIA	

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 45 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	(Step 4) Initiate Emergency Boration of RCS:	
		<ul style="list-style-type: none"> <li>Check SI status:</li> </ul>	
		<ul style="list-style-type: none"> <li>All SI annunciators – EXTINGUISHED</li> <li>All SI pumps – OFF IN AUTO</li> </ul>	<b>Examiner NOTE:</b> It is likely that SI will be actuated. If NOT, the crew will NOT perform the RNO requiring E-0 Actions.  If this is the case, MOVE forward to FR-S.1 Step 4.b actions on <b>Page 48</b> .
	HCO/ CO	(Step 4.a RNO) Perform the following:	
		<ul style="list-style-type: none"> <li>Complete steps 3 through 7 of E-0, REACTOR TRIP OR SAFETY INJECTION, while continuing with this procedure.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF SI flow indicated, THEN go to Step 5. IF NOT, THEN go to Step 4b.</li> </ul>	
			<b>Examiner NOTE:</b> The US may hand off the E-0 Steps to either the HCO or the CO, and continue with the other operator in FR-S.1.  Examiner following operator performing the E-0 steps continue below.  Examiner following operator NOT performing the E-0 Steps continue at <b>Page 49</b> .
<b>E-0, REACTOR TRIP OR SAFETY INJECTION</b>			
	HCO/ CO	(Step 3) Verify sufficient AC Emergency buses Energized To At Least 440 VOLTS:	
		<ul style="list-style-type: none"> <li>Bus 14 OR Bus 16</li> </ul>	
		AND	
		<ul style="list-style-type: none"> <li>Bus 17 OR Bus 18</li> </ul>	

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 46 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	(Step 4) Check if SI is Actuated:	
		<ul style="list-style-type: none"> <li>Any SI Annunciator – LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>SI sequencing – BOTH TRAINS STARTED.</li> </ul>	
<b>NOTE</b> <ul style="list-style-type: none"> <li>FOLDOUT page should be open and monitored periodically.</li> <li>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</li> </ul>			
	HCO/ CO	Foldout Page	NOTE: The HCO/CO will monitor these conditions throughout the performance of E-0.
		RCP TRIP CRITERIA	
		LOSS OF SW CRITERIA	
		AFW SUPPLY SWITCHOVER CRITERION	
		SFP COOLING CRITERIA	
		MULTIPLE FUNCTION LOSS CRITERIA	
	HCO/ CO	(*Step 5) Verify CNMT Spray Not Required:	
		<ul style="list-style-type: none"> <li>Annunciator A-27, CNMT SPRAY – EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT pressure – LESS THAN 28 PSIG</li> </ul>	
	HCO/ CO	(Step 6) Direct Operator to Perform ATT-27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION	
<b>E-0, REACTOR TRIP OR SAFETY INJECTION</b> <b>ATTACHMENT 27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION</b>			

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Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	(Step 1) Verify SI and RHR Pumps Running:	
		<ul style="list-style-type: none"> <li>All SI pumps – RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>Both RHR pumps – RUNNING</li> </ul>	
	HCO/ CO	(Step 2) Verify CNMT RECIRC Fans Running:	
		<ul style="list-style-type: none"> <li>All fans – RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>Charcoal filter dampers green status lights – EXTINGUISHED</li> </ul>	
	HCO/ CO	(Step 3) Check If Main Steamlines Should Be Isolated:	
		<ul style="list-style-type: none"> <li>Any MSIV – OPEN</li> </ul>	<b>NOTE:</b> Both MSIVs are Closed.
	HCO/ CO	(Step 3a RNO) Go to Step 4.	
	HCO/ CO	(Step 4) Verify MFW Isolation:	
		<ul style="list-style-type: none"> <li>MFW pumps – TRIPPED</li> </ul>	
		<ul style="list-style-type: none"> <li>MFW Isolation valves – CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G A, AOV-3995</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G B, AOV-3994</li> </ul>	
		<ul style="list-style-type: none"> <li>S/G Blowdown and sample valves - CLOSED</li> </ul>	
	HCO/ CO	(Step 5) Verify At Least Two SW Pumps - RUNNING	
	HCO/ CO	(Step 6) Verify CI and CVI:	

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 48 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>CI and CVI annunciators - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-26, CNMT ISOLATION</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-25, CNMT VENTILATION ISOLATION</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify CI and CVI valve status lights – BRIGHT</li> </ul>	
		<ul style="list-style-type: none"> <li>CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT</li> </ul>	
		<ul style="list-style-type: none"> <li>FCV-4561</li> </ul>	
		<ul style="list-style-type: none"> <li>FCV-4562</li> </ul>	
		<ul style="list-style-type: none"> <li>Letdown orifice valves - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-200A</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-200B</li> </ul>	
		<ul style="list-style-type: none"> <li>AOV-202</li> </ul>	
<p style="text-align: center;"><b>NOTE</b></p> <p>IF performing E-0 per direction of FR-S.1, FR-S.2, or FR-H.1 THEN stop here and return to E-0, REACTOR TRIP OR SAFETY INJECTION</p>			
<b>E-0, REACTOR TRIP OR SAFETY INJECTION</b>			
	HCO/ CO	(Step 7) Verify Both MDAFW Pumps Running	<b>NOTE:</b> Both MDAFW Pumps should have already been manually started.
<b>FR-S.1, RESPONSE TO REACTOR RESTART/ATWS</b>			
	CO	(Step 4.b) Verify at least one charging pump - RUNNING	<b>Examiner NOTE:</b> If SI has NOT actuated, continue HERE.
	CO	(Step 4.c) Align boration path:	

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 49 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Start two BA transfer pumps</li> </ul>	
		<ul style="list-style-type: none"> <li>Open MOV-350</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify BA flow</li> </ul>	
		<ul style="list-style-type: none"> <li>IF at least one Charging pump running, THEN close CCW outlet valves from RCP Thermal Barriers:</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP A, AOV-754A</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP B, AOV-754B</li> </ul>	
		<ul style="list-style-type: none"> <li>WHEN Boration complete, THEN open CCW Outlet valves from RCP Thermal Barriers:</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP A, AOV-754A</li> </ul>	
		<ul style="list-style-type: none"> <li>RCP B, AOV-754B</li> </ul>	
	CO	(Step 4.d) Verify charging flow path:	
		<ul style="list-style-type: none"> <li>Charging valve to loop B cold leg (AOV-294) - OPEN</li> </ul>	
		<ul style="list-style-type: none"> <li>Charging flow control valve (HCV-142) - DEMAND AT 0%</li> </ul>	
			<b>Examiners following operator NOT performing E-0 Steps 3-7 continue <b>HERE</b>.</b>
	CO/ HCO	(Step 5) Check PRZR PORV Status:	
		<ul style="list-style-type: none"> <li>RCS pressure – LESS THAN 2335 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Check PORVs – BOTH CLOSED</li> </ul>	
	CO/ HCO	(Step 6) Verify CNMT Ventilation Isolation	
		<ul style="list-style-type: none"> <li>CVI Annunciator - LIT</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-25, CNMT VENTILATION ISOLATION</li> </ul>	
		<ul style="list-style-type: none"> <li>Verify CVI valve status lights - BRIGHT</li> </ul>	

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Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
	CO/ HCO	(Step 7) Check If the Following Trips Have Occurred:	<b>NOTE:</b> If the Rx has NOT been locally tripped the RNO will be performed, otherwise proceed to Step 7.b.
		<ul style="list-style-type: none"> <li>Reactor trip</li> </ul>	
	CO/ HCO	(Step 7.a RNO) Dispatch EO to locally DEPRESS trip button for BOTH Control Rod Drive Motor Generator Set breakers at CRDM Control Panel:	<b>NOTE:</b> The US may direct the EO to open BOTH Control Rod Drive MG Set Breakers locally. If so, <b>SIM DRIVER</b> acknowledge as EO, <b>WAIT three Minutes</b> and <b>Insert MALF-ROD06B</b> . THEN report that the <b>RTBs have been opened locally</b> .
		<ul style="list-style-type: none"> <li>52-1/MG1A, CRD MG SET A BKR</li> </ul>	
		<ul style="list-style-type: none"> <li>52-2/MG1B, CRD MG SET B BKR</li> </ul>	
	CO/ HCO	(Step 7.b) Turbine trip	
	CO/ HCO	(*Step 8) Check If Reactor IS Subcritical:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Energize MCC A AND B</li> </ul>	
		<ul style="list-style-type: none"> <li>Check power range channels – LESS THAN 5%</li> </ul>	
		<ul style="list-style-type: none"> <li>Check Intermediate range channels</li> </ul>	
		<ul style="list-style-type: none"> <li>Startup rate - NEGATIVE</li> </ul>	
		OR	
		<ul style="list-style-type: none"> <li>Intermediate range channels - LOWERING</li> </ul>	
	US	<ul style="list-style-type: none"> <li>Go to Step 18.</li> </ul>	

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Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
<b>CAUTION</b> BORATION SHOULD CONTINUE TO OBTAIN ADEQUATE SHUTDOWN MARGIN DURING SUBSEQUENT ACTIONS.			
	US	(Step 18) Return to Procedure and Step in Effect	
			<b>Examiner NOTE:</b> The US will transition back to E-0 and start at Step 8.
<b>E-0, REACTOR TRIP OR SAFETY INJECTION</b>			
	CO/ HCO	(Step 7) Verify Both MDAFW Pumps Running	<b>NOTE:</b> Both MDAFW Pumps should have already been manually started.
<b>NOTE</b> IF Crosstieing MDAFW Pumps is required, refer to ATT-5.3, ATTACHMENT MDAFW PUMPS CROSSTIE.			
	CO/ HCO	(Step 8) Verify AFW Valve Alignment:	
		<ul style="list-style-type: none"> <li>AFW flow – INDICATED TO BOTH S/G(s)</li> </ul>	
		<ul style="list-style-type: none"> <li>AFW flow from each MDAFW pump – LESS THAN 230 GPM</li> </ul>	
	CO/ HCO	(*Step 9) Monitor Heat Sink:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		<ul style="list-style-type: none"> <li>Check S/G narrow range level – GREATER THAN 7% [25% ADVERSE CNMT] in any S/G</li> </ul>	<b>NOTE:</b> Since both S/Gs are faulted, the CO may use A-503.1 Step 5.3.B criteria and limit AFW flow to each S/G to 50 gpm.
		<ul style="list-style-type: none"> <li>Check S/G narrow range level - BOTH S/G LESS THAN 50%</li> </ul>	



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Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Control feed flow to maintain S/G narrow range level between 7% [25% adverse CNMT] and 50%.</li> </ul>	
	CO	(Step 10) Check If TDAFW Pump Can Be Stopped:	
		<ul style="list-style-type: none"> <li>Both MDAFW pumps – RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>PULL STOP TDAFW pump steam supply valves</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-3504A</li> </ul>	
		<ul style="list-style-type: none"> <li>MOV-3505A</li> </ul>	
<p style="text-align: center;"><b>CAUTION</b></p> <p>IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)</p>			
<p style="text-align: center;"><b>NOTE</b></p> <p>IF starting non-safeguards equipment will result in exceeding 278 amps (yellow line) on Buses 14 or 16, THEN DO NOT start non-safeguards equipment.</p>			
	CO/ HCO	(Step 11) Check CCW Flow to RCP Thermal Barriers:	
		<ul style="list-style-type: none"> <li>Annunciator A-7, RCP 1A CCW RETURN HI TEMP OR LO FLOW EXTINGUISHED</li> </ul>	
		<ul style="list-style-type: none"> <li>Annunciator A-15, RCP 1B CCW RETURN HI TEMP OR LOW FLOW - EXTINGUISHED</li> </ul>	
	CO/ HCO	(*Step 12) Monitor RCS Tavg – STABLE AT OR TRENDING TO 547°F	<p><b>NOTE:</b> Because of the failed open SG Safety Valves, the RCS will be cooling down rapidly.</p> <p><b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.</p>

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 53 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
	CO/ HCO	(Step 12 RNO) If temperature less than 547°F and lowering, THEN perform the following:	
		<ul style="list-style-type: none"> <li>Stop dumping steam.</li> </ul>	
		<ul style="list-style-type: none"> <li>Ensure reheater steam supply valves are closed.</li> </ul>	
		<ul style="list-style-type: none"> <li>IF cooldown continues, THEN control total feed flow between 200 gpm to 230 gpm until narrow range level greater than 7% [25% adverse CNMT] in at least one S/G.</li> </ul>	
		<ul style="list-style-type: none"> <li>WHEN S/G level greater than 7% in one S/G, THEN limit feed flow to that required to maintain level in at least one S/G.</li> </ul>	<b>NOTE:</b> Since both S/Gs are faulted, the CO may use A-503.1 Step 5.3.B criteria and limit AFW flow to each S/G to 50 gpm.
		<ul style="list-style-type: none"> <li>IF cooldown continues, THEN close both MSIVs.</li> </ul>	<b>NOTE:</b> Both MSIVs are Closed.
	CO/ HCO	(Step 13) Check PRZR PORVs and Spray Valves:	
		<ul style="list-style-type: none"> <li>PORVs – CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Auxiliary spray valve (AOV-296) - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Check PRZR pressure - LESS THAN 2260 PSIG</li> </ul>	
		<ul style="list-style-type: none"> <li>Normal PRZR spray valves - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>PCV-431A</li> </ul>	
		<ul style="list-style-type: none"> <li>PCV-431B</li> </ul>	
	CO/ HCO	(Step 14) Monitor RCP Trip Criteria:	
		<ul style="list-style-type: none"> <li>RCP status - ANY RCP RUNNING</li> </ul>	
		<ul style="list-style-type: none"> <li>SI pumps - AT LEAST TWO RUNNING</li> </ul>	

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 54 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>RCS pressure minus maximum S/G pressure - LESS THAN 210 psi [240 psi adverse CNMT]</li> </ul>	
	US	(Step 14.c RNO) Go to Step 15.	
	HCO/ CO	(Step 15) Check If S/G Secondary Side Is Intact:	
		<ul style="list-style-type: none"> <li>Pressure in both S/Gs – STABLE OR RISING</li> </ul>	
		<ul style="list-style-type: none"> <li>Pressure in both S/Gs – GREATER THAN 110 PSIG</li> </ul>	
	US	(Step 15 RNO) IF any S/G pressure lowering in an uncontrolled manner OR completely depressurized, THEN go to E-2, FAULTED STEAM GENERATOR ISOLATION, Step 1.	
			<b>NOTE:</b> The US will go to E-2.
<b>E-2, FAULTED STEAM GENERATOR ISOLATION</b>			
<p style="text-align: center;"><b>CAUTION</b></p> <ul style="list-style-type: none"> <li>AT LEAST ONE S/G SHALL BE MAINTAINED AVAILABLE FOR RCS COOLDOWN.</li> <li>ANY FAULTED S/G OR SECONDARY BREAK SHOULD REMAIN ISOLATED DURING SUBSEQUENT RECOVERY ACTIONS UNLESS NEEDED FOR RCS COOLDOWN.</li> </ul>			
<p style="text-align: center;"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>Critical Safety Function Status Trees should be monitored.</li> <li>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</li> <li>Foldout page should be open and monitored periodically.</li> </ul>			
	HCO/ CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of E-2.
		<ul style="list-style-type: none"> <li>LOSS OF SW CRITERIA</li> </ul>	

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 55 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>MULTIPLE FUNCTION LOSS CRITERIA</li> </ul>	
	CO	(Step 1) Check MSIV of Faulted S/G(s) - CLOSED	<b>NOTE:</b> Both MSIVs are Closed.
	CO	(Step 2) Check If Any S/G Secondary Side Is Intact:	
		<ul style="list-style-type: none"> <li>Check pressure in S/G A- STABLE OR RISING</li> </ul>	<b>NOTE:</b> Both SG Pressures are decreasing uncontrollably.
		OR	
		<ul style="list-style-type: none"> <li>Check pressure in S/G B – STABLE OR RISING</li> </ul>	
	US	(Step 2 RNO) IF both S/G pressures lowering in an uncontrolled manner, THEN go to ECA-2.1, UNCONTROLLED DEPRESSURIZATION OF BOTH STEAM GENERATORS, Step 1	
			<b>NOTE:</b> The US will go to ECA-2.1.
<b>ECA-2.1, UNCONTROLLED DEPRESSURIZATION OF BOTH STEAM GENERATORS</b>			
<b>CAUTION</b>			
<ul style="list-style-type: none"> <li>IF THE TDAFW PUMP IS THE ONLY AVAILABLE SOURCE OF FEED FLOW, THEN STEAM</li> <li>SUPPLY TO THE TDAFW PUMP MUST BE MAINTAINED FROM ONE S/G.</li> </ul>			
<b>NOTE</b>			
<ul style="list-style-type: none"> <li>FOLDOUT page should be open AND monitored periodically.</li> <li>Conditions should be evaluated for Site Contingency Reporting (Refer to EP-AA-1012 ADDENDUM 3, R.E. GINNA NUCLEAR POWER PLANT EMERGENCY ACTION LEVELS).</li> <li>Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10+05 R/hr.</li> </ul>			

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 56 of 62

Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	Foldout Page	<b>NOTE:</b> The crew will monitor these conditions throughout the performance of ECA-2.1.
		• LOSS OF SW CRITERIA	
		• SI REINITIATION CRITERIA	
		• E-2 TRANSITION CRITERIA	
		• COLD LEG RECIRCULATION SWITCHOVER CRITERION	
		• AFW SUPPLY SWITCHOVER CRITERION	
		• E-3 TRANSITION CRITERIA	
	CO	(Step 1) Check Secondary Pressure Boundary:	
		• Verify all of the following:	
		• MSIVs - CLOSED	<b>NOTE:</b> Both MSIVs are Closed.
		• MFW flow control valves - CLOSED	
		• MFW regulating valves	
		• MFW bypass valves	
		• MFW pump discharge valves - CLOSED	
		• S/G blowdown and sample valves - CLOSED	
		• TDAFW pump steam supply valves – PULL STOP	
		• TDAFW pump flow control valves - CLOSED	
		• S/G ARVs - CLOSED	

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 57 of 62

Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		Dispatch EO to locally isolate S/Gs (Refer to ATT-10.0, ATTACHMENT FAULTED S/G)	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge, and perform Schedule ATT-10 for BOTH SGs.
<b>CAUTION</b> A MINIMUM FEED FLOW OF 50 GPM MUST BE MAINTAINED TO EACH S/G WITH A NARROW RANGE LEVEL LESS THAN 7% [25% ADVERSE CNMT].			
<b>NOTE</b> Shutdown margin should be monitored during RCS cooldown (Refer to FIG-2.0, FIGURE SDM).			
	CO	(Step 2) Control Feed Flow to Minimize RCS Cooldown:	
		(Step 2a) Check cooldown rate in RCS cold legs – LESS THAN 100°F/HR	<b>NOTE:</b> The cooldown rate is likely to be higher than 100°F/HR.
	CO	(Step 2a RNO) Lower feed flow to 50 gpm to each S/G and go to Step 2c.	<b>NOTE:</b> The CO will lower the AFW flow rate to each SG to 50 gpm in an effort to control the cooldown rate.
			<b>NOTE:</b> A Red Path will likely occur on the Heat Sink Critical Safety Function Status Tree, and the US will address this procedure. The procedure will NOT be implemented however, since operator action has caused the Red Path.

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 58 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
<b><u>Critical Task:</u></b>			
<b>Control the AFW flowrate to 50 gpm per SG in order to minimize the RCS Cooldown rate before a severe challenge (Orange Path) develops to the integrity CSF</b>			
Safety Significance: Failure to control the AFW flow rate to the SGs leads to an unnecessary and avoidable extreme challenge to the integrity CSF. Also, failure to perform the Critical Task increases challenges to the SUBCRITICALITY Critical Safety Function which otherwise would not occur. If the action is not taken an unnecessary Orange Path could develop on the RCS Integrity Critical Safety Function requiring a substantial change in the mitigation strategy.			
	HCO	(Step 2c) Check RCS hot leg temperature – STABLE OR LOWERING.	
	HCO/ CO	(*Step 3) Monitor RCP Trip Criteria:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.
		• RCP status – ANY RCP RUNNING	
		• SI pumps – AT LEAST TWO RUNNING	
		• RCS pressure minus maximum S/G pressure – LESS THAN 210 psi [240 psi adverse CNMT]	
	US	(Step 3.c RNO) Go to Step 4	
<b>CAUTION</b>			
IF ANY PRZR PORV OPENS BECAUSE OF HIGH PRZR PRESSURE, IT SHOULD BE CLOSED AFTER PRESSURE LOWERS TO LESS THAN 2335 psig (REFER TO STEP 4b).			
	HCO	(*Step 4) Monitor PRZR PORVs and Block Valves:	<b>NOTE:</b> This is a Continuous Action. The US will make one or more board operators aware.

Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 59 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"> <li>Power to PORV block valves - AVAILABLE</li> </ul>	
		<ul style="list-style-type: none"> <li>PORVs - CLOSED</li> </ul>	
		<ul style="list-style-type: none"> <li>Block valves – AT LEAST ONE OPEN</li> </ul>	
	HCO/CO	(Step 5) Check Secondary Radiation Levels - NORMAL	
		<ul style="list-style-type: none"> <li>Steamline radiation monitor (R-31 and R-32)</li> </ul>	
		<ul style="list-style-type: none"> <li>Dispatch EO to locally check steamline radiation</li> </ul>	<b>NOTE:</b> The US will dispatch an EO. <b>SIM DRIVER:</b> as EO, acknowledge.
		<ul style="list-style-type: none"> <li>Request Chem Tech sample S/Gs for activity.</li> </ul>	<b>NOTE:</b> The US may call WCC/Chemistry to address the samples. If so, <b>SIM DRIVER</b> acknowledge as WCC/Chemistry.
<b>CAUTION</b> IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)			
	HCO	(Step 6) Reset SI	
<b>CAUTION</b> RCS PRESSURE SHOULD BE MONITORED. IF RCS PRESSURE LOWERS IN AN UNCONTROLLED MANNER TO LESS THAN 300 PSIG [350 PSIG ADVERSE CNMT], THEN THE RHR PUMPS MUST BE MANUALLY RESTARTED TO SUPPLY WATER TO THE RCS.			
	HCO	(Step 7) Monitor If RHR Pumps Should Be Stopped:	
		<ul style="list-style-type: none"> <li>RHR pumps –ANY RUNNING IN INJECTION MODE</li> </ul>	



Op Test No.: N20-1 Scenario # 5 Event # 6, 7 & 8 Page 60 of 62Event Description: **Inadvertent Steam Line Isolation Signal/ Failure of the Reactor to trip from the Control Room/ATWS/One S/G Safety Valve on each S/G Lifts and sticks partially OPEN**

Time	Pos.	Expected Actions/Behavior	Comments
		<ul style="list-style-type: none"><li>Check RCS Pressure:</li></ul>	
		<ul style="list-style-type: none"><li>Pressure – GREATER THAN 300 psig [350 psig adverse CNMT]</li></ul>	
		<ul style="list-style-type: none"><li>Pressure – STABLE OR RISING</li></ul>	
		<ul style="list-style-type: none"><li>Stop RHR pumps and place in AUTO</li></ul>	<b>NOTE:</b> The HCO will STOP the RHR Pumps.
<b>At the discretion of the Lead Examiner terminate the exam.</b>			

TURNOVER SHEET for NRC Exam Scenario #5

<p><u>Core Age: BOL</u></p> <p>70% Power, Equilibrium Xe</p> <p>Outside Air Temp = 51°F</p> <p>Water Temp = 45°F</p>	<p><u>Procedure in Use:</u></p> <p>O-5.2</p>	<p><u>ACTIONS/NOTES:</u></p> <ul style="list-style-type: none"> <li>• The plant is at 70% power (BOL).</li> <li>• The area has experienced steady Thunderstorms for the past 2 hours, with wind from the West at 10-20 mph, and this is expected to continue throughout the shift.</li> <li>• It is expected to raise power to 100% on this shift.</li> <li>• Power Range Channel N44 is removed from service per ER-NIS.3.</li> <li>• The Condensate Booster Pump B is OOS for impeller replacement.</li> <li>• SR 3.2.4.1/TSR 3.2.4.2 is being performed every 24 hours and O-6.4, QPTR Calculation, was completed 1 hour ago.</li> <li>• SR 3.2.4.2 must be performed within 24 hours of raising power &gt;75% RTP. RE is planning on performing a Flux Map on the next shift.</li> <li>• The following Alarms are in: <ul style="list-style-type: none"> <li>• E-7, NIS TRIP BYPASS</li> <li>• E-18, POWER RANGE LOSS OF DETECTOR VOLTAGE</li> <li>• E-19, POWER RANGE HI RANGE CHANNEL ALERT 108%</li> <li>• E-21, POWER RANGE OVERPOWER ROD STOP 103%</li> <li>• E-28, POWER RANGE ROD DROP – 5%/5 SEC</li> <li>• F-23, RCS OTΔT CHANNEL ALERT</li> </ul> </li> <li>• Protected equipment IAW OPG Protected Equipment.</li> </ul>
<p>Boron: 1570 ppm</p> <p>BAST: 17,500 ppm</p> <p>RCS Activity: Normal</p>	<p><u>RCS LEAKAGE:</u> (gpm)</p> <p>Total: .021</p> <p>Identified: .003</p> <p>Unidentified: .018</p>	

TURNOVER SHEET for NRC Exam Scenario #5

<u>Equipment Problems/OOS:</u> See NOTES	<u>Planned Activities for Shift:</u> <ul style="list-style-type: none"> <li>Load Ascension to 100%</li> </ul>	<u>Electrical System Operator Declarations</u> None in effect
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A-52.4					
EQUIPMENT	DATE/TIME OOS	LCO	TITLE	EXP DATE	ECD
PR N44	8 hours ago	3.3.1/3.2.4	Rx Trip System Instrumentation/QPTR	NA	24 hours
A-52.12					
EQUIPMENT	DATE/TIME OOS	TRM /ODCM	TITLE	EXP DATE	ECD
QPTR Monitor	8 hours ago	TR 3.2.4	QPTR Monitor	N/A	24 hours