

**NRC2007-Inp01**

<b>TITLE</b>
<b>PROGRAM</b>

Locally Restore CR Ventilation per 01-OHP-4025-R-14  
Initial Licensed Operator (ILT)

<b>REVISION</b>
<b>TIME</b>

0  
20 Minutes

**SCOPE OF REVISION:**  
Updated to current revision of 1-OHP-4025-R-14.

<b>AUTHOR</b>
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**Name:** John T Conrad  
**Signature:** \_\_\_\_\_

<b>DATE:</b>
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<b>FACILITY REVIEWER</b>
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**Name:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_

Facility Supervisor / Manager

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2004-INP01 Locally Restore CR Ventilation per 01-OHP-4025-R-14</b>	<b>REVISION: 0</b>
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**REFERENCES**

01-OHP-4025-R-14      Rev. 3      Restore Control Room Ventilation

**TASKS**

Task: 0280250104      Align ESW to the Control Room Air Conditioning Air Handling Units

K/A: APE 068 AA1.24      Ability to operate and/or monitor the Control Room re-accessibility as applied to Control Room Evacuation.

K/A IMPORTANCE:      RO: 3.0      SRO 3.6

**EVALUATION SETTING**

In-Plant

**HANDOUTS**

Task Briefing  
Copy of 01-OHP-4025-R-14, Restore Control Room Ventilation

**ATTACHMENTS**

None

**SIMULATOR SETUP**

None

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2004-INP01 Locally Restore CR Ventilation per 01-OHP-4025-R-14</b>	<b>REVISION: 0</b>
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**Task Objectives/Standards**

The North Control Room Ventilation is Running with ESW aligned for Cooling.

**Task Briefing**

You are the Unit 1 RO.

A small fire in the Unit 1 Control Room Control Panel has caused the Loss of Ventilation cooling to the control room. The US has directed you to Restore the North Control Room Ventilation cooling per 01-OHP-4025-R-14, Restore Control Room Ventilation, using R-14-2, Restore Unit 1 North Control Room Air Conditioning Unit.

Number: 01-OHP-4025 <b>R-14</b>	Title: <b>RESTORE CONTROL ROOM VENTILATION</b>	Revision Number: 3
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<b>R-14-2 Restore Unit 1 North Control Room Air Conditioning Unit</b>	
1.	<b>Check Unit 1 - IN APPENDIX R STABLE HOT STANDBY</b>	Go to Step 3.
<b>NOTE</b> Appendix R Stable Hot Standby can be considered exited once the plant cooldown is started.		
2.	<b>Perform The Following:</b>	
	<ul style="list-style-type: none"> <li>• Maintain temporary Control Room ventilation in service</li> <li>• <b>DO NOT</b> continue until Unit has exited Appendix R Stable Hot Standby</li> </ul>	
3.	<b>Verify 1E ESW System - IN SERVICE</b>	Refer to 01-OHP-4025-R-INDEX, System Restoration Procedures Index, for other available system/component restoration procedures and perform as necessary.

(R-14-2, page 1 of 3)

Page 3 of 12

General CUES:

1. Provide candidate copy of 01-OHP-4025-R-14 section R-14-2 (including Attachment A).
2. State all procedure prerequisites have been met.

ACTIONS:

**CUE:** When asked, inform candidate that RCS Cooldown in Appendix R has commenced.

**CUE:** If asked, inform candidate that temporary Control Room Ventilation is still in service.

**CUE:** Inform candidate that U1 East ESW system is in service.

Number: 01-OHP-4025 <b>R-14</b>	Title: <b>RESTORE CONTROL ROOM VENTILATION</b>	Revision Number: 3
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<b>R-14-2</b>		
<b>Restore Unit 1 North Control Room Air Conditioning Unit</b>		
4.	<b>Verify Power To North Control Room Air Handling Unit 1-HV-ACRA-1:</b>  <ul style="list-style-type: none"> <li>• 1-AB-D-2C</li> </ul>	Request Maintenance to perform 01-IHP-5040-EMP-012, Control Room Air Handling Unit Fan Temporary Power.  <b>WHEN</b> temporary power supply for North Control Room Air Handling Unit has been connected, <b>THEN</b> place the North Control Room Air Handling Unit in service after closing the feed breaker from the temporary power source.
5.	<b>Verify North Control Room Air Handling Unit 1-HV-ACRA-1 - IN SERVICE</b>	Return to Step 4.
<b>CAUTION</b>		
IF CONTROL ROOM CHILLER PACKAGE IS <b>NOT</b> AVAILABLE, THE UNIT SUPERVISOR SHOULD BE INFORMED PRIOR TO IMPLEMENTATION OF R-14, Restore Control Room Ventilation, R-14-2, Attachment A: Emergency ESW Flow Through North Control Room AHU.		
6.	<b>Verify North Control Room Chiller Package - IN SERVICE:</b>  <ul style="list-style-type: none"> <li>• Chiller Compressor</li> <li>• Chilled Water Pump</li> </ul>	Initiate Emergency ESW through the North Control Room Air Handling Unit by performing 01-OHP-4025-R-14, Restore Control Room Ventilation, R-14-2, Attachment A: Emergency ESW Flow Through North Control Room AHU.

(R-14-2, page 2 of 3)

**CUE:** Inform candidate that 01-IHP-5040-EMP-012, Control Room Unit 1-HV-ACRA-1, Air Handling Unit Fan Temporary Power, is complete and the feed breaker from the temporary power source is closed. The RED (power) light is LIT on the local sub panel.

**CUE:** Inform candidate that 1-HV-ACRA-1 is in service.

**CUE:** Inform candidate that **NEITHER** the North Control Room Chiller Package Chiller Compressor **NOR** the Chilled Water Pump is in service.

Number:	Title:	Revision Number:
01-OHP-4025 R-14	RESTORE CONTROL ROOM VENTILATION	3

R-14-2

Attachment A: Emergency ESW Flow Through North Control Room AHU

1. Verify North Control Room Air Conditioning Unit Chilled Water Pump status:

- Pump 1-PP-82N control switch 1-101-ACRA1P - STOP

-OR-

- Supply breaker 1-AB-D-2D - OPEN

2. Verify North Control Room Air Conditioning Unit Chiller Compressor status:

- Chiller Compressor control switch 1-101-ACRE1 - OFF

-OR-

- Supply breaker 1-AB-D-R3AR - OPEN

3. Verify the following north control room air conditioning Unit chilled water supply valves are closed:

- 1-DW-163N, Chilled Water to Liquid Chiller Shutoff
- 1-DW-165N, Chilled Water Pump Discharge To Chemical Mixing Shutoff
- 1-DW-166N, Chilled Water Pump Discharge

4. Close the following valves to isolate ESW from North Control Room Air Conditioning Unit Condenser:

- 1-ESW-169N, ESW To North Control Room Air Conditioning Unit Condenser Inlet
- 1-ESW-170N, ESW From North Control Room Air Conditioning Unit Condenser Outlet

5. Verify Closed 1-ESW-297, Emergency ESW Supply to North CRAC AHU 1-HV-ACRA-1 Flushing Valve.

(R-14-2, page 1 of 2)

Place 1-PP-82N Control Switch in “STOP” position  
**CUE:** Switch is in the “STOP” position

Place Compressor Control Switch in “OFF” position  
**CUE:** Switch is in the “OFF” position

**CT:** Place valve 1DW-163N in the CLOSED position  
**Cue:** You feel movement, Movement has stopped.

Verify valve 1DW-165N in the CLOSED position  
**Cue:** As found (Stem inserted)

**CT:** Place valve 1DW-166N in the CLOSED position  
**Cue:** You feel movement, Movement has stopped.

**CT:** Place valve 1ESW-169N in the CLOSED position  
**Cue:** You feel movement, Movement has stopped.

**CT:** Place valve 1ESW-170N in the CLOSED position  
**Cue:** You feel movement, Movement has stopped.

Verify valve 1ESW-297 is in the CLOSED position

**Cue:** If valve is open, you feel movement, Movement has stopped.

Number: 01-OHP-4025 <b>R-14</b>	Title: <b>RESTORE CONTROL ROOM VENTILATION</b>	Revision Number: 3
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R-14-2

Attachment A: Emergency ESW Flow Through North Control Room AHU

6. Verify Closed 1-ESW-276N, Emergency ESW Return From North CRAC AHU 1-HV-ACRA-1 Flushing Shutoff Valve.
7. Open the following valves to align emergency ESW flow to North Control Room Air Handling Unit:
  - 1-ESW-296, Emergency ESW Supply to North CRAC AHU 1-HV-ACRA-1 Shutoff Valve
  - 1-ESW-168N, ESW Supply To North Control Room Air Handling Unit
  - 1-ESW-171N, ESW Return From North Control Room Air Handling Unit
8. IF 1-VRV-315 is Inoperable, THEN Close 1-CA-2172, Control Air To 1-VRV-315 North Control Room Air Handling Unit Chilled Water Inlet/Bypass Valve:
  - Ensure 1-VRV-315 fails to OPEN position (FULLY UP) to allow full ESW flow through chiller.
9. Notify Chemistry Department of initiation of emergency ESW flow to North Control Room Air Handling Unit.
10. Return to previous procedure and step in effect, R-14, Restore Control Room Ventilation, R-14-2, Restore Unit 1 North Control Room Air Conditioning Unit, Step 7.

-END OF ATTACHMENT-

(R-14-2, page 2 of 2)

Verify valve **1ESW-276N** is in the CLOSED position

**Cue:** As found (Stem inserted)

**CT:** Place valve **1-ESW-296** in the OPEN position

**Cue:** You feel movement, you feel resistance.

**CT:** Place valve **1-ESW-168N** in the OPEN position

**Cue:** You feel movement, you feel resistance.

**CT:** Place valve **1-ESW-171N** in the OPEN position

**Cue:** You feel movement, you feel resistance. You hear flow noise & feel vibration in piping

**Note:** If operator determines that VRV-315 is Inoperable, then may close 1-CA-2172.

**CUE:** Inlet/Bypass valve's (1-VRV-315) stem indicates "FULLY UP"

**CUE:** Chemistry Department acknowledges task.

**CUE:** Acknowledge report that ESW flow initiated to North Control Room Air Handling Unit.

Evaluator: "**JPM IS COMPLETE**"

## Task Briefing

You are the Unit 1 RO.

A small fire in the Unit 1 Control Room Control Panel has caused the Loss of Ventilation cooling to the control room. The US has directed you to Restore the North Control Room Ventilation cooling per 01-OHP-4025-R-14, Restore Control Room Ventilation, using R-14-2, Restore Unit 1 North Control Room Air Conditioning Unit.

**NRC2007-Inp02**

<b>TITLE</b>
<b>PROGRAM</b>

**S/G 2/3 Level Control through AFW Unit Crosstie  
Initial Licensed Operator (ILT)**

<b>REVISION</b>
<b>TIME</b>

**0  
15 Minutes**

**SCOPE OF REVISION:**

Initial Issue

<b>AUTHOR</b>
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**Name:** John T Conrad  
**Signature:** \_\_\_\_\_

<b>DATE:</b>
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<b>FACILITY REVIEWER</b>
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**Name:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_

Facility Supervisor / Manager

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-Inp02</b> <b>SG 2/3 Level Control through AFW Unit Crosstie</b>	<b>REVISION: 0</b>
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**REFERENCES**

02-OHP-4025-LS-3-1 Steam Generator 2/3 Level Control

**TASK**

TASK ID: 05600290604, Establish Local Control of AFW to Maintain SG Level.  
K/A Statement: APE 054 AA1.01 /  
K/A Importance: RO: 4.5 SRO: 4.4

**EVALUATION SETTING**

Turbine Building, 4kV Room  
Aux Building 591' Elevation

**HANDOUTS**

02-OHP-4025-LS-3 Steam Generator 2/3 Level Control

**ATTACHMENTS**

None

**SIMULATOR SETUP**

None

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-Inp02 SG 2/3 Level Control through AFW Unit Crosstie</b>	<b>REVISION: 0</b>
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**TASK OBJECTIVES/STANDARDS**

Perform SG 2/3 level control operations locally in response to an Appendix R event forcing control room evacuation.

**EVALUATOR INSTRUCTIONS**

Provide the operator with a of 02-OHP-4025-LS-3, Steam Generator 2/3 Level Control

**TASK BREIFING**

You are an RO on Unit 2

Unit 2 has experience an Appendix R Fire event and is in the process of establishing local control. The Unit Supervisor has requested that you perform 02-OHP-4025-LS-3-1, Steam Generator 2/3 Level Control, to align the 2W MDAFP to Unit 1 SG 2/3.

Number: 02-OHP-4025 <b>LS-3</b>	Title: <b>STEAM GENERATOR 2/3 LEVEL CONTROL</b>	Revision Number: 3
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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**LS-3-1  
SG 2/3 Level Control Using 1W MDAFP**

**NOTE**

The following steps will be performed in Turbine Building on 613' elevation, in the Unit 2 4KV switchgear room mezzanine.

**1. Open Breakers:**

- 2-EZC-D-R3B, 2-FMO-222  
(2E MDAFP To #22 SG)
- 2-EZC-D-R3C, 2-FMO-232  
(2E MDAFP To #23 SG)

**NOTE**

The following steps will be performed in the Auxiliary Building on 591' elevation, in the SUFT area.

**2. Proceed To 2-LSI-2 And  
Locate The Following:**

- 2-BLI-120, #22 SG Wide  
Range Level
- 2-BLI-130, #23 SG Wide  
Range Level

(LS-3-1, page 1 of 3)

**Evaluator Note:** If this JPM is started in the Aux Building, then the operator may locate and describe operation of the 2-FMO-222 and 2-FMO-232 breakers once leaving the Aux Building.

**CT:** The operator locates and simulates opening the supply breakers for 2-FMO-222 and 2-FMO-232.

**CUE:** If operator attempts to open cubicle door to check backup break, inform operator that backup breaker is OPEN.

The operator locates indications on 2-LSI-2.

Number: 02-OHP-4025 <b>LS-3</b>	Title: <b>STEAM GENERATOR 2/3 LEVEL CONTROL</b>	Revision Number: <b>3</b>
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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**LS-3-1**  
**SG 2/3 Level Control Using 1W MDAFP**

**NOTE**

Control Room wide range SG level indication for #22 and #23 SGs will be lost when SG level indication is placed in Local.

**3. Place SG Level Indication Remote/Local Switches In Local:**

- 2-43-BLI-120, Steam Generator 2 Level  
2-BLI-120 Indicator Select
- 2-43-BLI-130, Steam Generator 3 Level  
2-BLI-130 Indicator Select

**4. Verify Auxiliary Feedwater To #22 And #23 Steam Generators - AVAILABLE:**

- 1W MDAFP - RUNNING

**CT:** The operator places the switches for BLI-120 and BLI-130 to the LOCAL position. Level indication rises on gauge.

**CUE:** The 1W MDAFP is running and with manual crosstie to Unit 2 open.

(LS-3-1, page 2 of 3)

Number: 02-OHP-4025 <b>LS-3</b>	Title: <b>STEAM GENERATOR 2/3 LEVEL CONTROL</b>	Revision Number: 3
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	LS-3-1 SG 2/3 Level Control Using 1W MDAFP	

**NOTE**

Auxiliary feedwater flowrate will depend on steam generator steaming rate and RCS cooldown rate.

**5. Maintain #22 And #23 Steam Generators Levels - 50% TO 55%:**

- Locally operate auxiliary feedwater flow control valves using handwheels:
  - 2-FMO-222, 2E/1W MDAFP To #22 SG
  - 2-FMO-232, 2E/1W MDAFP To #23 SG
- Monitor the following at 2-LSI-2:
  - 2-BLI-120, #22 SG Wide Range Level
  - 2-BLI-130, #23 SG Wide Range Level

**6. Report 02-OHP-4025-LS-3, Steam Generator 2/3 Level Control, LS-3-1, SG 2/3 Level Control Using 1W MDAFP, Complete Upon Initiating Auxiliary Feedwater Flow To #22 And #23 Steam Generators**

**7. Stand By For Further Instructions**

-END OF ATTACHMENT-

(LS-3-1, page 3 of 3)

**CT:** The operator locates and simulates manual operation of 2-FMO-222 and 2-FMO-232.

**CUE:** Operator hears flow noise through Aux Feedwater piping as FMOs are operated

The operator locates monitors SG WR level on 2-LSI-2

The operator reports task is complete.

**THIS JPM IS COMPLETE**

## Task Briefing

You are an RO on Unit 2

Unit 2 has experience an Appendix R Fire event and is in the process of establishing local control. The Unit Supervisor has requested that you perform 02-OHP-4025-LS-3-1, Steam Generator 2/3 Level Control, to feed Unit 2 SG 2/3 using the 1W MDAFP.

The 1 W MDAFP has been aligned with the crosstie (2-FW-127) open.

**NRC2007-Inp03**

<b>TITLE</b>	Perform Local RCS Isolation on Unit 2 (ALT)
<b>PROGRAM</b>	Initial Licensed Operator (ILT)

<b>REVISION</b>	0
<b>TIME</b>	20 Minutes

**SCOPE OF REVISION:**

Initial Issue: Derived from Audit04-Inp02.

**AUTHOR**

**Name:** John T Conrad  
**Signature:** \_\_\_\_\_

**DATE:**

**FACILITY  
REVIEWER**

**Name:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_

Facility Supervisor / Manager

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-Inp03</b> <b>Perform Local RCS Isolation</b>	<b>REVISION: 0</b>
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**REFERENCES**

Procedure: 02-OHP 4025.LTI-5, Isolation of RCS and SGBD

**TASK**

Task ID: 0021190601, Isolate the RCS for an Emergency Remote Shutdown

K/A Statement: APE 068 AK3.18  
K/A Importance: RO: 4.2 SRO: 4.5

K/A Statement: SYS 002 K1.04  
K/A Importance: RO: 2.8 SRO: 3.2

K/A Statement: SYS 002 K6.04  
K/A Importance: RO: 2.5 SRO: 2.9

K/A Statement: SYS 002 A2.01 4.3/4.4)  
K/A Importance: RO: 4.3 SRO: 4.4

**EVALUATION SETTING**

U-2 4KV Room.

**HANDOUTS**

Task Briefing  
02-OHP 4025.LTI-5, LTI-5-1

**ATTACHMENTS**

None

**SIMULATOR SETUP**

None

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-Inp03 Perform Local RCS Isolation</b>	<b>REVISION: 0</b>
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**TASK OBJECTIVES/STANDARDS**

The U2 RCS has been isolated in accordance with 2-OHP-4025-LTI-5-1.

**TASK BRIEFING**

The Shift Manager (SM) has implemented 02-OHP-4025.001.001, Emergency Remote Shutdown procedure. The Unit 2 control room has been evacuated and is NOT accessible. The SM directs you to perform local RCS and SGBD isolation in accordance with Section LTI-5-1 of 02-OHP 4025.LTI-5.

Number: 2-OHP-4025 <b>LTI-5</b>	Title: <b>SPURIOUS VALVE ISOLATION</b>	Revision Number: 3
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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**LTI-5-1  
Isolation Of RCS And SGBD**

1. Check Unit 2 Control Room - Go to Step 3. **ACCESSIBLE**

**NOTE**

Removing control power fuses from 2-CCV-CD circuit #47 will de-energize 2-SSV-A1 and 2-SSV-A2, 250 VDC Nuclear Sampling Valves Panel.

2. Fail The Following Valves Closed By Removing The Applicable Control Power Fuses:

- a. 2-CCV-AB, 250 VDC Distribution Panel:

Valve	Noun Name	Ckt #
2-DCR-320	#22 SG Blowdown Containment Isolation	42
2-DCR-330	#23 SG Blowdown Containment Isolation	44
2-NSO-23	Rx Vessel Head Vent	73
2-NSO-24	Rx Vessel Head Vent	73
2-NSO-63	PRZ Head Vent	74
2-NSO-64	PRZ Head Vent	74
2-QRV-112	RCS Loop 4 Letdown Isolation	75
2-NRV-151	PRZ PORV Control Circuit	79
2-NRV-152	PRZ PORV Control Circuit	80

(Step 2 Continued On Next Page)

(LTI-5-1, page 1 of 9)

Operator must go to step 3 due to Control Room being unavailable.

Number: 2-OHP-4025 <b>LTI-5</b>	Title: <b>SPURIOUS VALVE ISOLATION</b>	Revision Number: 3
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STEP      ACTION/EXPECTED RESPONSE      RESPONSE NOT OBTAINED

**LTI-5-1  
Isolation Of RCS And SGBD**

*(Step 2 Continued From Previous Page)*

b. 2-CCV-CD, 250 VDC  
Distribution Panel:

Valve	Noun Name	Ckt #
2-DCR-310	#21 SG Blowdown Containment Isolation	42
2-DCR-340	#24 SG Blowdown Containment Isolation	44
2-NSO-21	Rx Vessel Head Vent	47
2-NSO-22	Rx Vessel Head Vent	47
2-NSO-61	PRZ Head Vent	47
2-NSO-62	PRZ Head Vent	47
2-QRV-111	RCS Loop 4 Letdown Isolation	74
2-NRV-153	PRZ PORV Control Circuit	79

c. 2-VDAB-2, 250 VDC  
Distribution Panel:

Valve	Noun Name	Ckt #
2-QRV-113	RCS To Excess Letdown Isolation	16

*(Step 2 Continued On Next Page)*

(LTI-5-1, page 2 of 9)

**Continued:**

Operator must go to step 3 due to Control Room being unavailable.

Number: 2-OHP-4025 <b>LTI-5</b>	Title: <b>SPURIOUS VALVE ISOLATION</b>	Revision Number: 3
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STEP      ACTION/EXPECTED RESPONSE      RESPONSE NOT OBTAINED

**LTI-5-1  
Isolation Of RCS And SGBD**

*(Step 2 Continued From Previous Page)*

d. 2-VDCD-2, 250 VDC  
Distribution Panel:

Valve	Noun Name	Ckt #
2-QRV-51	CVCS Auxiliary PRZ Spray	11
2-QRV-114	RCS To Excess Letdown Isolation	18

e. Go to Step 4

3. De-energize The Following Circuits To Fail Closed The Applicable Reactor Coolant System And Steam Generator Blowdown System Isolation Valves:

*(Step 3 Continued On Next Page)*

(LTI-5-1, page 3 of 9)

Operator implements step 3 with Control Room unavailable.

Number: 2-OHP-A025 <b>LTI-5</b>	Title: <b>SPURIOUS VALVE ISOLATION</b>	Revision Number: 3
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<b>LTI-5-1 Isolation Of RCS And SGBD</b>	
	<i>(Step 3 Continued From Previous Page)</i>	
	a. Open 2-MCAB Circuit #16 in 2AB battery switchgear room on 609' elevation to de-energize the following:	
	<ul style="list-style-type: none"><li>• 2-DCR-320, #22 SGBD Containment Isolation</li><li>• 2-DCR-330, #23 SGBD Containment Isolation</li><li>• 2-NSO-23, Rx Vessel Head Vent</li><li>• 2-NSO-24, Rx Vessel Head Vent</li><li>• 2-NSO-63, PRZ Head Vent</li><li>• 2-NSO-64, PRZ Head Vent</li><li>• 2-QRV-112, RCS Loop 4 Letdown Isolation</li><li>• 2-NRV-151, PRZ PORV Control Circuit</li><li>• 2-NRV-152, PRZ PORV Control Circuit</li><li>• 2-CCV-AB, 250 VDC Distribution Panel, and all associated loads</li></ul>	
	b. Open 2-MDAB Circuit #1 in 2AB battery switchgear room on 609' elevation to de-energize the following:	
	<ul style="list-style-type: none"><li>• 2-QRV-113, RCS To Excess Letdown Isolation</li><li>• 2-VDAB-1, 250 VDC Distribution Panel, and all associated loads</li><li>• 2-VDAB-2, 250 VDC Distribution Panel, and all associated loads</li><li>• 2-CRAB, 250 VDC Distribution Panel, and all associated loads</li></ul>	
	<i>(Step 3 Continued On Next Page)</i>	
	<i>(LTI-5-1, page 4 of 9)</i>	

**CT:** Operator opens 2-MCAB circuit #16 breaker.

**Cue:** Breaker is in the OFF position.

**CT:** Operator opens 2-MDAB circuit #1 breaker.

**Cue:** Breaker is in the OFF position.

Number: 2-DHP-4025 <b>LTI-5</b>	Title: <b>SPURIOUS VALVE ISOLATION</b>	Revision Number: 3
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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**LTI-5-1  
Isolation Of RCS And SGBD**

*(Step 3 Continued From Previous Page)*

c. Open 2-MCCD Circuit #16  
in 2CD battery switchgear  
room on 625' elevation to  
de-energize the following:

- 2-DCR-310, #21 SGBD  
Containment Isolation
- 2-DCR-340, #24 SGBD  
Containment Isolation
- 2-NSO-21, Rx Vessel  
Head Vent
- 2-NSO-22, Rx Vessel  
Head Vent
- 2-NSO-61, PRZ Head Vent
- 2-NSO-62, PRZ Head Vent
- 2-QRV-111, RCS Loop 4  
Letdown Isolation
- 2-NRV-153, PRZ PORV  
Control Circuit
- 2-CCV-CD, 250 VDC  
Distribution Panel, and  
all associated loads

*(Step 3 Continued On Next Page)*

(LTI-5-1, page 5 of 9)

**CT:** Operator simulates opening 2-MCCD circuit #16  
breaker.

**Cue:** Breaker is in the OFF position.

Number: 2-OHP-4025 <b>LTI-5</b>	Title: <b>SPURIOUS VALVE ISOLATION</b>	Revision Number: <b>3</b>
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<b>LTI-5-1 Isolation Of RCS And SGBD</b>		
<i>(Step 3 Continued From Previous Page)</i>		
d.	Open 2-MDCD Circuit #1 in 2CD battery switchgear room on 625' elevation to de-energize the following: <ul style="list-style-type: none"> <li>• 2-QRV-51, CVCS Auxiliary PRZ Spray</li> <li>• 2-QRV-114, RCS To Excess Letdown Isolation</li> <li>• 2-VDCD-1, 250 VDC Distribution Panel, and all associated loads</li> <li>• 2-VDCD-2, 250 VDC Distribution Panel, and all associated loads</li> <li>• 2-AFC-1, 250 VDC Distribution Panel, and all associated loads</li> <li>• 2-AFC-2, 250 VDC Distribution Panel, and all associated loads</li> <li>• 2-CRCD, 250 VDC Distribution Panel, and all associated loads</li> </ul>	← <b>CT:</b> Operator simulates opening 2-MDCD circuit #1 breaker.  <b>Cue:</b> Breaker is in the OFF position.
4.	Check Pressurizer Spray Valves - OPEN, INTERMEDIATE, OR POSITION UNKNOWN: <ul style="list-style-type: none"> <li>• 2-NRV-163</li> <li style="text-align: center;">-OR-</li> <li>• 2-NRV-164</li> </ul>	← Operator contacts US to determine Spray status. <b>Cue:</b> Spray valve position is unknown.
<i>Go to Step 12.</i>		

(LTI-5-1 page 6 of 9)

Number: 2-OHP-4025 <b>LTI-5</b>	Title: <b>SPURIOUS VALVE ISOLATION</b>	Revision Number: 3
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<b>LTI-5-1 Isolation Of RCS And SGBD</b>		
5.	Check For Spray Flow From Reactor Coolant Pumps: • #23 RCP - RUNNING -OR- • #24 RCP - RUNNING	GO to Step 12.
<b>CAUTION</b> UNIT SUPERVISOR MUST BE NOTIFIED PRIOR TO PERFORMING STEP Step 6 TO DETERMINE IF TRIPPING OF #23 AND #24 REACTOR COOLANT PUMPS IS REQUIRED.		
6.	Trip #23 And #24 Reactor Coolant Pumps From Control Room	IF #23 and #24 RCPs can NOT be tripped from the control room, THEN go to Step 8.
7.	Go To Step 12	
8.	Check #23 Reactor Coolant Pump - RUNNING	Go to Step 10.

(LTI-5-1, page 7 of 9)

Operator contacts US to determine RCP status.  
**Cue:** #23 and #24 RCPs are running.

**Cue:** "The Unit Supervisor directs you to locally trip the #23 and #24 RCPs

Operator should go to step 8 since Control Room is unavailable.

Number: 2-OHP-4025 <b>LTI-5</b>	Title: <b>SPURIOUS VALVE ISOLATION</b>	Revision Number: <b>3</b>
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<b>LTI-5-1 Isolation Of RCS And SGBD</b>		
<b>NOTE</b> The following step will be performed in the 4KV switchgear room on 609' elevation.		
9.	<b>Locally Trip Breaker 2D9, #23 Reactor Coolant Pump:</b> a. Remove Breaker control power fuses b. Push mechanical trip pushbutton on front of breaker.	
10.	<b>Check #24 Reactor Coolant Pump - RUNNING</b>	Go to Step 12.
<b>NOTE</b> The following step will be performed in the 4KV switchgear room on 609' elevation.		
11.	<b>Locally Trip Breaker 2A4, #24 Reactor Coolant Pump:</b> a. Remove breaker control power fuses b. Push mechanical trip pushbutton on front of breaker.	

(LTI-5-1, page 8 of 9)

Page 10 of 12

**NOTE:** Operator must don minimal Flash Gear to perform fuse removal. (Only needs to be demonstrated once.)

**CT** Operator simulates donning Flash Gear and removing control power fuses.

**Cue:** Flash Gear is in place and the RED indicating light is NOT LIT.

**CT** Operator simulates depressing the mechanical trip pushbutton.

**Cue:** You here a loud noise. A GREEN target is showing and the springs charged indicators are NOT visible."

**CT** Operator simulates removing control power fuses.

**Cue:** The RED indicating light is NOT LIT.

**CT** Operator simulates depressing the mechanical trip pushbutton.

**Cue:** You here a loud noise. A GREEN target is showing and the springs charged indicators are NOT visible."

Number: 2-OHP-4025 <b>LTI-5</b>	Title: <b>SPURIOUS VALVE ISOLATION</b>	Revision Number: 3
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<b>LTI-5-1 Isolation Of RCS And SGBD</b>	
12.	Report 2-OHP-4025-LTI-5, Spurious Valve Isolation, LTI-5-1, Isolation Of RCS And SGBD, Complete	
13.	Stand By For Further Instructions	
-END OF ATTACHMENT-		
(LTI-5-1, page 9 of 9)		

Operator reports that LTI-5-1 is complete.

**Cue:** The US acknowledges LTI-5-1 is complete.

**EVALUATOR:** This Completes the JPM

## Task Briefing

The Shift Manager (SM) has implemented 02-OHP-4025.001.001, Emergency Remote Shutdown procedure. The Unit 2 control room has been evacuated and is NOT accessible. The SM directs you to perform local RCS and SGBD isolation in accordance with Section LTI-5-1 of 02-OHP 4025.LTI-5.

**NRC2007-SIM01**

**TITLE** Isolate Ruptured Steam Generator  
**PROGRAM** Initial Licensed Operator (ILT)

**REVISION** 0  
**TIME** 20 Minutes

**SCOPE OF REVISION:**

Initial Issue

**AUTHOR**

**Name:** John T Conrad  
**Signature:** \_\_\_\_\_

**DATE:**

**FACILITY  
REVIEWER**

**Name:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_

Facility Supervisor / Manager

<b>TITLE:</b>	<b>NRC2007-SIM01 (<i>Alternate Path</i>)</b> <b>Isolate Ruptured Steam Generator</b>	<b>REVISION: 0</b>
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**REFERENCES**

02-OHP-4023-E-3                      Rev. 10              Steam Generator Tube Rupture

Task:    EOP0020501                      Isolate Ruptured Steam Generator

K/A:    EPE 038 EA1.32              SGTR – Isolation of Ruptured Steam Generator

K/A IMPORTANCE:              RO:    4.6              SRO              4.7

**EVALUATION SETTING**

Unit 2 Simulator

**HANDOUTS**

Task Briefing  
Copy of 02-OHP-4023-E-3, Steam Generator Tube Rupture

**ATTACHMENTS**

None

**SIMULATOR SETUP**

1. Initialize simulator to IC 987 OR MODE 1 IC.
2. Place simulator in RUN.
3. **IMF MS22B @ 100** to Fail 2-MRV-220 OPEN
4. **IMF RC23B @ 40** causing a #22 SGTR of 400gpm.
5. Perform actions of E-0 and E-3 through step 2 as appropriate.
6. Verify/override MCM-231 open Light LIT/ON
7. Close SG #22 FMOs if SG Level is >13%
8. Freeze simulator.

<b>TITLE:</b>	<b>NRC2007-SIM01 (<i>Alternate Path</i>) Isolate Ruptured Steam Generator</b>	<b>REVISION: 0</b>
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**TASK OBJECTIVES/STANDARDS**

- Steam Generator #22 is isolated from Intact SGs and secondary systems.

**TASK BRIEFING**

You are an extra RO

A reactor trip with SI occurred due to a Steam Generator Tube Rupture. 02-OHP-4023-E-0 and 02-OHP-4023-E-3 have been implemented. 02-OHP-4023-E-3 is still in progress. Steam Generator #22 has been identified as the Only ruptured SG.

The Unit Supervisor directs you to perform Step 3 of 02-OHP-4023-E-3 "Isolate Flow From Ruptured SG(s)."

TITLE:

NRC2007-SIM01 (Alternate Path)  
Isolate Ruptured Steam Generator

REVISION: 0

Number: 02-OHP-4023 <b>E-3</b>	Title: <b>STEAM GENERATOR TUBE RUPTURE</b>	Revision Number: 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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**CAUTION**

- If the TDAPP is the only available source of feed flow, steam supply to the TDAPP must be maintained from at least one SG to prevent loss of heat sink.
- At least one SG must be maintained available for RCS cooldown to prevent loss of heat sink.

**3. Isolate Flow From Ruptured SG(s):**

a. Adjust ruptured SG(s) PORV controller setpoint to 1040 psig

b. Check ruptured SG(s) PORV - CLOSED

- 2-MRV-213 (SG 21)
- 2-MRV-223 (SG 22)
- 2-MRV-233 (SG 23)
- 2-MRV-243 (SG 24)

b. **WHEN** ruptured SG pressure is less than 1040 psig, **THEN** verify SG PORV closed.

**IF** PORV can **NOT** be closed, **THEN** locally close PORV or associated isolation valve:

- 2-MSV-101-1 (2-MRV-213)
- 2-MSV-101-2 (2-MRV-223)
- 2-MSV-101-3 (2-MRV-233)
- 2-MSV-101-4 (2-MRV-243)

(Step 3 Continued On Next Page)

CT: Adjusts 2-MRV-223 controller setpoint to 1040 psig

Operator checks 2-MRV-223 CLOSED:

- Annunciator Panel 215 Drop 22 is NOT Lit
- Position meter indicates 0%

Number 02-OHP-4023 <b>E-3</b>	Title: <b>STEAM GENERATOR TUBE RUPTURE</b>	Revision Number: 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<i>(Step 3 Continued From Previous Page)</i>		
c.	Close steam supply valve from ruptured SG(s) to TDAPP: <ul style="list-style-type: none"> <li>• 2-MCM-221 (SG 22)</li> <li>• 2-MCM-231 (SG 23)</li> </ul>	c. <b>IF</b> at least one MDAPP is running, <b>THEN</b> manually trip TDAPP.  <b>IF</b> TDAPP can <b>NOT</b> be manually tripped, <b>THEN</b> locally close and deenergize steam supply valve from ruptured SG(s) to TDAPP: <ul style="list-style-type: none"> <li>• 2-MCM-221 (2-AM-A-1B)</li> <li>• 2-MCM-231 (2-AM-D-R6C)</li> </ul>
d.	Check blowdown isolation valve for ruptured SG(s) - CLOSED <ul style="list-style-type: none"> <li>• 2-DCR-310 (SG 21)</li> <li>• 2-DCR-320 (SG 22)</li> <li>• 2-DCR-330 (SG 23)</li> <li>• 2-DCR-340 (SG 24)</li> </ul>	d. Manually close valve(s).  <b>IF</b> valve(s) can <b>NOT</b> be manually closed, <b>THEN</b> locally close associated isolation valve(s): <ul style="list-style-type: none"> <li>• 2-BD-103-1 (2-DCR-310)</li> <li>• 2-BD-103-2 (2-DCR-320)</li> <li>• 2-BD-103-3 (2-DCR-330)</li> <li>• 2-BD-103-4 (2-DCR-340)</li> </ul>
e.	Check blowdown sample valve for ruptured SG(s) - CLOSED <ul style="list-style-type: none"> <li>• 2-DCR-301 (SG 21)</li> <li>• 2-DCR-302 (SG 22)</li> <li>• 2-DCR-303 (SG 23)</li> <li>• 2-DCR-304 (SG 24)</li> </ul>	e. Manually close valve(s).  <b>IF</b> valve(s) can <b>NOT</b> be manually closed, <b>THEN</b> locally close associated isolation valve(s): <ul style="list-style-type: none"> <li>• 2-NS-107 (2-DCR-301)</li> <li>• 2-NS-106 (2-DCR-302)</li> <li>• 2-NS-105 (2-DCR-303)</li> <li>• 2-NS-108 (2-DCR-304)</li> </ul>
<i>(Step 3 Continued On Next Page)</i>		

CT: Places 2-MCM-221 to CLOSE

Verifies SG Blowdown Isolation Valve 2-DCR-320 is CLOSED

Verifies SG Blowdown Sample Valve 2-DCR-302 is CLOSED

Number: 02-OHP-4023 E-3	Title: <b>STEAM GENERATOR TUBE RUPTURE</b>	Revision Number: 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 3 Continued From Previous Page)	
	f. Place 2-DRV-407, SG stop valves drain valve in CLOSE	
	g. Check 2-DRV-407 - CLOSED	g. Locally close 2-MS-141, main steam leads drain DR-86 to condenser A shutoff valve (591' condenser A drip receiver in overhead).
	h. Check steam line warming valves - CLOSED • 2-MS-148 (SG 21) • 2-MS-147 (SG 24)	h. IF any steam line warming valve is known to be open, THEN locally close valve(s).
	i. Trip ruptured SG(s) stop valve closed: • 2-MRV-210 (SG 21) • 2-MRV-220 (SG 22) • 2-MRV-230 (SG 23) • 2-MRV-240 (SG 24)	i. Perform the following: 1) Trip close all remaining SG stop valves. 2) Place steam dumps in OFF. 3) Implement Attachment A (Page 43) while continuing with this procedure. 4) Use intact SG(s) PORV for steam dump.  IF any ruptured SG can NOT be isolated from at least one intact SG, THEN go to ECA-3.1, SGTR With Loss Of Reactor Coolant - Subcooled Recovery Desired, Step 1.
	(Step 3 Continued On Next Page)	

Places SG Stop valve drain Valve 2-DCR-407 to CLOSE

Verifies 2-DRV-407 is CLOSED

Checks Steam Line Warming Valves 2-MS-148 and 2-MS-147 are CLOSED

**CUE:** If asked, 2-MS-147 and -148 are CLOSED.

{**NOTE:** Located in plant above the Unit 2 Lower Airlock}

**CT:** Places SG Stop Valve Dump Valve 2-MRV-221 to "Trip" CLOSE position (May also try to Trip 2-MRV-222 Dump Valve)

**CT:** Identifies that 2-MRV-220 did NOT CLOSE

**CT:** Places 2-MRV-211, 2-MRV-231, and 2-MRV-241 to "Trip" CLOSE position (To Close 2-MRV-210, 2-MRV-230, and 2-MRV-240)

**CT:** Places Steam Dumps in "OFF" position

**CUE:** When acknowledged, "The US directs you to perform Attachment A. The crew will continue on in this procedure."

**NOTE:** The Candidate should then locate and perform Attachment A (Provide Attachment A copy to candidate)

Number: 02-OHP-4023 E-3	Title: STEAM GENERATOR TUBE RUPTURE	Revision Number: 13
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Attachment A  
Ruptured SG Isolation With Failed SG Stop Valve

NOTE

Completion of this Attachment is **NOT** required prior to initiating RCS cooldown and subsequent recovery steps of the main procedure.

1. Verify aux steam loads are supplied from UNIT 1 or the Plant Heating Boiler
2. Verify the following valves - CLOSED
  - Main feed pump main steam isolation valves:
    - 2-ARV-11 (East MFP)
    - 2-ARV-12 (West MFP)
  - SG lead drain pot isolation valve:
    - 2-DRV-407
  - Main feed preheating steam supply valves to HP heaters:
    - 2-MRV-501
    - 2-MRV-502
    - 2-MRV-601
    - 2-MRV-602
  - Unit reheater isolation valves from main steam:
    - 2-MMO-431
    - 2-MMO-432
    - 2-MRV-411
    - 2-MRV-412

(Step 2 Continued On Next Page)

(Attachment A, page 1 of 2)

Verifies that Aux Steam is supplied by Unit 1.

**CUE:** "Unit 1 reports that they are supplying Aux steam loads."

Verify Main FW pump Steam Isolations 2-ARV-11 and 2-ARV-12 are CLOSED

Verifies 2-DRV-407 is CLOSED

Verifies Feed Preheating Steam Supply valves – CLOSED

- 2-MRV-501
- 2-MRV-502
- 2-MRV-601
- 2-MRV-602

**CUE:** If required, " MRV-501, 502, 601, & 602 are locally verified closed."

Verifies Reheater Isolation valves – CLOSED

- 2-MMO-431
- 2-MMO-432

**CT:** Operator CLOSES 2-MRV-411 and 412.

Number 02-OHP-4023 <b>E-3</b>	Title. <b>STEAM GENERATOR TUBE RUPTURE</b>	Revision Number: 13
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**Attachment A**  
**Ruptured SG Isolation With Failed SG Stop Valve**  
*(Step 2 Continued From Previous Page)*

- Steam dump valves:
  - 2-URV-110
  - 2-URV-120
  - 2-URV-130
  - 2-URV-111
  - 2-URV-112
  - 2-URV-124
  - 2-URV-125
  - 2-URV-135
  - 2-URV-136
- Startup air ejectors steam supply valve:
  - 2-SMO-401
- Main turbine sealing steam supply valves:
  - 2-SRV-26
  - 2-SRV-27
- Main steam lead drain valves:
  - 2-DMO-425
  - 2-DMO-426
  - 2-DMO-427
  - 2-DMO-428
  - 2-DMO-450
  - 2-DMO-451
- Turbine bypass header drain valves:
  - 2-DRV-405
  - 2-DRV-406

-END OF ATTACHMENT-

(Attachment A, page 2 of 2)

Verifies Steam Dump valves – CLOSED:

- 2-URV-110
- 2-URV-120    2-URV-124
- 2-URV-130    2-URV-125
- 2-URV-111    2-URV-135
- 2-URV-112    2-URV-136

Verifies Startup Air Ejectors Steam supply valve - CLOSED:

- 2-SMO-401

**CT:** Places Turbine Sealing Steam Supply valves – CLOSED:

- 2-SRV-26
- 2- SRV-27

Verifies Main Steam Lead Drain valves – CLOSED:

- 2-DMO-425    2-DMO-428
- 2-DMO-426    2-DMO-450
- 2-DMO-427    2-DMO-451

Verifies Turbine Bypass Drain valves – CLOSED:

- 2-DRV-405
- 2-DRV-406

**EVALUATOR:** JPM is COMPLETE

**TITLE:**

**NRC2007-SIM01 (Alternate Path)**  
**Isolate Ruptured Steam Generator**

**REVISION: 0**

Number: 02-OHP-4023 <b>E-3</b>	Title: <b>STEAM GENERATOR TUBE RUPTURE</b>	Revision Number: 13
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STEP    ACTION/EXPECTED RESPONSE    RESPONSE NOT OBTAINED

**CAUTION**

- If the TDAPP is the only available source of feed flow, steam supply to the TDAPP must be maintained from at least one SG to prevent loss of heat sink.
- At least one SG must be maintained available for RCS cooldown to prevent loss of heat sink.

**3. Isolate Flow From Ruptured SG(s):**

a. Adjust ruptured SG(s)  
PORV controller setpoint  
to 1040 psig

b. Check ruptured SG(s)  
PORV - CLOSED

- 2-MRV-213 (SG 21)
- 2-MRV-223 (SG 22)
- 2-MRV-233 (SG 23)
- 2-MRV-243 (SG 24)

b. **WHEN** ruptured SG pressure is  
less than 1040 psig,  
**THEN** verify SG PORV closed.

**IF** PORV can **NOT** be closed,  
**THEN** locally close PORV or  
associated isolation valve:

- 2-MSV-101-1 (2-MRV-213)
- 2-MSV-101-2 (2-MRV-223)
- 2-MSV-101-3 (2-MRV-233)
- 2-MSV-101-4 (2-MRV-243)

(Step 3 Continued On Next Page)

## Task Briefing

You are an extra RO

A reactor trip with SI occurred due to a Steam Generator Tube Rupture. 02-OHP-4023-E-0 and 02-OHP-4023-E-3 have been implemented. 02-OHP-4023-E-3 is still in progress. Steam Generator #22 has been identified as the Only ruptured SG.

The Unit Supervisor directs you to perform Step 3 of 02-OHP-4023-E-3 "Isolate Flow From Ruptured SG(s)."

**NRC2007-SIM02**

<b>TITLE</b>
<b>PROGRAM</b>

Perform Turbine Driven AFW Pump Trip & Throttle Valve Operability Surveillance

Initial Licensed Operator (ILT)

<b>REVISION</b>
<b>TIME</b>

0

20 Minutes

**SCOPE OF REVISION:** Derived from NRC2006-SIM06

<b>AUTHOR</b>
---------------

**Name:** John T Conrad  
**Signature:** \_\_\_\_\_

<b>DATE:</b>
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<b>FACILITY REVIEWER</b>
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**Name:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_

Facility Supervisor / Manager



<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-SIM02</b> Perform Turbine Driven AFW Pump Trip & Throttle Valve Operability Surveillance	<b>REVISION: 0</b>
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**TASK OBJECTIVES/STANDARDS**

Performs TDAFW Trip & Throttle Valve Surveillance, observing all applicable precautions and limitations, and procedure steps.

**TASK BRIEFING**

Your are the Extra RO

The US directs you to Perform 02-OHP-4030-STP-017TV, Turbine Driven AFW Pump Trip & Throttle Valve Operability Surveillance.

The TDAFP has been declared inoperable and LCO 3.7.5 has been entered for this Surveillance. An AEO has been briefed. The AEO has verified the TDAFP is ready for Start and is standing by.

There is No Identified Primary to Secondary leakage.



Continuous	02-OHP-4030-STP-017TV	Rev. 10	Page 6 of 12
Turbine Driven Auxiliary Feed Pump Trip And Throttle Valve Operability Test			

4.9 Locally open 2-FRV-256, TDAFP 2-PP-4 Test Valve. \_\_\_\_\_

4.10 Start the TDAFP from the Control Room by performing the following: \_\_\_\_\_

4.10.1 Record Stopwatch Data.

	Instrument No.	Next due cal date
Primary	_____	___/___/___
Secondary	_____	___/___/___

4.10.2 Open and time 2-QT-506, TDAFP Trip and Throttle Valve from the Control Room.

IST MIN time from TDB fig 19.1	As Found time	IST MAX time from TDB fig 19.1	STOPWATCH (Circle)
___13.0___ sec	_____ sec	___17.4___ sec	Pri/Sec
Acceptance criteria: "As found time" ≤ IST MAX time- Yes / No (Circle)			
IF "As found time" is outside the IST Limits THEN immediate retest is NOT permitted according to Precautions & Limitations, step 3.10.			

4.10.3 Allow TDAFP speed to stabilize prior to continuing. \_\_\_\_\_

4.11 Using the trip push button, trip the TDAFP from the Control Room. \_\_\_\_\_

4.12 After the TDAFP Trip and Throttle Valve tripped, wait greater than or equal to 30 seconds and run the TDAFP Trip and Throttle Valve (T&TV) - CLOSED. \_\_\_\_\_

4.13 Locally close 2-FW-263, TDAFP Test Valve 2-FRV-256 Outlet Shutoff Valve. \_\_\_\_\_

4.14 Locally close 2-FRV-256, TDAFP 2-PP-4 Test Valve. \_\_\_\_\_

4.15 Close 2-CA-6530. \_\_\_\_\_

4.16 Place 2-FRV-256, TDAFP 2-PP-4 Test Valve control switch in - NORMAL. \_\_\_\_\_

CT: Operator Directs AEO to Open 2-FRV-256.

CUE: (**Simulator Booth Operator = MRF FWR37 to 100%**)  
AEO reports that 2-FRV-256 is Open and the TDAFP ready for Starting

CT: Operator starts TDAFP (Place 2-QT-506 to OPEN) and times opening with Stop Watch

{NOTE: US Acknowledges TDAFP start and annunciator clear.}

CT: Operator Records Start Time and verifies it is Acceptable.

CT: After the TDAFP speed has stabilized, Operator Depresses the TDAFP TRIP PUSHBUTTON

CT: Operator runs TDAFP Trip & Throttle Valve CLOSED after 30 seconds. (Place 2-QT-506 to CLOSED)

Operator Directs AEO to CLOSE 2-FW-263, 2-FRV-256 & 2-CA-6530.

CUE: AEO reports 2-FW-263 TDAFP Test Valve Outlet Shutoff is CLOSED

CUE: (**Simulator Booth Operator = MRF FWR37 to 0%**)  
AEO reports that 2-FRV-256 is CLOSED

CUE: AEO reports 2-CA-6530, 50 PSI Control Air to 2-XSO-256 is CLOSED and has been Independently verified Closed.

Operator places CS for 2-FRV-256 to NORMAL.

Continuous	02-OHP-4030-STP-017TV	Rev. 10	Page 7 of 12
Turbine Driven Auxiliary Feed Pump Trip And Throttle Valve Operability Test			

4.17 Verify the following TDAFP Discharge Valves to the Steam Generators – OPEN:

- 2-FMO-211, SG 1 Feed From TDAFP. \_\_\_\_\_  
IV
- 2-FMO-221, SG 2 Feed From TDAFP. \_\_\_\_\_  
IV
- 2-FMO-231, SG 3 Feed From TDAFP. \_\_\_\_\_  
IV
- 2-FMO-241, SG 4 Feed From TDAFP. \_\_\_\_\_  
IV

4.18 Check TDAFP 2-PP-4 mechanical and electrical trips reset and pump ready for AUTO start.

- Annun. 213 Drop 50 — NOT LIT. \_\_\_\_\_
- Annun. 214 Drop 10 — NOT LIT. \_\_\_\_\_

4.19 Locally verify the TDAFP trip and throttle valve (T&TV) is latched.

\_\_\_\_\_ Time \_\_\_\_\_ Date \_\_\_\_\_  
Signature

4.20 Independently verify the trip and throttle valve latched.

\_\_\_\_\_ Time \_\_\_\_\_ Date \_\_\_\_\_  
Independently Verified By

4.21 Section 4.0 verified complete by:

\_\_\_\_\_ Time \_\_\_\_\_ Date \_\_\_\_\_  
Signature

{**NOTE:** Provide CUE that second verification is complete when asked.}

**CT:** Operator holds CS for 2-FMO-211 to OPEN and verifies OPEN

**CT:** Operator holds CS for 2-FMO-221 to OPEN and verifies OPEN

**CT:** Operator holds CS for 2-FMO-231 to OPEN and verifies OPEN

**CT:** Operator holds CS for 2-FMO-241 to OPEN and verifies OPEN

Operator verifies that Panel 213 Drop 50 & Panel 214 Drop 10 are NOT LIT

**CUE:** If Required, “The TDAFP Trip/Throttle valve has been verified latched locally.”

**THIS JPM IS COMPLETE**

## **Task Briefing**

Your are the Extra RO

The US directs you to Perform 02-OHP-4030-STP-017TV, Turbine Driven AFW Pump Trip & Throttle Valve Operability Surveillance.

The TDAFP has been declared inoperable and LCO 3.7.5 has been entered for this Surveillance. An AEO has been briefed. The AEO has verified the TDAFP is ready for Start and is standing by.

There is No Identified Primary to Secondary leakage.

**NRC2007-SIM03**

<b>TITLE</b>
<b>PROGRAM</b>

**RCCA Operability Checks**  
**Initial Licensed Operator (ILT)**

<b>REVISION</b>
<b>TIME</b>

**0**  
**15 Minutes**

**SCOPE OF REVISION:** Derived from 2002 NRC Exam Simulator JPM N02-01

<b>AUTHOR</b>
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**Name:** John T Conrad  
**Signature:** \_\_\_\_\_

<b>DATE:</b>
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<b>FACILITY REVIEWER</b>
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**Name:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_

Facility Supervisor / Manager

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-SIM03 RCCA OPERABILITY CHECKS</b>	<b>REVISION: 0</b>
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**REFERENCES**

02-OHP-4030-212-015, Full Length Control Rod Operability Test

Task: 0120130201 Perform Full Length Control Rod Operability Test

K/A REFERENCE:           SYS 014 A4.02  
K/A IMPORTANCE:        RO   3.4   SRO 3.2

**EVALUATION SETTING**

Simulator

**HANDOUTS**

Task Briefing  
Copy of 02-OHP-4030-212-015 annotated to perform selected Control Rod Bank

**ATTACHMENTS**

None

**SIMULATOR SETUP**

Initialize the Simulator to any MOL at-power IC.  
Reset Control Rods, check Step Counters and verify Rod Bank Update is complete

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-SIM03 RCCA OPERABILITY CHECKS</b>	<b>REVISION: 0</b>
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**TASK OBJECTIVES/STANDARDS**

Operator performs a Full Length Operability Test on Control Rod Bank 'A' in accordance with 02-OHP-4030-212-015, Attachment 1, while observing all applicable precautions and limitations and procedural steps.

**TASK BRIEFING**

MTI has completed maintenance on the step counters for Control Bank A.

The Unit Supervisor directs you to perform a Full Length Operability test on Control Bank A in accordance with procedure 02-OHP-4030-212-015, Attachment 1, Step 4.8.

All procedure prerequisites, precautions and limitations have been met.

PPC turn on code for Rod Position Screen is "RSVANN."

Continuous	02-OHP-4030-212-015	Rev. 0	Page 18 of 38
Full Length Control Rod Operability Test			
Attachment 1	Control Rod Testing in Modes 1 and 2		Pages: 6 - 28

4.8 Test Control Bank A positions as follows:

4.8.1 Record initial position of rods (PPC preferred):

Group 1 Demand	H6	H10
Group 2 Demand	F8	K8

4.8.2 Place Full Length Bank Selector switch in the CONTROL BANK A position.

4.8.3 Monitor reactor power and RCS temperature during rod movement.

**NOTE:** Annunciator 210 Drop 31, 'ROD BANK A LOW' can be expected if Control Bank A rods are inserted to less than 10 steps above minimum program value.

4.8.4 Insert Control Bank A while performing the following:

- a. Verify the "Rods Inserting" lamp - LIT.
- b. Verify rod movement.
- c. **WHEN** all Control Bank A rods have moved at least 8 steps by PPC or IRPI indication, **THEN** stop rod movement **AND** record position:

Group 1 Demand	H6	H10
Group 2 Demand	F8	K8

4.8.5 Return rods to original demand position.

General CUES:

1. Provide candidate annotated copies of:  
02-OHP-4030-212-015
2. All procedure prerequisites, precautions and limitations have been met.

Correctly records position using step counters on Flux panel

**CT:** Places selector switch in correct position

**CUE:** Another RO will monitor reactor power and RCS temperature.

**CT:** Inserts all rods in the group at least 8 steps  
Monitors indications to verify expected results

**NOTE:** Drop 31 "Rod Bank A low" on Panel 210 will alarm as Bank A rods are inserted. (Drop 29 "Rod Sequence Violation" may alarm depending on the amount of steps rods are inserted.)

Ensures each rod in group has moved a minimum of 8 steps

Correctly records position using step counters on Flux panel

**CT:** Withdraws all rods in the group at least to original position  
**NOTE:** Drop 31 "Rod Bank A low" on panel 210 should clear

Continuous	02-OHP-4030-212-015	Rev. 0	Page 19 of 38
Full Length Control Rod Operability Test			
Attachment 1	Control Rod Testing in Modes 1 and 2	Pages: 6 - 28	

4.8.6 [Current TS]  
IF rods are inadvertently withdrawn past 231 steps, THEN perform Step 4.12 AND take appropriate actions specified in TS 3.1.3.2.b.

[Improved TS]  
IF rods are inadvertently withdrawn past 231 steps, THEN perform Step 4.12 AND take appropriate actions specified in TS 3.1.7, Action C.

4.8.7 Record final position of rods:

Group 1 Demand	H6	H10
Group 2 Demand	F8	K8

4.8.8 Verify all rod positions are within the ARM of group demand.

4.8.9 Verify Annunciator 210, Drop 29, ROD SEQUENCE VIOLATION, is clear.

4.8.10 Acceptance Criteria:

Verify all Control Bank A rods have moved at least 8 steps in any one direction by PPC indication (see Precaution 3.4 for inoperable PPC indication).

Does not exceed 231 steps for any rod in group

Correctly records position using step counters on the Flux Panel

Uses the Tech Data Book 2 Figure 13.1 or Operator Aid on Flux Panel to verify Allowed Rod Misalignment (ARM)

Verifies alarm clear

Verifies test results are met

Candidate reports Control Rod Bank A test is complete

Evaluator: "JPM IS COMPLETE"

## **Task Briefing**

MTI has completed maintenance on the step counters for Control Bank A.

The Unit Supervisor directs you to perform a Full Length Operability test on Control Bank A in accordance with procedure 02-OHP-4030-212-015, Attachment 1, Step 4.8.

All procedure Prerequisites, Precautions and Limitations have been met.

PPC turn on code for Rod Position Screen is "RSVANN."

**NRC2007-SIM04**

**TITLE**

**Establish Letdown In Accordance With 02-OHP-4023-SUP-015 (ALT)**

**REVISION**

**0**

**PROGRAM**

**Initial Licensed Operator (ILT)**

**TIME**

**15 Minutes**

**SCOPE OF REVISION:**

Initial Issue.

**DATE:**

**AUTHOR**

**Name:**

John T Conrad

**Signature:**

**FACILITY REVIEWER**

**Name:**

**Signature:**

Facility Supervisor / Manager

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-SIM04</b> <b>Establish Letdown IAW 02-OHP-4023-SUP-015</b> <b>(Alternate Path to Excess Letdown)</b>	<b>REVISION: 0</b>
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**REFERENCES**

01-OHP-4023-SUP-015, OPERATION OF NORMAL AND EXCESS LETDOWN

TASK ID: 0030020101 Place Letdown in Service  
0030240101 Place Excess Letdown in Service

K/A Statement: SYS 014 A4.02  
K/A Importance: 3.4/3.2

K/A Statement: 2.1.32 Ability to explain and apply all system limits and precautions.  
K/A Importance: RO: 3.4 SRO: 3.8

**EVALUATION SETTING**

Simulator

**HANDOUTS**

01-OHP-4023-SUP-015, OPERATION OF NORMAL AND EXCESS LETDOWN  
Task Briefing

**ATTACHMENTS**

None

**SIMULATOR SETUP**

Reset to **IC 992** (IC 38 with SGTR steps performed through E-3 Step 26)  
Verify **ZGI101QRV111** override to **CLOSE**

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-SIM04</b> <b>Establish Letdown IAW 02-OHP-4023-SUP-015</b> <b>(Alternate Path to Excess Letdown)</b>	<b>REVISION: 0</b>
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**TASK OBJECTIVES/STANDARDS**

Place CVCS letdown in service in accordance with 2-OHP-4023-SUP-015. Recognize that normal letdown cannot be established and place Excess Letdown in service (Alternate Path).

**EVALUATOR INSTRUCTIONS**

Provide the operator with a completed copy of 02-OHP-4023-SUP-015, OPERATION OF NORMAL AND EXCESS LETDOWN

**TASK BREIFING**

You are the RO on Unit 2.

Unit 2 is responding to a SG Tube Rupture in accordance with 02-OHP-4023-E-3, Steam Generator Tube Rupture. The Unit Supervisor has requested that you place letdown in service in accordance with the 02-OHP-4023-SUP-015, OPERATION OF NORMAL AND EXCESS LETDOWN, per current procedure directions.

Number: 02 OHP 4023 SUP.015	Title: <b>OPERATION OF NORMAL AND EXCESS LETDOWN</b>	Revision Number: 0
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1. **Check Control Air To Containment Established:** **WHEN** control air to containment is established, **THEN** do Step 2.

a. Control air to containment valves - OPEN Continue with procedure and step in effect.

- 2-XCR-100
- 2-XCR-101
- 2-XCR-102
- 2-XCR-103

2. **Establish Normal Letdown:** **IF** excess letdown is available, **THEN** go to Attachment A (Page 5). **IF** excess letdown is **NOT** available, **THEN** return to procedure and step in effect.

a. Place 2-QRV-302, cold letdown path select in DIVERT (RC FILTER)

b. Verify letdown orifice valves - CLOSED

- 2-QRV-160
- 2-QRV-161
- 2-QRV-162

c. Open CVCS letdown containment isolation valves:

- 2-QCR-300
- 2-QCR-301

d. Reset **AND** open 2-CRV-470, letdown HX temperature control valve

e. Open RC letdown to regen HX valves:

- 2-QRV-111
- 2-QRV-112

f. Adjust 2-QRV-301, letdown pressure control to 50% demand

(Step 2 Continued On Next Page)

Operator verifies air is available to containment

Operator places QRV-302 in the DIVERT position.

Operator verifies orifice isolation valves are closed (may give switches a 'green target' is desired)

Operator verifies QCR-300/301 open.

Operator resets and opens 2-CRV-470.

**CT:** Operator attempts to open QRV-111.

**NOTE:** QRV-111 will not open.

**CUE:** If asked inform operator that Excess Letdown is desired.

**CT:** Operator goes to Attachment A in accordance with Step 2 RNO due to failure of QRV-111 to open.

Number: 02 OHP 4023 SUP.015	Title: <b>OPERATION OF NORMAL AND EXCESS LETDOWN</b>	Revision Number: 0
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<b>Attachment A Placing Excess Letdown In Service</b>		
1.	<b>Check If RCP Seal Return Flow Should Be Established:</b>	Return to procedure and step in effect.
a.	CCP suction - ALIGNED TO RWST OR VCT	
b.	Establish CCW to seal water heat exchanger if necessary	
c.	Open RCP seal water return valves: <ul style="list-style-type: none"><li>• 2-QCM-250</li><li>• 2-QCM-350</li></ul>	

Operator verifies CCP suction is aligned as required.

**CUE:** CCW flow has been established to seal water heat exchanger.

**CT:** Operator opens QCM-250/350.

(Attachment A, page 1 of 2)

Number: 02 OHP 4023 <b>SUP.015</b>	Title: <b>OPERATION OF NORMAL AND EXCESS LETDOWN</b>	Revision Number: 0
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<b>Attachment A</b>		
<b>Placing Excess Letdown In Service</b>		
<b>2. Establish Excess Letdown:</b>		
a.	Open CCW to excess letdown HX containment isolation valves:	
	<ul style="list-style-type: none"> <li>• 2-CCR-460</li> <li>• 2-CCR-462</li> </ul>	
b.	Open excess letdown to HX valves:	
	<ul style="list-style-type: none"> <li>• 2-QRV-113</li> <li>• 2-QRV-114</li> </ul>	
c.	Verify 2-QRV-171, excess letdown HX outlet select in desired position:	
	<ul style="list-style-type: none"> <li>• VCT (Preferred Position)</li> </ul> <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> <li>• RCDT (Alternate Position)</li> </ul>	
d.	Slowly open 2-QRV-170, excess letdown HX outlet pressure control valve while maintaining excess letdown temperature less than 195°F	
<b>3. Return to Procedure And Step In Effect</b>		
-END OF ATTACHMENT-		
(Attachment A, page 2 of 2)		

**CT:** Operator opens 2-CCR-460/462

**CT:** Operator Opens QRV-113/114.

**CUE:** If asked, inform operator that excess letdown return will be aligned to the preferred flowpath.

Operator places QRV-171 in the VCT position

**CT:** Operator opens QVR-170 while maintaining excess letdown temperature less than 195°F.

**EVALUATOR:** "This Completes the JPM"

## **Task Briefing**

You are the RO on Unit 2.

Unit 2 is responding to a SG Tube Rupture in accordance with 02-OHP-4023-E-3, Steam Generator Tube Rupture. The Unit Supervisor has requested that you place letdown in service in accordance with the 02-OHP-4023-SUP-015, OPERATION OF NORMAL AND EXCESS LETDOWN, per current procedure directions.

**NRC2007-SIM05**

**TITLE**  
**PROGRAM**

**Restore DG Power to T21D**  
**Initial Licensed Operator (ILT)**

**REVISION**  
**TIME**

**0**  
**15 Minutes**

**SCOPE OF REVISION:**

Initial Issue: Derived from Audit02-Sim09

**AUTHOR**

**Name:** John T Conrad  
**Signature:** \_\_\_\_\_

**DATE:**

**FACILITY REVIEWER**

**Name:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_

Facility Supervisor / Manager

<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-SIM05 (Alternate Path) Restore DG Power to T21D</b>	<b>REVISION: 2</b>
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**REFERENCES**

02-OHP-4023-SUP-012, Rev. 2 Restoring DG Power

K/A Cross Reference: 062-A4.01

K/A Importance: SRO 3.1 RO 3.3

K/A Cross Reference: 062-A2.05

K/A Importance SRO 3.3 RO 2.9

**EVALUATION SETTING**

Simulator

**HANDOUTS**

Task Briefing Sheet

02-OHP-4023-SUP-012 Attachment D

**SIMULATOR SETUP**

1. Reset to IC 987 with SGTR E-3 and Power Lost to T21D
2. IC created with:
  - Malfunctions
    - a. EG12C DG2CD Output Breaker T21C3 Fail to Close
    - b. EG12D DG2CD Output Breaker T21D8 Fail to Close
    - c. EG16B Prevent Blackout DG Start
    - d. RP19C Prevent DG SI start
    - e. Global Malfunction 101TD12 to lose T21D power
3. VERIFY T21D Pumps in PTL
 

<ol style="list-style-type: none"> <li>a. East MDAFW PP</li> <li>b. East CCP</li> <li>c. East RHR PP</li> <li>d. North SI PP</li> </ol>	<ol style="list-style-type: none"> <li>e. East CTS PP</li> <li>f. East CCW PP</li> <li>g. North NESW PP</li> </ol>
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<b>COURSE NUMBER AND TITLE:</b>	<b>NRC2007-SIM05 (Alternate Path) Restore DG Power to T21D</b>	<b>REVISION: 2</b>
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**TASK OBJECTIVES/STANDARDS**

Electrical Power is restored to Bus T21D using 02-OHP-4023-SUP-012 Attachment D

**TASK BRIEFING**

You are an Extra Operator.

The US directs you to restore power to Bus T21D from DG2CD using Attachment D of 02-OHP-4023-SUP-012.

Number: 02-OHP-4023 <b>SUP-012</b>	Title: <b>RESTORING DG POWER</b>	Revision Number: 2
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<b>Attachment D</b> <b>Restoring DG Power To T21D</b>		
1.	<b>Check Bus T21D - NOT LOCKED OUT</b>  • "4KV Bus T21D CB T21D12 Trip" annunciator (Panel 220, Drop 96) - CLEAR	Perform the following:  a. Inform Unit Supervisor that Bus T21D can <b>NOT</b> be energized.  b. Return to Supplement Body, Step 1 (Page 2).
2.	<b>Verify Bus T21D Breakers - OPEN WITH GREEN TARGETS</b>  • T21D12, Bus 2D Supply Breaker to Bus T21D  • T21D9, 4KV Supply To TR21PHC  • T21D1, 4KV EP Supply To Bus T21D	
3.	<b>Place Bus T21D Load Control Switches In PULL TO LOCKOUT:</b>  • East MDAFW pump • East CCP • East RHR pump • North SI pump • East CTS pump • East CCW pump	
4.	<b>Check Bus T21C - ENERGIZED</b>	Place north NESW pump in PULL TO LOCKOUT.
5.	<b>Check DG2CD - NOT RUNNING</b>	Go to Step 10 (Page 25).

Checks Panel 220 Drop 96 is Not Lit

Places C/S to Trip to get Green Target

Places C/S to Trip to get Green Target

Verifies Green Target

CUE: The required Pumps are placed in PTL (Step has already been performed)

Determines Bus T21C is NOT energized and N NESW should be in PTL

CUE: North NESW Pump is in PTL

Verifies DG2CD is NOT Running

Number: 02-OHP-4023 SUP-012	Title: <b>RESTORING DG POWER</b>	Revision Number: 2
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<b>Attachment D</b> <b>Restoring DG Power To T21D</b>		
6.	<b>Check DG2CD Differential Lockout Relay - NOT TRIPPED</b>	<b>IF</b> the DG was emergency tripped due to lack of cooling, <b>THEN</b> perform the following: a. Reset the HEA trip. b. <b>IF</b> the DG starts, <b>THEN</b> go to Step 10 (Page 25). <b>IF</b> the HEA trip was <b>NOT</b> due to an emergency trip, <b>THEN</b> perform the following: a. Inform Unit Supervisor that DG2CD has an HEA trip. b. Return to Supplement Body, Step 1 (Page 2).
7.	<b>Check "DG2CD Incomplete Start" Annunciator - CLEAR</b> • Panel 220, Drop 41	Perform the following: a. Locally attempt to determine and correct cause for DG2CD failure to start. b. Press DG2CD Incomplete Start Reset. c. <b>IF</b> DG2CD starts, <b>THEN</b> go to Step 10 (Page 25).

(Step 7 Continued On Next Page)

(Attachment D, page 2 of 6)

Verifies HEA Relay (87X-DGCD) was NOT Tripped

Verifies Panel 220 Drop 41 is NOT lit.

Number: 02-OHP-4023 SUP-012	Title: <b>RESTORING DG POWER</b>	Revision Number: 2
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<b>Attachment D</b> <b>Restoring DG Power To T21D</b>	
	<i>(Step 7 Continued From Previous Page)</i>	
		d. <b>IF</b> "DG Incomplete Start" annunciator (Panel 220, Drop 41) remains lit, <b>THEN</b> perform the following:  1) Inform the Unit Supervisor that DG2CD has an incomplete start.  2) Return to Supplement Body, Step 1 (Page 2).
8.	<b>Momentarily Place DG2CD Stop-Run Control Switch In RUN</b>	
9.	<b>Check DG2CD - RUNNING</b>	Perform the following:  a. Inform the Unit Supervisor that DG2CD can <b>NOT</b> be started from the control room.  b. Return to Supplement Body, Step 1 (Page 2).

CT: Places DG2CD C/S to Run

Cue: If Required, An AEO is currently at the DG2CD and is monitoring it for proper operation. The US directs you to continue with the procedure.

Verifies DG2CD Started

Number: 02-OHP-4023 <b>SUP-012</b>	Title: <b>RESTORING DG POWER</b>	Revision Number: 2
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STEP      ACTION/EXPECTED RESPONSE      RESPONSE NOT OBTAINED

**Attachment D**  
**Restoring DG Power To T21D**

- 10. Check Bus T21D - ENERGIZED**      Energize Bus T21D from DG2CD:
- a. Place T21D8 synch selector in MANUAL.
  - b. Place T21D8, DG2CD Supply To Bus T21D, control switch in CLOSE.
  - c. Place master synch switch in CLOSE.
  - d. Place T21D8 synch selector in OFF.
- 
- 11. Check ESW Flowpath To DG2CD - ESTABLISHED**      Manually start pump(s) and align valve(s) as necessary.
- East ESW header pressurized:
    - 2-WMO-726, normal supply to DG2CD - OPEN
  - OR-
  - West ESW header pressurized:
    - 2-WMO-728, ALT supply to DG2CD - OPEN

Determines Bus T21D is NOT Energized

CT: Places T21D8 Synch Selector to MANUAL

CT: Places T21D8 Control Switch to CLOSE

CT: Places Master Synch Switch to CLOSE and verifies T21D8 Closes.

Places T21D8 Synch selector in Off

Verifies ESW Valve WMO-726 is Open

Number: 02-OHP-4023 <b>SUP-012</b>	Title: <b>RESTORING DG POWER</b>	Revision Number: 2
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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**Attachment D**  
**Restoring DG Power To T21D**

**12. Check 600 Volt Bus 21D**  
**ENERGIZED**

Perform the following:

a. **IF** T21D is energized,  
**THEN** perform the following:

1) Check Bus 21D **NOT** faulted by  
the following annunciators  
clear:

- "TR21D Differential  
Operated" (Panel 220,  
Drop 98)
- "TR21A 600V CB 21D1 Trip"  
(Panel 220, Drop 99)
- "600V Bus 21D Ground"  
(Panel 220, Drop 100)

2) **IF** Bus 21D is **NOT** faulted,  
**THEN** close the following  
breakers:

- a) T21D2, 4KV Supply To TR21D
- b) 21D1, Incoming Feed From  
Transformer TR21D

(Step 12 Continued On Next Page)

(Attachment D, page 5 of 6)

Verifies 600V Bus 21D ENERGIZED

Evaluator: "JPM IS COMPLETE"

## **Task Briefing**

You are an Extra Operator.

The US directs you to restore power to Bus T21D from DG2CD using Attachment D of 02-OHP-4023.SUP.012.