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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

PORC REVIEW DATE 5/9/91

Joseph A. Widay  
PLANT SUPERINTENDENT

5/10/91  
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: \_\_\_\_\_

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A. PURPOSE - This procedure provides the steps necessary to respond to a MFW system malfunction resulting in a decrease in or complete loss of main feedwater.

B. ENTRY CONDITIONS/SYMPTOMS

1. SYMPTOMS - The symptoms of PARTIAL OR COMPLETE LOSS OF OF MAIN FEEDWATER are;

- a. Annunciator G-3(5), S/G A(B) LEVEL DEVIATION  $\pm 7\%$ , lit, or
- b. Annunciator G-19(21), S/G A (B) FLOW MISMATCH, lit, or
- c. Annunciator G-20, ADFCS SYSTEM SWITCH TO MANUAL, lit, or
- d. Annunciator K-18, MAIN FEEDWATER PUMPS TRIPPED, lit, or
- e. Low indicated MFW pump suction flow on 1 pump, or
- f. MFW pump indicates tripped, or
- g. MFW pump discharge valve indicates shut.



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF, AT ANY TIME DURING THIS PROCEDURE, A REACTOR TRIP OR SI OCCURS, E-0, REACTOR TRIP OR SAFETY INJECTION, SHALL BE PERFORMED.</p> <p>*****</p> <p><u>NOTE:</u> Step 1 is an IMMEDIATE ACTION step.</p>		
1	Check MFW Requirements:	
	a. Power - GREATER THAN 50%	a. <u>IF</u> power less than 50%, <u>THEN</u> go to Step 2.
	b. Both MFW pumps - RUNNING	b. <u>IF</u> only one MFW pump has tripped, <u>THEN</u> perform the following: <ul style="list-style-type: none"> <li>1) Start all 3 AFW pumps and verify flow.</li> <li>2) Decrease power rapidly to less than 50%.</li> <li>3) Go to Step 3.</li> </ul> <u>IF</u> both MFW pumps have tripped, <u>THEN</u> ensure reactor trip and go to E-0, REACTOR TRIP or SAFETY INJECTION.
	c. Go to Step 3	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2	Verify At Least One MFW Pump - RUNNING	<p>Perform the following:</p> <ul style="list-style-type: none"> <li>a. Start all 3 AFW pumps and verify flow.</li> <li>b. <u>IF</u> turbine previously latched, <u>THEN</u> verify turbine trip and go to AP-TURB.1, TURBINE TRIP WITHOUT RX TRIP REQUIRED <u>OR</u> E-0, REACTOR TRIP or SAFETY INJECTION.</li> </ul> <p><u>IF</u> turbine <u>NOT</u> previously latched, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <li>1) Reduce reactor power to less than 2%.</li> <li>2) Go to Step 11.</li> </ul>
3	Verify MFW Pump Suction Pressure - GREATER THAN 185 PSIG	<p>Perform the following:</p> <ul style="list-style-type: none"> <li>a. Verify standby condensate pump running, if required.</li> <li>b. Verify condensate bypass valve open.</li> <li>c. Place Hotwell level controller in MANUAL at 50%.</li> <li>d. Place trim valve controller to manual and close trim valves.</li> <li>e. Check if condensate booster pumps have tripped and start as necessary.</li> </ul>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4	<p>Verify Adequate MFW Flow:</p> <ul style="list-style-type: none"> <li>o A MFW flow - GREATER THAN OR EQUAL TO A STEAM FLOW</li> <li>o B MFW flow - GREATER THAN OR EQUAL TO B STEAM FLOW</li> </ul>	<p>Check MFW regulating valves controlling in AUTO. <u>IF NOT</u>, <u>THEN</u> control MFW flow in MANUAL.</p> <p><u>IF</u> MFW flow can <u>NOT</u> be controlled, <u>THEN</u>, trip the turbine and go to AP-TURB.1, TURBINE TRIP WITHOUT RX TRIP REQUIRED, or E-0, REACTOR TRIP or SAFETY INJECTION.</p>
5	<p>Check Both S/G Levels - GREATER THAN 17% AND TRENDING TO PROGRAM LEVEL</p>	<p><u>IF</u> S/G levels can <u>NOT</u> be restored, <u>THEN</u> trip the reactor <u>AND</u> go to E-0, REACTOR TRIP or SAFETY INJECTION.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Establish Stable Plant Conditions:	
a.	Tavg - TRENDING TO TREF	<p>a. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Verify AUTO control rod motion as required. <u>IF NOT</u>, <u>THEN</u> place rod control bank selector switch to MANUAL and adjust control rods as necessary.</li> <li>2) Borate if required for power reduction.</li> </ol>
b.	PRZR pressure - TRENDING TO 2235 PSIG	b. Verify proper operation of PRZR heaters and spray <u>OR</u> take manual control of PRZR pressure controller 431K. <u>IF</u> PRZR pressure can <u>NOT</u> be controlled, <u>THEN</u> refer to AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE.
c.	PRZR level - TRENDING TO PROGRAM	c. Verify proper operation of charging pump speed controllers <u>OR</u> take manual control of speed controllers to control PRZR level.
d.	Rod insertion limit alarms - EXTINGUISHED	d. Borate as necessary (Refer to AP-CVCS.2, IMMEDIATE BORATION).
e.	Narrow range S/G levels - TRENDING TO PROGRAM LEVEL	e. Ensure MFW regulating valves controlling in AUTO, <u>OR</u> control feed water in MANUAL.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

## 7 Check Status Of MFW System:

## a. Check MFW pump suction pressure:

- o Pressure - GREATER THAN 200 PSIG
- o Pressure - STABLE

## b. Automatic feedwater control - AVAILABLE

## c. Restore feedwater control system to AUTO if necessary

## a. Return to Step 3.

b. Continue with Step 8. WHEN malfunction identified, THEN do Steps 7c.

## 8 Check Status Of Condensate System:

## a. Verify condensate bypass valve - CLOSED

## b. Verify hotwell level - AT SETPOINT

## c. Place hotwell level controller in AUTO

## d. Stop condensate pump if desired

## e. Verify trim valves in AUTO

a. WHEN conditions permit, THEN close valve.

## b. Manually restore hotwell level to setpoint.

## e. Adjust trim valve controller to desired pressure and place controller in AUTO.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9	Restore Control Systems To Normal Operation As Necessary:	
a.	Verify EH control in OPER PAN and IMP IN	a. <u>IF</u> conditions requiring runback have cleared, <u>THEN</u> place EH in OPER PAN and IMP IN.
b.	Verify annunciator G-15, STEAM DUMP ARMED - EXTINGUISHED	b. <u>IF</u> Tavg within 6°F of Tref, <u>THEN</u> perform the following: <ul style="list-style-type: none"> <li>1) Ensure steam dump valves closed.</li> <li>2) Reset steam dump.</li> </ul>
c.	Verify PRZR pressure control in AUTO	c. Place PRZR pressure control in AUTO as desired. <ul style="list-style-type: none"> <li>• 431K master controller</li> <li>• PRZR spray valve controllers</li> <li>• PRZR heater controllers</li> </ul>
d.	Verify PRZR level control in AUTO	d. Place one charging pump speed controller in AUTO if desired.
e.	Verify Rod Control Selector Switch in AUTO	e. Place Rod Control Selector Switch in AUTO if desired.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	Restore AFW System To Auto Standby:	
a.	Verify S/G level - TRENDING TO PROGRAM	a. <u>IF</u> level low, <u>THEN</u> return to Step 4. <u>WHEN</u> S/G levels return to program, <u>THEN</u> do Steps 10b through f.
b.	Close TDAFW pump steam supply valves	
c.	Stop MDAFW pumps and place switches in AUTO	
d.	Verify AFW pump discharge valves - OPEN <ul style="list-style-type: none"> <li>• MOV-4007</li> <li>• MOV-4008</li> <li>• MOV-3996.</li> </ul>	d. Manually open valves.
e.	Verify TDAFW pump flow control valves - OPEN <ul style="list-style-type: none"> <li>• AOV-4297</li> <li>• AOV-4298</li> </ul>	e. Manually open valves.
f.	Go to Step 12	

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

## 11 Establish Stable Plant Conditions:

- a. Verify reactor power - LESS THAN 2%
- b. PRZR pressure - TRENDING TO 2235 PSIG
- c. PRZR level - TRENDING TO PROGRAM
- d. Rod insertion limit alarms - EXTINGUISHED
- e. Tav<sub>g</sub> - STABLE AT APPROXIMATELY 547°F
- f. Narrow range S/G levels - TRENDING TO PROGRAM LEVEL

- a. Insert control rods as necessary to reduce reactor power to less than 2%.
- b. Verify proper operation of PRZR heaters and spray OR take manual control of PRZR pressure controller 431K. IF PRZR pressure can NOT be controlled, THEN refer to AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE.
- c. Verify proper operation of charging pump speed controllers OR take manual control of speed controllers to control PRZR level.
- d. IF the reactor is to remain critical, THEN borate as necessary (Refer to AP-CVCS.2, IMMEDIATE BORATION).
- e. Verify proper operation of steam dump OR manually control steam dump as necessary.
- f. Verify MDAFW pumps operating as necessary to restore S/G level to program.

NOTE: Refer to 0-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.

## 12 Notify Higher Supervision

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

13 Return To Procedure Or  
Guidance In Effect

-END-

