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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

PORC REVIEW DATE 5-5-93

Thomas A. Marlow  
PLANT SUPERINTENDENT

5-7-93  
EFFECTIVE DATE

CATEGORY 1.0

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

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A. PURPOSE - This procedure provides the necessary instructions to control the plant following a turbine trip without a reactor trip required.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. AP-CW.1, LOSS OF A CIRC WATER PUMP, or,
- b. AP-ELEC.1, LOSS OF 12A AND/OR 12B TRANSFORMER, or,
- c. AP-FW.1, PARTIAL OR COMPLETE LOSS OF MAIN FEEDWATER, or,
- d. AP-TURB.2, AUTOMATIC TURBINE RUNBACK, or,
- e. AP-TURB.3, TURBINE VIBRATIONS, or,
- f. AP-TURB.4, LOSS OF CONDENSER VACUUM, when power is less than P-9 and the turbine trips without a Rx trip.

2. SYMPTOMS - The symptoms of TURBINE TRIP WITHOUT RX TRIP REQUIRED are:

- a. Annunciator K-1, THRUST BEARING FAILURE, lit, or
- b. Annunciator K-9, TURBINE BEARING OIL LO PRESS TRIP 6 psi, lit, or
- c. Annunciator K-17, TURBINE LOW VACUUM TRIP 20" HG, lit, or
- d. Annunciator K-18, MAIN FEEDWATER PUMPS TRIPPED, lit, or
- e. Annunciator K-26, GENERATOR LOCKOUT RELAY, lit, or
- f. Annunciator K-25, TURBINE OVERSPEED ALERT 1980 RPM, lit, or
- g. Annunciator F-21, COND HI PRESS 20" HG OR LOSS OF BOTH CIRC WTR PMPS, lit, or
- h. Annunciator K-3, AMSAC ACTUATED, lit.



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
***** <u>CAUTION</u> IF, AT ANY TIME DURING THIS PROCEDURE, A REACTOR TRIP OR SI OCCURS, E-0, REACTOR TRIP OR SAFETY INJECTION, SHALL BE PERFORMED. *****		
1 Verify Turbine Stop Valves - CLOSED		Manually trip turbine.  IF turbine stop valves can <u>NOT</u> be closed, <u>THEN</u> close both MSIVs.  IF reactor power greater than 8% with both MSIVs closed, <u>THEN</u> manually trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****  <u>CAUTION</u>  PRZR PRESSURE LOW PRESSURE TRIP IS RATE SENSITIVE, THEREFORE, MONITOR PRESSURE WHEN REDUCING RCS TEMPERATURE.  *****</p> <p><u>NOTE:</u> Automatic rod control is desired, if available.</p>		
2	Check Reactor Power:	
	<p>a. NIS intermediate ranges - ABOVE THE POINT OF ADDING HEAT (APPROXIMATELY <math>2.5 \times 10^{-6}</math> AMPS)</p> <p>b. Verify control rods driving in to reduce reactor power in AUTO</p> <p>c. Borate as necessary to maintain control rods above rod insertion limits</p>	<p>a. Go to Step 3.</p> <p>b. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Ensure ROD CONTROL BANK SELECTOR switch to MANUAL</li> <li>2) Insert rods as necessary to reduce reactor power.</li> </ol>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	Monitor S/G Levels:	
a.	Levels - GREATER THAN 30% OR INCREASING	<p>a. <u>IF</u> MFW regulating and bypass valves <u>NOT</u> controlling in AUTO, <u>THEN</u> place controllers in MANUAL and restore narrow range level to program.</p> <p><u>IF</u> S/G level can <u>NOT</u> be restored, <u>THEN</u> trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.</p>
b.	Levels - TRENDING TO PROGRAM	<p>b. <u>IF</u> S/G level above program and increasing uncontrolled, <u>THEN</u> place controller(s) in MANUAL and decrease flow as necessary.</p> <p><u>IF</u> flow can <u>NOT</u> be controlled, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> <li>1) Trip the reactor.</li> <li>2) Stop the running MFW pump.</li> <li>3) Close MFW pump discharge valves.</li> <li>4) Go to E-0, REACTOR TRIP OR SAFETY INJECTION.</li> </ol>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4	Verify Proper Operation Of Steam Dump:	
	a. Verify annunciator G-15, STEAM DUMP ARMED - LIT	a. Place steam dump mode selector switch to MANUAL.
	b. Condenser steam dump operating in AUTO	b. <u>IF</u> steam dump <u>NOT</u> available, <u>THEN</u> perform the following: <ul style="list-style-type: none"> <li>1) Adjust S/G ARV setpoints to 1005 psig and verify proper operation.</li> <li>2) <u>IF</u> power is greater than 8%, <u>THEN</u> ensure reactor trip and go to E-0, REACTOR TRIP OR SAFETY INJECTION.</li> </ul>
	c. Tavg - TRENDING TO PROGRAM	c. <u>IF</u> Tavg can <u>NOT</u> be controlled, <u>THEN</u> manually trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.
5	Check PRZR Pressure - TRENDING TO 2235 PSIG	<u>IF</u> PRZR pressure can <u>NOT</u> be controlled, <u>THEN</u> refer to AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE.



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Check PRZR Level:	
a.	Level - GREATER THAN 13%	<p>a. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Place loop B cold leg isolation valve to REGEN Hx (AOV-427) switch to CLOSE.</li> <li>2) Place letdown orifice valve switches to CLOSE (AOV-200A, AOV-200B, and AOV-202).</li> <li>3) Verify excess letdown isolation valve (AOV-310) closed.</li> <li>4) Ensure PRZR heaters off.</li> <li>5) Control charging to restore PRZR level greater than 13%.</li> <li>6) <u>WHEN</u> PRZR level greater than 13%, <u>THEN</u> restore letdown.</li> </ol>
b.	Level - TRENDING TO PROGRAM	<p>b. Increase charging flow as necessary to restore PRZR level to program.</p>



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	Check MFW System:	
	a. Verify MFW regulating and bypass valves - OPERATING IN AUTO	a. Place MFW regulating and bypass valve controllers in MANUAL and restore S/G level.
	b. MFW pumps - BOTH RUNNING	b. Perform the following: <ul style="list-style-type: none"> <li>1) Verify one MFW pump running. <u>IF NOT</u>, <u>THEN</u> verify both MDAFW pumps running.</li> <li>2) Go to Step 8.</li> </ul>
	c. Close one MFW pump discharge valve	
	d. Stop selected MFW pump	
8	Establish Stable Plant Conditions:	
	a. Place rod control bank selector in MANUAL	
	b. NIS intermediate ranges - BELOW THE POINT OF ADDING HEAT (APPROXIMATELY $2.5 \times 10^{-6}$ AMPS)	b. Return to Step 2.
	c. PRZR pressure - BETWEEN 2220 PSIG AND 2260 PSIG	c. Control PRZR heaters and spray as necessary.
	d. PRZR level - TRENDING TO PROGRAM	d. Control charging as necessary.
	e. S/G levels - TRENDING TO PROGRAM	e. Control S/G feed flow as necessary.
	f. RCS Tav <sub>g</sub> - GREATER THAN 540°F	f. Control dumping steam as necessary. <u>IF</u> cooldown continues, <u>THEN</u> close both MSIVs.



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF ANY S/G LEVEL ABOVE PROGRAM, THEN AFW FLOW MAY BE THROTTLED IMMEDIATELY TO PREVENT S/G ISOLATION.</p> <p>*****</p> <p><u>NOTE:</u> Maintain Reactor power less than 2%. This is within the capacity of MDAFW pumps.</p>		
9	Check S/G Feed Flow Status:	
	a. Manually start both MDAFW pumps	
	b. Verify AFW flow - ESTABLISHED	b. Perform the following: <div> 1) Establish MFW flow using MFW regulating valve bypass valves. <p>IF MFW <u>NOT</u> available, <u>THEN</u> manually start TDAFW pump and establish flow as necessary.</p> 2) Go to Step 10. </div>
	c. Verify MFW flow control valves - CLOSED	c. Place A and B MFW regulating and bypass valve controllers in manual at 0% demand.
	<ul style="list-style-type: none"> <li>• MFW regulating valves</li> <li>• MFW bypass valves</li> </ul>	
	d. Close MFW pump discharge valves	
	<ul style="list-style-type: none"> <li>• MOV-3977, A MFW pump</li> <li>• MOV-3976, B MFW pump</li> </ul>	
	e. Stop any running MFW pump and place in PULL STOP	
	f. Check S/G level - TRENDING TO 39%	f. Adjust MDAFW pump flow as necessary to restore S/G level.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
***** CAUTION *****		
WHEN FEEDING BOTH S/G(S) USING ONE MDAFW PUMP, THEN THE SUM OF THE FLOWS TO BOTH S/G(S) MUST BE LESS THAN 230 GPM. *****		
10	Establish Normal AFW Pump Shutdown Alignment:	
	a. Place AFW bypass switches to DEF	
	b. Verify the following:	b. Continue with Step 11. <u>WHEN</u> conditions met, <u>THEN</u> do Steps 10c through f.
	o Both S/G levels - STABLE OR INCREASING	
	o Total AFW flow - LESS THAN 200 GPM	
	c. Close MDAFW pump discharge valves	
	• MOV-4007	
	• MOV-4008	
	d. Stop all but one MDAFW pump	
	e. Open AFW discharge crossover valves	
	• MOV-4000A	
	• MOV-4000B	
	f. Open AFW bypass valves as necessary to control S/G levels	
	• AOV-4480	
	• AOV-4481	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	Establish Normal Shutdown Alignment:	
	a. Check condenser - AVAILABLE	a. Dispatch AO to perform Attachment SD-2.
	b. Perform the following as necessary:	
	o Open generator disconnects	
	• 1G13A71	
	• 9X13A73	
	o Place voltage regulator to OFF	
	o Open turbine drain valves	
	o Rotate reheater steam supply controller cam to close valves	
	o Place reheater dump valve switches to HAND	
	o Stop all but one condensate pump	
	c. Verify Bus 11A and Bus 11B energized - BOTH BUSSES GREATER THAN 4 KV	c. <u>IF</u> either bus <u>NOT</u> energized, <u>THEN</u> refer to 0-6.9.2, ESTABLISHING AND/OR TRANSFERRING OFFSITE POWER TO BUS 12A/ BUS 12B.
	d. Dispatch AO to perform Attachment SD-1	





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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u> Refer to 0-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.</p>		
12	Notify Higher Supervision	
13	Establish Desired Plant Conditions:	
	a. Reactor shutdown - DESIRED	a. <u>IF</u> turbine is to be restored to service, <u>THEN</u> maintain reactor critical and refer to 0-1.2, PLANT FROM HOT SHUTDOWN TO STEADY LOAD.
	b. Refer to 0-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN	
-END-		



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AP-TURB.1 APPENDIX LIST

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1)	ATTACHMENT SD-1	2
2)	ATTACHMENT SD-2	1