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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

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4-14-93

Thomas A. Markew

PLANT SUPERINTENDENT

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EFFECTIVE DATE

CATEGORY 1.0

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A. PURPOSE - This procedure provides actions to add negative reactivity to a core which is observed to be critical when expected to be shut down.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. E-0, REACTOR TRIP OR SAFETY INJECTION, when reactor trip is not verified and manual trip is not effective.
- b. F-0.1, SUBCRITICALITY Critical Safety Function Status Tree on either a RED or ORANGE condition.



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u>   o Steps 1 through 4 are IMMEDIATE ACTION steps.</p> <p>          o Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than <math>10^{+05}</math> R/hr.</p>		
1	<p>Verify Reactor Trip:</p> <ul style="list-style-type: none"> <li>o At least one train of reactor trip breakers - OPEN</li> <li>o Neutron flux - DECREASING</li> <li>o MRPI indicates - ALL CONTROL AND SHUTDOWN RODS ON BOTTOM</li> </ul>	<p>Manually trip reactor.</p> <p><u>IF</u> reactor trip breakers <u>NOT</u> open, <u>THEN</u> manually insert control rods.</p>
2	<p>Verify Turbine Stop Valves - CLOSED</p>	<p>Manually trip turbine.</p> <p><u>IF</u> turbine trip can <u>NOT</u> be verified, <u>THEN</u> close both MSIVs.</p>
3	<p>Check AFW Pumps Running:</p> <ul style="list-style-type: none"> <li>a. MDAFW pumps - RUNNING</li> <li>b. TDAFW pump - RUNNING IF NECESSARY</li> </ul>	<p>a. Manually start MDAFW pumps.</p> <p>b. Manually open steam supply valves.</p> <ul style="list-style-type: none"> <li>• MOV-3505A</li> <li>• MOV-3504A</li> </ul>



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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*  
CAUTION

ACTIONS TAKEN TO INITIATE RCS BORATION SHALL NOT BE REVERSED WHEN PERFORMING IMMEDIATE ACTIONS OF E-0, REACTOR TRIP OR SAFETY INJECTION.

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NOTE: 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.

4 Initiate Emergency Boration  
Of RCS:

a. Check SI status:

- o All SI annunciators - EXTINGUISHED
- o All SI pumps - OFF IN AUTO

b. Verify at least one charging pump - RUNNING

c. Align boration path:

- 1) Start two BA transfer pumps
- 2) Open MOV-350
- 3) Verify BA flow

d. Verify charging flow path:

- o Charging valve to loop B cold leg (AOV-294) - OPEN
- o Charging flow control valve (HCV-142) - DEMAND AT 0%

a. Perform the following:

- 1) Complete the immediate actions of E-0, REACTOR TRIP OR SAFETY INJECTION, while continuing with this procedure
- 2) IF SI flow indicated, THEN go to Step 5. IF NOT, THEN go to Step 4b.

b. Perform the following:

- 1) Reset SI if necessary.
- 2) Start one charging pump.

c. Initiate normal boration at maximum rate using the boric acid flow control valve, FCV-110A. IF flow can NOT be established, THEN refer to ER-CVCS.1, REACTOR MAKEUP CONTROL MALFUNCTION.

d. Manually align valves and verify flow.





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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	<p>Check If The Following Trips Have Occurred:</p> <ul style="list-style-type: none"> <li>a. Reactor trip</li> <li>b. Turbine trip</li> </ul>	<ul style="list-style-type: none"> <li>a. Dispatch AO to locally trip reactor: <ul style="list-style-type: none"> <li>o Trip MG set breakers at bus 13 and bus 15.</li> <li>o Open reactor trip breakers locally.</li> </ul> </li> <li>b. Dispatch operator to locally trip turbine using manual trip lever on west end of HP turbine.</li> </ul>
6	<p>Check PRZR PORV Status:</p> <ul style="list-style-type: none"> <li>o RCS pressure - LESS THAN 2335 PSIG</li> <li>o PORVs - CLOSED</li> <li>o Annunciator F-19, PRZR PORV OUTLET HI TEMP - EXTINGUISHED</li> </ul>	<p>Verify CNMT ventilation isolation. <u>IF</u> dampers <u>NOT</u> closed, <u>THEN</u> momentarily deenergize CNMT particulate monitor, R-11, to actuate CVI.</p>



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****  <u>CAUTION</u>            IF CST LEVEL DECREASES 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).            *****</p>		
7	<p>Check S/G Level:</p> <p>a. Narrow range level in at least one S/G - GREATER THAN 5% [25% adverse CNMT]</p> <p>b. Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%</p>	<p>a. Perform the following:</p> <p>1) Verify total feed flow greater than 400 gpm.</p> <p><u>IF NOT, THEN</u> manually start pumps and align valves as necessary.</p> <p>2) Maintain total feed flow greater than 400 gpm until narrow range level greater than 5% [25% adverse CNMT] in at least one S/G.</p>
8	<p>Verify Dilution Paths - ISOLATED</p> <ul style="list-style-type: none"> <li>o Place RMW mode switch to BORATE</li> <li>o Verify RMW to blender (HCV-111) - CLOSED</li> <li>o Verify RMW pumps - OFF</li> </ul>	<p>Manually isolate dilution paths.</p>



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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

9 Stabilize RCS Temperature:

a. Control steam dump as necessary

b. Verify the following:

- o Core exit T/Cs - STABLE OR INCREASING
- o Pressure in both S/Gs - STABLE OR INCREASING
- o Pressure in both S/Gs - GREATER THAN 100 PSIG

c. Go to Step 14

b. IF RCS cooldown can NOT be controlled, THEN close both MSIVs and go to Step 10.

10 Verify MFW Isolation:

a. MFW pumps - TRIPPED

b. MFW flow control valves - CLOSED

- MFW regulating valves
- MFW bypass valves

a. Manually close MFW pump discharge valves and trip MFW pumps.

b. Place A and B S/G MFW regulating valve and bypass valve controllers to MANUAL at 0% demand.

11 Identify Faulted S/G:

- o Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER

-OR-

- o Any S/G - COMPLETELY DEPRESSURIZED

Go to Step 14.



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
*****		
<u>CAUTION</u>		
o AT LEAST ONE S/G SHALL BE MAINTAINED AVAILABLE FOR RCS COOLDOWN.		
o IF BOTH S/GS ARE FAULTED, AT LEAST 50 GPM FEED FLOW SHOULD BE MAINTAINED TO EACH S/G.		
*****		
12	Isolate Feed Flow To Faulted S/G:	Manually close valves.
	o Close faulted S/G MDAFW pump discharge valve	<u>IF</u> valves can <u>NOT</u> be closed, <u>THEN</u> dispatch AO to locally isolate flowpaths as necessary.
	• S/G A, MOV-4007	
	• S/G B, MOV-4008	
	o Pull stop faulted S/G MDAFW pump	
	o Close faulted S/G TDAFW flow control valve	
	• S/G A, AOV-4297	
	• S/G B, AOV-4298	
	o Verify faulted S/G MFW regulating valve and bypass valve - CLOSED	
	• S/G A, HCV-466 and HCV-480	
	• S/G B, HCV-476 and HCV-481	
	o Verify MDAFW pump crosstie valves - BOTH CLOSED	
	• MOV-4000A	
	• MOV-4000B	
	o Close faulted S/G SAFW pump discharge valve	
	• S/G A, MOV-9701A	
	• S/G B, MOV-9701B	





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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13	<p>Isolate Steam Flow From Faulted S/G:</p> <ul style="list-style-type: none"> <li>o Verify faulted S/G ARV - CLOSED <ul style="list-style-type: none"> <li>• S/G A, AOV-3411</li> <li>• S/G B, AOV-3410</li> </ul> </li> <li>o Close faulted S/G TDAFW pump steam supply valve and place in PULL STOP <ul style="list-style-type: none"> <li>• S/G A, MOV-3505A</li> <li>• S/G B, MOV-3504A</li> </ul> </li> <li>o Verify faulted S/G blowdown and sample valves - CLOSED <ul style="list-style-type: none"> <li>• S/G A, AOV-5738 and AOV-5735</li> <li>• S/G B, AOV-5737 and AOV-5736</li> </ul> </li> <li>o Dispatch AO to complete faulted S/G isolation (Refer to Attachment FAULTED S/G)</li> </ul>	<p>Manually close valves.</p> <p><u>IF</u> valves can <u>NOT</u> be closed, <u>THEN</u> dispatch AO to locally isolate flowpaths as necessary.</p>



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****  <u>CAUTION</u>            BORATION SHOULD CONTINUE TO OBTAIN ADEQUATE SHUTDOWN MARGIN DURING SUBSEQUENT ACTIONS.            *****</p> <p><u>NOTE:</u> Adverse CNMT conditions or loss of forced air cooling may result in failure of NIS detectors.</p>		
14	Verify Reactor Subcritical:	Perform the following:
	<ul style="list-style-type: none"> <li>o Power range channels - LESS THAN 5%</li> <li>o Intermediate range channels - STABLE OR DECREASING</li> <li>o Intermediate range channels startup rate - NEGATIVE</li> <li>o Core exit T/Cs - STABLE</li> </ul>	<ul style="list-style-type: none"> <li>a. Stabilize RCS temperature.</li> <li>b. Continue to inject boric acid.</li> <li>c. Direct HP to sample RCS and PRZR for boron concentration.</li> <li>d. Verify boron concentration greater than Figure SDM.</li> </ul> <p>IF adequate shutdown margin verified, <u>THEN</u> return to procedure and step in effect.</p> <p>IF <u>NOT</u>, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <li>a. Allow RCS to heat up.</li> <li>b. Perform actions of other FR procedures in effect which do <u>NOT</u> cooldown or otherwise add positive reactivity to the core.</li> <li>c. Return to Step 5.</li> </ul>







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FR-S.1 APPENDIX LIST

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2) ATTACHMENT FAULTED S/G	1





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FIGURE SDM

- NOTE:
- o Curve includes allowance for one stuck rod. Add 100 ppm for each additional stuck rod.
  - o To obtain core burnup, use PPCS turn on code BURNUP.



