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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

*Residlin*

RESPONSIBLE MANAGER

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EFFECTIVE DATE

CATEGORY 1.0

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A. PURPOSE - This procedure provides actions to avoid, or limit, thermal shock or pressurized thermal shock to the reactor pressure vessel, or overpressure conditions at low temperature.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. F-0.4, INTEGRITY 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> 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>Check RCS Pressure - GREATER THAN 250 PSIG [465 PSIG adverse CNMT]</p>	<p><u>IF</u> RHR flow greater than 475 gpm, <u>THEN</u> return to procedure and step in effect.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><b>NOTE:</b> A faulted S/G is any S/G that is depressurizing in an uncontrolled manner or is completely depressurized.</p>	
2	<p><b>Check RCS Cold Leg Temperatures - STABLE OR INCREASING</b></p>	<p>Try to stop RCS cooldown:</p> <ol style="list-style-type: none"> <li>Ensure S/G ARVs closed.</li> <li>Close both S/G MSIVs.</li> <li>Ensure MFW flow control valves closed. <ul style="list-style-type: none"> <li>MFW regulating valves</li> <li>MFW bypass valves</li> </ul> </li> <li>Ensure MFW pumps tripped.</li> <li>Rotate reheater steam supply controller cam to close reheater steam supply valves.</li> <li><u>IF</u> S/G pressure less than condensate pressure, <u>THEN</u> stop all condensate pumps.</li> <li><u>IF</u> RHR system in service, <u>THEN</u> stop any cooldown from RHR system.</li> <li>Control total feed flow to non-faulted S/G(s) greater than 200 gpm until narrow range level greater than 5% [25% adverse CNMT] in at least one non-faulted S/G. <u>WHEN</u> S/G level greater than 5% [25% adverse CNMT] in one non-faulted S/G, <u>THEN</u> limit feed flow to stop RCS cooldown.</li> </ol>
<p>This Step continued on the next page.</p>		



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 2 continued from previous page)	
	i. Minimize cooldown from faulted S/G(s): <ol style="list-style-type: none"> <li>1) Close faulted S/G(s) TDAFW pump steam supply valve(s).               <ul style="list-style-type: none"> <li>• S/G A, MOV-3505A</li> <li>• S/G B, MOV-3504A</li> </ul> </li> <li>2) <u>IF</u> both S/G(s) faulted, <u>THEN</u> control feed flow at 50 gpm to each S/G.</li> <li>3) <u>IF</u> any S/G <u>NOT</u> faulted, <u>THEN</u> isolate all feedwater to faulted S/G unless necessary for RCS temperature control. <u>IF</u> a faulted S/G is necessary for RCS temperature control, <u>THEN</u> control feed flow at 50 gpm to that S/G.</li> </ol>	
	3 Check PRZR PORV Block Valves: <ol style="list-style-type: none"> <li>a. Power to PORV block valves - AVAILABLE</li> <li>a. Restore power to block valves unless block valve was closed to isolate an open PORV:               <ul style="list-style-type: none"> <li>• MOV-515, MCC D position 6C</li> <li>• MOV-516, MCC C position 6C</li> </ul> </li> <li>b. Block valves - AT LEAST ONE OPEN</li> <li>b. Open one block valve unless it was closed to isolate an open PORV.               <p><u>IF</u> at least one block valve can <u>NOT</u> be opened, <u>THEN</u> dispatch AO to locally check breaker.</p> <ul style="list-style-type: none"> <li>• MOV-515, MCC D position 6C</li> <li>• MOV-516, MCC C position 6C</li> </ul> </li> </ol>	



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p><u>CAUTION</u> IF ANY PRZR PORV OPENS BECAUSE OF HIGH PRZR PRESSURE, THEN STEP 4 SHOULD BE PERFORMED AFTER PRESSURE DECREASES TO LESS THAN THE APPLICABLE PORV SETPOINT.</p> <p>*****</p>		
4	Check PRZR PORV Status:	
	a. Check Reactor Vessel Overpressure Protection System - IN SERVICE	a. Go to Step 4d.
	b. Check RCS pressure - LESS THAN 410 PSIG	b. Perform the following: <ul style="list-style-type: none"> <li>1) Ensure at least one PRZR PORV open.</li> <li>2) Continue with Step 5. <u>WHEN</u> pressure less than setpoint, <u>THEN</u> do Step 4e.</li> </ul>
	c. Go to Step 4e	
	d. PRZR pressure - LESS THAN 2335 PSIG	d. Perform the following: <ul style="list-style-type: none"> <li>1) Ensure at least one PRZR PORV open.</li> <li>2) Continue with Step 5. <u>WHEN</u> pressure less than setpoint, <u>THEN</u> do Step 4e.</li> </ul>
	e. Verify PRZR PORVs - CLOSED	e. Manually close valve. <p><u>IF</u> any valve can <u>NOT</u> be closed, <u>THEN</u> manually close its block valve.</p>





STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	Check SI Pumps - ANY RUNNING	Go to Step 13.
6	<p>Check If SI Can Be Terminated:</p> <ul style="list-style-type: none"> <li>o RCS subcooling based on core exit T/Cs - GREATER THAN 50°F USING FIGURE MIN SUBCOOLING</li> <li>o Check RVLIS indication: <ul style="list-style-type: none"> <li>o Level (no RCPs) - GREATER THAN 68% [73% adverse CNMT]</li> </ul> </li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>o Fluid fraction (any RCP running) - GREATER THAN 80%</li> </ul>	<p>Do <u>NOT</u> stop SI pumps. Perform the following:</p> <ul style="list-style-type: none"> <li>a. <u>IF</u> RCS subcooling based on core exit T/Cs greater than 0°F using Figure MIN SUBCOOLING and no RCP running, <u>THEN</u> attempt to start an RCP: <ul style="list-style-type: none"> <li>1) Establish conditions for starting an RCP: <ul style="list-style-type: none"> <li>o Bus 11A or 11B energized</li> <li>o Refer to Attachment RCP START</li> </ul> </li> <li>2) <u>IF</u> conditions established, <u>THEN</u> start one RCP.</li> </ul> </li> <li>b. Go to Step 26:</li> </ul>
<p>*****</p> <p><u>CAUTION</u> IF OFFSITE POWER IS LOST AFTER SI RESET, THEN SELECTED SW PUMPS AND ONE CCW PUMP WILL AUTO START ON EMERGENCY D/G. MANUAL ACTION WILL BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT.</p> <p>*****</p>		
7	Reset SI	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8	Stop SI And RHR Pumps And Place In AUTO	
9	Reset CI:	
	a. Depress CI reset pushbutton	
	b. Verify annunciator A-26, CNMT ISOLATION - EXTINGUISHED	b. Perform the following:
		1) Reset SI.
		2) Depress CI reset pushbutton.
10	Verify Adequate SW Flow:	
	a. Check at least two SW pumps - RUNNING	a. Manually start SW pumps as power supply permits (258 kw each).
		<u>IF</u> less than two SW pumps running, <u>THEN</u> perform the following:
		1) Ensure SW isolation.
		2) Dispatch AO to establish normal shutdown alignment (Refer to Attachment SD-1).
		3) Go to Step 12. <u>WHEN</u> adequate SW available, <u>THEN</u> do Step 11.
	b. Dispatch AO to establish normal shutdown alignment (Refer to Attachment SD-1)	



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	Establish IA to CNMT:	
	<p>a. Verify non-safeguards busses energized from offsite power</p> <ul style="list-style-type: none"> <li>o Bus 13 normal feed - CLOSED</li> <li>-OR-</li> <li>o Bus 15 normal feed - CLOSED</li> </ul> <p>b. Verify SW isolation valves to turbine building - OPEN</p> <ul style="list-style-type: none"> <li>• MOV-4613 and MOV-4670</li> <li>• MOV-4614 and MOV-4664</li> </ul> <p>c. Verify at least two air compressors - RUNNING</p> <p>d. Check IA supply:</p> <ul style="list-style-type: none"> <li>o Pressure - GREATER THAN 60 PSIG</li> <li>o Pressure - STABLE OR INCREASING</li> </ul> <p>e. Reset both trains of XY relays for IA to CNMT AOV-5392</p> <p>f. Verify IA to CNMT AOV-5392 - OPEN</p>	<p>a. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Close non-safeguards bus tie breakers: <ul style="list-style-type: none"> <li>• Bus 13 to Bus 14 tie</li> <li>• Bus 15 to Bus 16 tie</li> </ul> </li> <li>2) Verify adequate emergency D/G capacity to run air compressors (75 kw each).   <u>IF NOT</u>, <u>THEN</u> evaluate if CNMT RECIRC fans should be stopped (Refer to Attachment CNMT RECIRC FANS).</li> <li>3) <u>WHEN</u> bus 15 restored, <u>THEN</u> reset control room lighting.</li> </ol> <p>b. Manually align valves.</p> <p>c. Manually start air compressors as power supply permits (75 kw each). <u>IF</u> air compressors can <u>NOT</u> be started, <u>THEN</u> dispatch AO to locally reset compressors as necessary.</p> <p>d. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Continue attempts to restore IA (Refer to AP-IA.1, LOSS OF INSTRUMENT AIR).</li> <li>2) Continue with Step 12. <u>WHEN</u> IA restored, <u>THEN</u> do Steps 11e and f.</li> </ol>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12	<p>Check If Charging Flow Has Been Established:</p> <p>a. Charging pumps - ANY RUNNING</p> <p>b. Align charging pump suction to RWST:</p> <ul style="list-style-type: none"> <li>o LCV-112B - OPEN</li> <li>o LCV-112C - CLOSED</li> </ul> <p>c. Start charging pumps as necessary to establish charging line flow to REGEN HX - GREATER THAN 20 GPM</p>	<p>a. Perform the following:</p> <ol style="list-style-type: none"> <li>1) <u>IF</u> CCW flow is lost to any RCP thermal barrier <u>OR</u> any RCP #1 seal outlet temperature offscale high, <u>THEN</u> dispatch AO with key to RWST gate to locally close seal injection needle valve(s) to affected RCP: <ul style="list-style-type: none"> <li>• RCP A, V-300A</li> <li>• RCP B, V-300B</li> </ul> </li> <li>2) Ensure HCV-142 open, demand at 0%.</li> </ol> <p>b. <u>IF</u> LCV-112B can <u>NOT</u> be opened, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> <li>1) Verify charging pump A <u>NOT</u> running and place in PULL STOP.</li> <li>2) Dispatch AO to locally open manual charging pump suction from RWST (V-358 located in charging pump room).</li> <li>3) <u>WHEN</u> V-358 open, <u>THEN</u> direct AO to close V-268 to isolate charging pumps B and C from VCT (V-268 located in charging pump room).</li> </ol>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
*13	<p><b>Monitor SI Reinitiation Criteria:</b></p> <ul style="list-style-type: none"> <li>o RCS subcooling based on core exit T/Cs - GREATER THAN FIGURE MIN SUBCOOLING</li> <li>o RVLIS indication: <ul style="list-style-type: none"> <li>o Level - GREATER THAN 68% [73% adverse CNMT]</li> </ul> </li> <li>-OR-</li> <li>o Fluid fraction (any RCP running) - GREATER THAN 80%</li> </ul>	<p>Manually operate SI pumps as necessary and perform the following:</p> <ul style="list-style-type: none"> <li>a. <u>IF</u> RCS subcooling based on core exit T/Cs greater than Figure MIN SUBCOOLING and no RCP running, <u>THEN</u> attempt to start a RCP: <ul style="list-style-type: none"> <li>1) Establish conditions for starting an RCP: <ul style="list-style-type: none"> <li>o Bus 11A or 11B energized</li> <li>o Refer to Attachment RCP START</li> </ul> </li> <li>2) <u>IF</u> conditions established, <u>THEN</u> start one RCP.</li> </ul> </li> <li>b. Go to Step 26.</li> </ul>
14	<p><b>Check RCS Hot Leg Temperatures - STABLE</b></p>	<p><u>IF</u> increasing, <u>THEN</u> control feed flow and dump steam to stabilize RCS hot leg temperatures..</p> <p><u>IF</u> decreasing, <u>THEN</u> verify that actions of Step 2 have been performed before continuing with procedure.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15	<p><b>Check If SI ACCUMs Should Be Isolated:</b></p> <p>a. Check the following:</p> <ul style="list-style-type: none"> <li>o RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIGURE MIN SUBCOOLING</li> <li>o RVLIS indication: <ul style="list-style-type: none"> <li>o Level - GREATER THAN 68% [73% adverse CNMT]</li> </ul> </li> </ul> <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> <li>o Fluid fraction (any RCP running) - GREATER THAN 80%</li> </ul> <p>b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves</p> <ul style="list-style-type: none"> <li>• MOV-841, MCC C position 12F</li> <li>• MOV-865, MCC D position 12C</li> </ul> <p>c. Close SI ACCUM discharge valves</p> <ul style="list-style-type: none"> <li>• MOV-841</li> <li>• MOV-865</li> </ul> <p>d. Locally reopen breakers for MOV-841 and MOV-865</p>	<p>a. Return to Step 13.</p> <p>c. Vent any unisolated ACCUMs:</p> <ul style="list-style-type: none"> <li>1) Open vent valves for unisolated SI ACCUMs. <ul style="list-style-type: none"> <li>• ACCUM A, AOV-834A</li> <li>• ACCUM B, AOV-834B</li> </ul> </li> <li>2) Open HCV-945.</li> <li>3) Continue with Step 16. Do <u>NOT</u> decrease RCS pressure to less than unisolated ACCUM pressure.</li> </ul>



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
*****		
	<p><u>CAUTION</u> THE RCS SHOULD NOT BE DEPRESSURIZED TO LESS THAN SI ACCUM PRESSURE UNTIL SI ACCUMS ISOLATED.</p> <p>*****</p> <p><u>NOTE:</u>   o If auxiliary spray is in use, spray flow may be increased by closing normal charging valve AOV-294 and normal PRZR spray valves.</p> <p>          o When using a PRZR PORV select one with an operable block valve.</p>	
16	<p>Depressurize RCS To Decrease RCS Subcooling:</p>	
	<p>a. Depressurize using normal PRZR spray if available</p>	<p>a. <u>IF</u> normal spray <u>NOT</u> available, <u>THEN</u> use one PRZR PORV. <u>IF</u> IA <u>NOT</u> available, <u>THEN</u> refer to Attachment N2 PORVS.</p> <p><u>IF</u> no PRZR PORV available, <u>THEN</u> use auxiliary spray valve (AOV-296).</p>
	<p>b. Depressurize RCS until one of the following conditions satisfied:</p> <p>      o RCS subcooling based on core exit T/Cs - LESS THAN 10°F USING FIGURE MIN SUBCOOLING</p> <p>          -OR-</p> <p>      o PRZR level - GREATER THAN 87% [75% adverse CNMT]</p> <p>          -OR-</p> <p>      o RCS pressure - LESS THAN 160 psig [200 psig adverse CNMT]</p>	
	<p>c. Stop RCS depressurization</p>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
*17 Monitor RCP Operation:		
a. RCPs - ANY RUNNING	a. Go to Step 18.	
b. Check the following:	b. Stop affected RCP(s).	
o RCP #1 seal D/P - GREATER THAN 220 PSID  o RCP #1 seal leakoff - WITHIN THE NORMAL OPERATING RANGE OF FIGURE RCP SEAL LEAKOFF		
*****		
<u>CAUTION</u>		
AN INCREASE IN RCS PRESSURE MAY RESULT IN EXCESSIVE REACTOR VESSEL STRESS. RCS PRESSURE AND TEMPERATURE SHOULD BE MAINTAINED STABLE WHILE PERFORMING SUBSEQUENT STEPS IN THIS PROCEDURE.		
*****		
18 Check PRZR Level - GREATER THAN 13% [40% adverse CNMT]	Try to restore level with charging while maintaining stable RCS pressure. <u>IF</u> level can <u>NOT</u> be restored, <u>THEN</u> go to Step 25.	



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19	<p><b>Check If Normal CVCS Operation Can Be Established</b></p> <p>a. Verify IA restored:</p> <ul style="list-style-type: none"> <li>o IA to CNMT (AOV-5392) - OPEN</li> <li>o IA pressure - GREATER THAN 60 PSIG</li> </ul> <p>b. CCW pumps - ANY RUNNING</p> <p>c. Verify instrument bus D - ENERGIZED</p> <p>d. Charging pump - ANY RUNNING</p>	<p>a. Continue with Step 23. <u>WHEN</u> IA restored, <u>THEN</u> do Steps 19 through 22.</p> <p>b. Perform the following:</p> <ol style="list-style-type: none"> <li>1) <u>IF</u> any RCP #1 seal outlet temperature offscale high, <u>THEN</u> isolate CCW to thermal barrier of affected RCP(s). <ul style="list-style-type: none"> <li>• RCP A, MOV-749A and MOV-759A</li> <li>• RCP B, MOV-749B and MOV-759B</li> </ul> </li> <li>2) Manually start one CCW pump.</li> </ol> <p>c. Energize MCC B. <u>IF</u> MCC B <u>NOT</u> available, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> <li>1) Verify MCC A energized.</li> <li>2) Place instrument bus D on maintenance supply.</li> </ol> <p>d. Continue with Step 24. <u>WHEN</u> any charging pump running, <u>THEN</u> do Steps 20 through 24.</p>



STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
*****		
<b>CAUTION</b> IF RCS PRESSURE LESS THAN 250 PSIG, THEN PCV-135 SHOULD BE ADJUSTED TO ESTABLISH DESIRED LETDOWN FLOW, NOT TO INCREASE PRESSURE.		
*****		
20	<b>Establish Normal Letdown:</b> <ol style="list-style-type: none"> <li>Establish charging line flow to REGEN Hx - GREATER THAN 20 GPM</li> <li>Place the following switches to CLOSE:               <ul style="list-style-type: none"> <li>Letdown orifice valves (AOV-200A, AOV-200B, and AOV-202)</li> <li>AOV-371, letdown isolation valve</li> <li>AOV-427, loop B cold leg to REGEN Hx</li> </ul> </li> <li>Place letdown controllers in MANUAL at 40% open               <ul style="list-style-type: none"> <li>TCV-130</li> <li>PCV-135</li> </ul> </li> <li>Reset both trains of XY relays for AOV-371 and AOV-427</li> <li>Open AOV-371 and AOV-427</li> <li>Open letdown orifice valves as necessary</li> <li>Place TCV-130 in AUTO at 105°F</li> <li>Place PCV-135 in AUTO at 250 psig</li> <li>Adjust charging pump speed and HCV-142 as necessary</li> </ol>	<p>IF RCP seal return has been established, <u>THEN</u> establish excess letdown as follows:</p> <ul style="list-style-type: none"> <li>Place excess letdown divert valve, AOV-312, to NORMAL.</li> <li>Ensure CCW from excess letdown open, (AOV-745).</li> <li>Open excess letdown isolation valve AOV-310.</li> <li>Slowly open HCV-123 to maintain excess letdown temperature less than 195°F and pressure less than 100 psig.</li> <li>Adjust charging pump speed as necessary.</li> </ul> <p>IF RCP seal return <u>NOT</u> established, <u>THEN</u> consult TSC to determine if excess letdown should be placed in service.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21	<p><b>Check VCT Makeup System:</b></p> <ul style="list-style-type: none"> <li>a. Adjust boric acid flow control valve in AUTO to 9.5 gpm</li> <li>b. Adjust RMW flow control valve in AUTO to 40 gpm</li> <li>c. Verify the following: <ul style="list-style-type: none"> <li>1) RMW mode selector switch in AUTO</li> <li>2) RMW control armed - RED LIGHT LIT</li> </ul> </li> <li>d. Check VCT level: <ul style="list-style-type: none"> <li>o Level - GREATER THAN 20%</li> <li>-OR-</li> <li>o Level - STABLE OR INCREASING</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>c. Adjust controls as necessary.</li> <li>d. Manually increase VCT makeup flow as follows: <ul style="list-style-type: none"> <li>1) Ensure BA transfer pumps and RMW pumps running. <u>IF NOT</u>, <u>THEN</u> reset MCC C and MCC D UV lockouts as necessary.</li> <li>2) Place RMW flow control valve HCV-111 in MANUAL and increase RMW flow.</li> <li>3) Increase boric acid flow as necessary.</li> </ul> </li> </ul>





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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	<p>Check Charging Pump Suction Aligned To VCT:</p> <p>a. VCT level - GREATER THAN 20%</p> <p>b. Verify charging pumps aligned to VCT</p> <ul style="list-style-type: none"> <li>o LCV-112C - OPEN</li> <li>o LCV-112B - CLOSED</li> </ul>	<p>a. <u>IF</u> VCT level can <u>NOT</u> be maintained greater than 5%, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> <li>1) Ensure charging pump suction aligned to RWST <ul style="list-style-type: none"> <li>o LCV-112B open</li> <li>o LCV-112C closed</li> </ul> </li> <li>2) Continue with Step 23. <u>WHEN</u> VCT level greater than 40%, <u>THEN</u> do Step 22b.</li> </ol> <p>b. Manually align valves as necessary.</p>
23	<p>Check PRZR Level - LESS THAN 87% [75% adverse CNMT]</p>	<p>Control charging and letdown as necessary to reduce PRZR level to less than 87% [75% adverse CNMT]. If necessary establish excess letdown.</p> <p><u>IF</u> no letdown available <u>AND</u> CCW to RCPs established, <u>THEN</u> cycle charging pumps as necessary to control PRZR level.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><b>NOTE:</b> For optimum long term pressure control, saturated conditions should be restored in the PRZR.</p>		
24	Verify PRZR Liquid Temperature (TI-424) - AT SATURATION FOR DESIRED PRESSURE	IF PRZR liquid temperature low, <u>THEN</u> energize PRZR heaters as necessary to establish desired temperature.
25	Check RCS Subcooling Based On Core Exit T/Cs - LESS THAN 10°F USING FIGURE MIN SUBCOOLING	<p>IF RCS pressure less than 160 psig [200 psig adverse CNMT], <u>THEN</u> go to Step 26. <u>IF NOT</u>, <u>THEN</u> depressurize using normal spray. Return to step 16b.</p> <p>IF normal spray <u>NOT</u> available and letdown is in service, <u>THEN</u> use auxiliary spray for any further depressurization. Return to Step 16b.</p> <p>IF auxiliary spray <u>NOT</u> available, <u>THEN</u> return to Step 16a.</p>
26	Check Cool Down Rate In RCS Cold Legs - GREATER THAN 100°F IN ANY 60 MINUTES PERIOD	Return to procedure and step in effect.
27	Maintain RCS Pressure And Temperature Stable For At Least 1 Hour	
	a. Control steam dump and feed flow as necessary	
	b. Perform actions of other procedures in effect which do not cool down the RCS or increase RCS pressure until the RCS temperature soak has been completed	



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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

**NOTE:** The following pressure, temperature and cooldown rate limits remain applicable in subsequent procedures.

28 WHEN 1 HOUR Soak Is Complete,  
THEN Continue RCS Cooldown  
And Depressurization As  
Necessary

- a. Maintain RCS pressure and cold leg temperature within the limits of Figure SOAK LIMITS
- b. Establish and maintain cooldown rate in RCS cold legs - LESS THAN 50°F IN ANY 60 MINUTES PERIOD

29 Verify SI Flow Not Required:

- o RCS subcooling based on core exit T/Cs - GREATER THAN FIGURE MIN SUBCOOLING
- o RVLIS indication:
  - o Level - GREATER THAN 68% [73% adverse CNMT]
  - OR-
  - o Fluid fraction (any RCP running) - GREATER THAN 80%

Manually operate SI pumps as necessary.

IF RCS subcooling based on core exit T/Cs greater than Figure MIN SUBCOOLING and no RCP running, THEN perform the following:

- a. Establish conditions for starting an RCP:
  - o Bus 11A or 11B energized
  - o Refer to Attachment RCP START
- b. IF conditions established, THEN start one RCP.





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FR-P.1 APPENDIX LIST

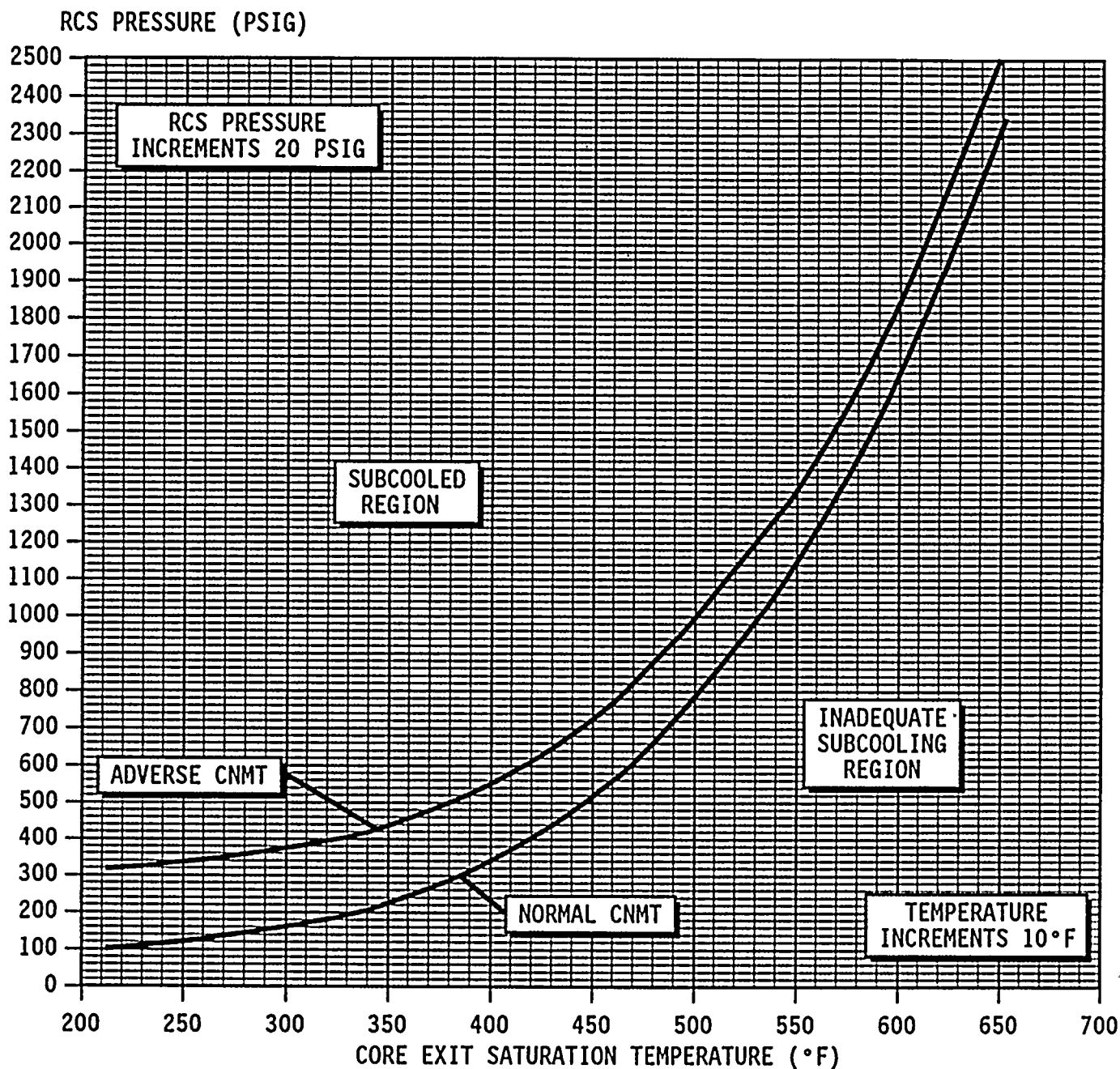
<u>TITLE</u>	<u>PAGES</u>
1) FIGURE MIN SUBCOOLING	1
2) FIGURE SOAK LIMITS	1
3) FIGURE RCP SEAL LEAKOFF	1
4) ATTACHMENT RCP START	2
5) ATTACHMENT SD-1	1
6) ATTACHMENT CNMT RECIRC FANS	1
7) ATTACHMENT N2 PORVS	1





FIGURE MIN SUBCOOLING

NOTE: Subcooling Margin = Saturation Temperature From Figure  
Below [-] Core Exit T/C Indication



EOP:

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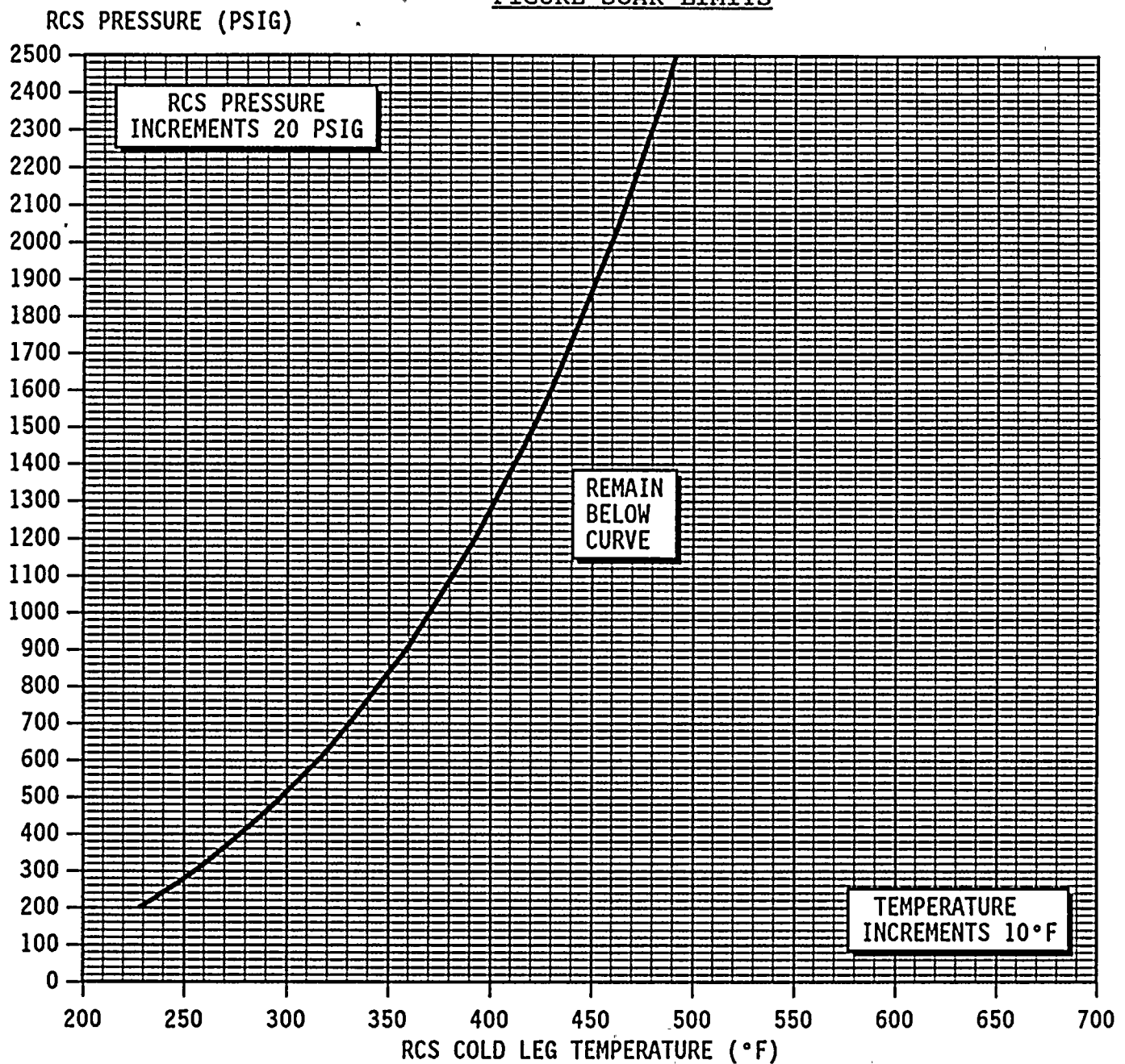
FIGURE SOAK LIMITS

FIGURE RCP SEAL LEAKOFF

#1 SEAL LEAK RATE (GPM)

