

EOP: ECA-3.2	TITLE: SGTR WITH LOSS OF REACTOR COOLANT - SATURATED RECOVERY DESIRED	REV: 10 PAGE 1 of 23
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

PORC REVIEW DATE 5/10/92

Thomas A. Marlow
PLANT SUPERINTENDENT

5/8/92
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

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A. PURPOSE - This procedure provides actions to cool down and depressurize the RCS to cold shutdown conditions while minimizing loss of RCS inventory and voiding in the RCS.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. ECA-3.1, SGTR WITH LOSS OF REACTOR COOLANT - SUBCOOLED RECOVERY DESIRED, when RWST level is low without a corresponding increase in containment sump level.
- b. ECA-3.1, SGTR WITH LOSS OF REACTOR COOLANT - SUBCOOLED RECOVERY DESIRED, when the ruptured S/G level is high and plant staff selects saturated recovery method.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
***** CAUTION *****		
IF RWST LEVEL DECREASES TO LESS THAN 28%, THEN THE SI SYSTEM SHOULD BE ALIGNED FOR COLD LEG RECIRCULATION USING ES-1.3, TRANSFER TO COLD LEG RECIRCULATION.		

<p><u>NOTE:</u></p> <ul style="list-style-type: none"> Steps 1 through 14 of ECA-3.1, SGTR WITH LOSS OF REACTOR COOLANT - SUBCOOLED RECOVERY DESIRED, should be performed before continuing with this procedure. FOLDOUT page should be open and monitored periodically. Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10^{+05} R/hr. 		
1	Add Makeup To RWST As Necessary:	
	<ul style="list-style-type: none"> Refer to S-9J, BLENDING TO RWST 	
	-OR-	
	<ul style="list-style-type: none"> Refer to S-3.2D, TRANSFERRING WATER FROM CVCS HUT(S) TO RWST TO SFP 	
	-OR-	
	<ul style="list-style-type: none"> Refer to Attachment SFP-RWST 	

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

- o 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.
- o RCS PRESSURE SHOULD BE MONITORED. IF RCS PRESSURE DECREASES TO LESS THAN 250 PSIG [465 PSIG ADVERSE CNMT], THEN THE RHR PUMPS MUST BE MANUALLY RESTARTED TO SUPPLY WATER TO THE RCS.

2 Check If RHR Pumps Should Be Stopped:

a. Check RCS pressure:

a. Go to Step 3.

1) Pressure - GREATER THAN
250 psig [465 psig adverse
CNMT]

2) RCS pressure - STABLE OR
INCREASING

b. Stop RHR pumps and place in AUTO

3 Check If S/G Secondary Side Is Intact:

o Pressure in both S/Gs - STABLE
OR INCREASING

o Pressure in both S/Gs - GREATER
THAN 100 PSIG

IF any S/G pressure decreasing in an uncontrolled manner OR completely depressurized, THEN verify faulted S/G isolated unless needed for RCS cooldown:

- Steamlines
- Feedlines

IF NOT, THEN go to E-2, FAULTED STEAM GENERATOR ISOLATION, Step 1.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
***** CAUTION 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). *****		
NOTE: TDAFW pump flow control valves fail open on loss of IA.		
4	Check Intact S/G Level:	
	a. Narrow range level - GREATER THAN 5% [25% adverse CNMT]	a. Maintain total feed flow greater than 200 gpm until narrow range level greater than 5% [25% adverse CNMT] in at least one S/G.
	b. Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%	b. IF narrow range level in the intact S/G continues to increase in an uncontrolled manner, THEN consider isolating unnecessary release paths: • TDAFW pump steam supply valves • S/G blowdown valves • Refer to Attachment RUPTURED S/G

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Shutdown margin should be monitored during RCS cooldown. Refer to Figure SDM.

5 Initiate RCS Cooldown To Cold Shutdown:

a. Establish and maintain cooldown rate in RCS cold legs - LESS THAN 100°F/HR.

b. Use RHR system if in service

c. Dump steam to condenser from intact S/G

c. Manually or locally dump steam using intact S/G ARV.

IF no intact S/G available, THEN perform the following:

o Use faulted S/G.

-OR-

o IF RHR system NOT in service, THEN use ruptured S/G.

6 Check RCS Subcooling Based On Core Exit T/Cs - GREATER THAN 0°F USING FIGURE MIN SUBCOOLING

Go to Step 18.

7 Check Safeguards Pump Status

Go to Step 14.

o SI pumps - ANY RUNNING

-OR-

o RHR pumps - ANY RUNNING IN INJECTION MODE

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8	<p>Place PRZR Heater Switches In The Following Positions:</p> <ul style="list-style-type: none"> o PRZR heater control group - PULL STOP o PRZR heater backup group - OFF <p>***** <u>CAUTION</u> VOIDING MAY OCCUR IN THE RCS DURING RCS DEPRESSURIZATION. THIS WILL RESULT IN A RAPIDLY INCREASING PRZR LEVEL. *****</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> <ul style="list-style-type: none"> o When using PRZR PORV, select one with an operable block valve. 	
9	<p>Depressurize RCS To Refill PRZR:</p> <ul style="list-style-type: none"> a. Use normal PRZR spray valve associated with running RCP <ul style="list-style-type: none"> • PCV-431A for A RCP • PCV-431B for B RCP b. PRZR level - GREATER THAN 13% [40% adverse CNMT] c. Stop RCS depressurization 	<ul style="list-style-type: none"> a. Use one PRZR PORV. <u>IF</u> IA <u>NOT</u> available, <u>THEN</u> refer to Attachment N2 PORVS. <u>IF</u> no PORV available, <u>THEN</u> use auxiliary spray valve. b. Continue with Step 10. <u>WHEN</u> level greater than 13% [40% adverse CNMT], <u>THEN</u> stop RCS depressurization.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>***** <u>CAUTION</u> IF RCP SEAL COOLING HAD PREVIOUSLY BEEN LOST, THEN THE AFFECTED RCP SHOULD NOT BE STARTED PRIOR TO A STATUS EVALUATION. *****</p>		
10	<p>Check If An RCP Should Be Started:</p> <p>a. Both RCPs - STOPPED</p> <p>b. RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIGURE MIN SUBCOOLING</p> <p>c. PRZR level - GREATER THAN 13% [40% adverse CNMT]</p> <p>d. Try to start an RCP</p> <p>1) Establish conditions for starting an RCP</p> <p>o Bus 11A or 11B energized</p> <p>o Refer to Attachment RCP START</p> <p>2) Start one RCP</p>	<p>a. Stop all but one RCP and go to Step 11.</p> <p>b. Go to Step 18.</p> <p>c. Return to Step 9.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	Check If One Of Three SI Pumps Should Be Stopped:	
	a. Three SI pumps - RUNNING	a. Go to Step 12.
	b. RCS subcooling based on core exit T/Cs - GREATER THAN 10°F [10°F adverse CNMT] USING FIGURE MIN SUBCOOLING	b. <u>IF</u> RCS hot leg temperatures greater than 325°F [270°F adverse CNMT] <u>OR IF</u> RHR normal cooling in service, <u>THEN</u> go to Step 18. <u>IF</u> RHR normal cooling <u>NOT</u> in service <u>AND</u> RCS hot leg temperatures less than 325°F [270°F adverse CNMT], <u>THEN</u> ensure at least one RHR pump running in injection mode and go to Step 11c. <u>IF</u> no RHR pump can be operated in injection mode, <u>THEN</u> go to Step 18.
	c. Check PRZR level - GREATER THAN 13% [40% adverse CNMT]	c. Do <u>NOT</u> stop SI pump. Return to Step 9.
	d. Stop one SI pump	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12	Check If One Of Two SI Pumps Should Be Stopped:	
a.	Two SI pumps - RUNNING	a. Go to Step 13.
b.	RCS subcooling based on core exit T/Cs - GREATER THAN 35°F [35°F adverse CNMT] USING FIGURE MIN SUBCOOLING	b. <u>IF</u> RCS hot leg temperatures greater than 325°F [270°F adverse CNMT] <u>OR IF</u> RHR normal cooling in service, <u>THEN</u> go to Step 18. <u>IF</u> RHR normal cooling <u>NOT</u> in service <u>AND</u> RCS hot leg temperatures less than 325°F [270°F adverse CNMT], <u>THEN</u> ensure at least one RHR pump running in injection mode and go to Step 12c. <u>IF</u> no RHR pump can be operated in injection mode, <u>THEN</u> go to Step 18.
c.	PRZR level - GREATER THAN 13% [40% adverse CNMT]	c. Do <u>NOT</u> stop SI pump. Return to Step 9.
d.	Stop one SI pump	

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

13 Check If Last SI Pump Should Be Stopped:

a. One SI pump - RUNNING

a. IF any RHR pump running in injection mode, THEN go to Step 18. IF NOT, THEN go to Step 14.

b. Determine required RCS subcooling from table:

Charging Pump Availability	RCS Subcooling Criteria
NONE	Insufficient subcooling to stop SI pump.
ONE	215°F [215°F adverse CNMT]
TWO	150°F [150°F adverse CNMT]
THREE	80°F [80°F adverse CNMT]

c. RCS subcooling based on core exit T/Cs - GREATER THAN VALUE FROM TABLE ABOVE USING FIGURE MIN SUBCOOLING

c. IF RCS hot leg temperatures greater than 325°F [270°F adverse CNMT] OR IF RHR normal cooling in service, THEN go to Step 18.

IF RHR normal cooling NOT in service AND RCS hot leg temperatures less than 325°F [270°F adverse CNMT], THEN ensure at least one RHR pump running in injection mode and go to Step 13d. IF no RHR pump can be operated in injection mode, THEN go to Step 18.

d. PRZR level - GREATER THAN 13% [40% adverse CNMT]

d. Do NOT stop SI pump. Return to Step 9.

e. Stop running SI pump

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14	<p>Control Charging Flow To Maintain RCS Inventory:</p> <ul style="list-style-type: none"> o RVLIS level (no RCPs) - BETWEEN 68% AND 73% [73% AND 76% adverse CNMT] <p>-OR-</p> <ul style="list-style-type: none"> o RVLIS fluid fraction (any RCP running) - BETWEEN 80% AND 90% <p>***** <u>CAUTION</u> *****</p> <p>IF RCP SEAL COOLING HAD PREVIOUSLY BEEN LOST, THEN THE AFFECTED RCP SHOULD NOT BE STARTED PRIOR TO A STATUS EVALUATION.</p> <p>***** *****</p>	<p>Start charging pumps as necessary and adjust charging flow to maintain RCS inventory.</p>
15	<p>Check RCP Status:</p> <ul style="list-style-type: none"> a. RCPs - AT LEAST ONE RUNNING 	<p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) Establish conditions for starting an RCP: <ul style="list-style-type: none"> o Verify bus 11A or 11B energized. o Refer to Attachment RCP START. 2) Start one RCP. <p><u>IF</u> an RCP can <u>NOT</u> be started, <u>THEN</u> verify natural circulation (Refer to Attachment NC).</p> <p><u>IF</u> natural circulation <u>NOT</u> verified, <u>THEN</u> increase dumping steam.</p>
	<ul style="list-style-type: none"> b. Stop all but one RCP 	

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

- o VOIDING MAY OCCUR IN THE RCS DURING RCS DEPRESSURIZATION. THIS WILL RESULT IN A RAPIDLY INCREASING PRZR LEVEL.
- o IF SI HAS BEEN TERMINATED, THE ACCUMS SHOULD BE ISOLATED PRIOR TO DEPRESSURIZING THE RCS TO LESS THAN 1000 PSIG.

- NOTE:
- o If auxiliary spray is in use, spray flow may be increased by closing normal charging valve AOV-294 and normal PRZR spray valves.
 - o When using PRZR PORV, select one with an operable block valve.

16 Depressurize RCS To
Saturation At Core Exit:

- a. Determine saturation pressure for core exit T/Cs using Figure TSAT
 - b. Use normal PRZR spray valves associated with running RCP
 - PCV-431A for A RCP
 - PCV-431B for B RCP
 - b. Use one PRZR PORV. IF IA NOT available, THEN refer to Attachment N2 PORVS.
IF PORV NOT available, THEN use auxiliary spray valve (AOV-296).
 - c. Energize PRZR heaters as necessary
 - d. Depressurize RCS until EITHER of the following conditions satisfied:
 - o PRZR level - GREATER THAN 75% [65% adverse CNMT]
- OR-
- o RCS pressure - AT SATURATION FROM STEP 16a

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

17 Verify Adequate Shutdown
Margin

- a. Direct HP to sample RCS and ruptured S/G for boron concentration
- b. Verify boron concentration - GREATER THAN REQUIREMENTS OF FIGURE SDM

b. Borate as necessary.

18 Verify SI Flow Not Required:

- a. Core exit T/Cs - DECREASING
- b. Check RVLIS indication:
 - o Level (no RCPs) - GREATER THAN 68% [73% adverse CNMT]

-OR-

- o Fluid Fraction (any RCP running) - GREATER THAN 80%

a. Increase dumping steam.

IF core exit T/Cs do NOT decrease, THEN manually operate SI pumps as necessary.

b. Manually operate SI pumps as necessary.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19	<p>Check If SI ACCUMs Should Be Isolated:</p> <p>a. RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIGURE MIN SUBCOOLING</p> <p>b. PRZR level - GREATER THAN 5% [30% adverse CNMT]</p> <p>c. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves</p> <ul style="list-style-type: none"> • MOV-841, MCC C position 12F • MOV-865, MCC D position 12C <p>d. Close SI ACCUM discharge valves</p> <ul style="list-style-type: none"> • MOV-841 • MOV-865 <p>e. Locally reopen breakers for MOV-841 and MOV-865</p>	<p>a. <u>IF</u> both RCS hot leg temperatures less than 400°F, <u>THEN</u> go to Step 19c.</p> <p><u>IF NOT</u>, <u>THEN</u> go to Step 20.</p> <p>b. Return to Step 9.</p> <p>d. Vent any unisolated ACCUMs:</p> <p>1) Open vent valves for unisolated SI ACCUMs.</p> <ul style="list-style-type: none"> • ACCUM A, AOV-834A • ACCUM B, AOV-834B <p>2) Open HCV-945.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20	<p>Check If Emergency D/Gs Should Be Stopped:</p> <ul style="list-style-type: none"> a. Verify AC emergency busses energized by offsite power: <ul style="list-style-type: none"> o Emergency D/G output breakers - OPEN o AC emergency bus voltage - GREATER THAN 420 VOLTS o AC emergency bus normal feed breakers - CLOSED b. Stop any unloaded emergency D/G and place in standby (Refer to Attachment D/G STOP) 	<ul style="list-style-type: none"> a. Try to restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER).
21	<p>Minimize Secondary System Contamination:</p> <ul style="list-style-type: none"> a. Isolate reject from hotwell to CST: <ul style="list-style-type: none"> o Place hotwell level controller (HC-107) in MANUAL at 50% o Verify hotwell level - STABLE b. Verify local actions to complete isolation of ruptured S/G (Refer to Attachment RUPTURED S/G) 	<ul style="list-style-type: none"> a. <u>IF</u> hotwell level increasing, <u>THEN</u> direct HP to sample hotwells for activity.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	Verify Adequate SW Flow To CCW Hx:	
	<ul style="list-style-type: none"> a. Verify at least two SW pumps - RUNNING b. Verify AUX BLDG SW isolation valves - OPEN <ul style="list-style-type: none"> • MOV-4615 and MOV-4734 • MOV-4616 and MOV-4735 c. Verify CNMT RECIRC fan annunciator C-2, HIGH TEMPERATURE ALARM - EXTINGUISHED 	<ul style="list-style-type: none"> a. Manually start pumps as power supply permits (258 kw per pump). <u>IF</u> less than two SW pumps can be operated, <u>THEN</u> go to Step 23. b. Establish SW to AUX BLDG (Refer to Attachment AUX BLDG SW). c. Dispatch AO to locally throttle flow to CCW Hx to between 5000 gpm and 6000 gpm total flow.
23	Check RCP Cooling	Establish normal cooling to RCPs (Refer to Attachment SEAL COOLING).
	<ul style="list-style-type: none"> a. Check CCW to RCPs <ul style="list-style-type: none"> o Annunciator A-7, RCP 1A CCW RETURN HIGH TEMP OR LOW FLOW - EXTINGUISHED o Annunciator A-15, RCP 1B CCW RETURN HIGH TEMP OR LOW FLOW - EXTINGUISHED b. Check RCP seal injection <ul style="list-style-type: none"> o Labyrinth seal D/Ps - GREATER THAN 15 INCHES OF WATER <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> o RCP seal injection flow to each RCP - GREATER THAN 6 GPM 	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24	Check If Seal Return Flow Should Be Established:	
a.	Verify instrument bus D - ENERGIZED	a. Perform the following: 1) Ensure steam dump mode control in MANUAL. 2) Restore power to instrument bus D from MCC B or MCC A (maintenance supply).
b.	Verify RCP #1 seal outlet temperature - LESS THAN 235°F	b. Go to Step 25.
c.	Verify RCP seal outlet valves - OPEN • AOV-270A • AOV-270B	c. Manually open valves as necessary.
d.	Reset both trains of XY relays for RCP seal return isolation valve MOV-313	
e.	Open RCP seal return isolation valve MOV-313	e. Perform the following: 1) Place MOV-313 switch to OPEN. 2) Dispatch AO with key to RWST gate to locally open MOV-313.
f.	Verify RCP #1 seal leakoff flow - LESS THAN 5.5 GPM	f. <u>IF</u> any RCP seal leakoff flow greater than 5.5 gpm <u>THEN</u> : o Close the affected RCP seal discharge valve • RCP A, AOV-270A • RCP B, AOV-270B o Trip the affected RCP <u>IF</u> both RCP seal discharge valves are shut, <u>THEN</u> go to Step 25.
g.	Verify RCP #1 seal leakoff flow - GREATER THAN 0.25 GPM	g. Refer to AP-RCP.1, RCP SEAL MALFUNCTION.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u> Adverse CNMT conditions or loss of forced air cooling may result in failure of NIS detectors.</p>		
25	Check If Source Range Detectors Should Be Energized:	
a.	Source range channels - DEENERGIZED	a. Go to Step 25e.
b.	Check intermediate range flux -. EITHER CHANNEL LESS THAN 10 ⁻¹⁰ AMPS	b. Perform the following: <ul style="list-style-type: none"> 1) <u>IF</u> neither intermediate range channel is decreasing, <u>THEN</u> initiate boration. 2) Continue with Step 26. <u>WHEN</u> flux is LESS THAN 10⁻¹⁰ amps on any operable channel, <u>THEN</u> do Steps 25c, d and e.
c.	Check the following: <ul style="list-style-type: none"> o Both intermediate range channels - LESS THAN 10⁻¹⁰ AMPS <p>-OR-</p> <ul style="list-style-type: none"> o Greater than 20 minutes since reactor trip 	c. Continue with Step 26. <u>WHEN</u> either condition met, <u>THEN</u> do Steps 25d and e.
d.	Verify source range detectors - ENERGIZED	d. Manually energize source range detectors by depressing P-6 permissive defeat pushbuttons (2 of 2). <p><u>IF</u> source ranges can <u>NOT</u> be restored, <u>THEN</u> refer to ER-NIS.1, SR MALFUNCTION and go to Step 26.</p>
e.	Transfer Rk-45 recorder to one source range and one intermediate range channel	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
26	<p>Establish Normal Shutdown Alignment:</p> <p>a. Check condenser - AVAILABLE</p> <p>b. Perform the following:</p> <ul style="list-style-type: none"> o Open generator disconnects <ul style="list-style-type: none"> • 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 <p>c. Verify adequate Rx head cooling:</p> <ol style="list-style-type: none"> 1) Check IA to CNMT - AVAILABLE 2) Verify at least one control rod shroud fan - RUNNING 3) Verify one Rx compartment cooling fan - RUNNING <p>d. Verify Attachment SD-1 - COMPLETE</p>	<p>a. Dispatch AO to perform Attachment SD-2.</p> <p>1) Go to Step 27.</p> <p>2) Manually start one fan as power supply permits (45 kw)</p> <p>3) Perform the following:</p> <ul style="list-style-type: none"> o Dispatch AO to reset UV relays at MCC C and MCC D. o Manually start one fan as power supply permits (23 kw).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>***** <u>CAUTION</u> FEED FLOW SHOULD NOT BE ESTABLISHED TO ANY RUPTURED S/G WHICH IS ALSO FAULTED UNLESS IT IS NEEDED FOR RCS COOLDOWN. *****</p>		
27	Check Ruptured S/G(s) Narrow Range Level - GREATER THAN 17% [25% adverse CNMT]	Refill ruptured S/G to 67% [55% adverse CNMT] using feed flow. IF either of the following conditions occurs, <u>THEN</u> stop feed flow to ruptured S/G unless needed for RCS cooldown: o Ruptured S/G pressure decreases in an uncontrolled manner. -OR- o Ruptured S/G pressure increases to 1020 psig.
28	Check If RCPs Must Be Stopped:	
	a. RCPs - ANY RUNNING	a. Go to Step 29.
	b. Check the following:	b. Go to Step 29.
	o RCP #1 seal D/P - LESS THAN 220 PSID	
	-OR-	
	o Check RCP seal leakage - LESS THAN 0.25 GPM	
	c. Stop affected RCP(s)	
29	Check Condenser Steam Dump Available - CONDENSER VACUUM GREATER THAN 20 INCHES HG	Use intact S/G ARV for RCS temperature control.



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
30	Check If RHR Normal Cooling Can Be Established:	
a.	RCS cold leg temperature - LESS THAN 350°F	a. Go to Step 31.
b.	RCS pressure - LESS THAN 400 psig [300 psig adverse CNMT]	b. Go to Step 31.
c.	Place letdown pressure controller in MANUAL CLOSED	
d.	Check following valves - OPEN <ul style="list-style-type: none"> • AOV-371, letdown isolation valve • AOV-427, loop B cold leg to REGEN Hx • At least one letdown orifice valve (AOV-200A, AOV-200B, or AOV-202) 	d. Perform the following: <ol style="list-style-type: none"> 1) Reset both trains of XY relays for AOV-371 and AOV-427. 2) Open AOV-371 and AOV-427. 3) Open one letdown orifice valve.
e.	Verify pressure on PI-135 - LESS THAN 400 PSIG	e. Go to Step 31.
f.	Place RCS overpressure protection system in service (Refer to O-7, ALIGNMENT AND OPERATION OF THE REACTOR VESSEL OVERPRESSURE PROTECTION SYSTEM)	
g.	Consult TSC to determine if RHR normal cooling should be established using Attachment RHR COOL	

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED.

31 Check Core Exit T/Cs - LESS
THAN 200°F

Return to Step 4.

32 Evaluate Long Term Plant
Status:

- a. Maintain cold shutdown conditions
- b. Consult TSC

-END-



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ECA-3.2 APPENDIX LIST

<u>TITLE</u>	<u>PAGES</u>
1) RED PATH SUMMARY	1
2) FIGURE MIN SUBCOOLING	1
3) FIGURE SDM	1
4) FIGURE TSAT	1
5) ATTACHMENT SFP-RWST	1
6) ATTACHMENT N2 PORVS	1
7) ATTACHMENT NC	1
8) ATTACHMENT SEAL COOLING	2
9) ATTACHMENT RCP START	1
10) ATTACHMENT D/G STOP	1
11) ATTACHMENT AUX BLDG SW	1
12) ATTACHMENT RUPTURED S/G	2
13) ATTACHMENT SD-1	1
14) ATTACHMENT SD-2	1
15) ATTACHMENT RHR COOL	2
16) FOLDOUT	1

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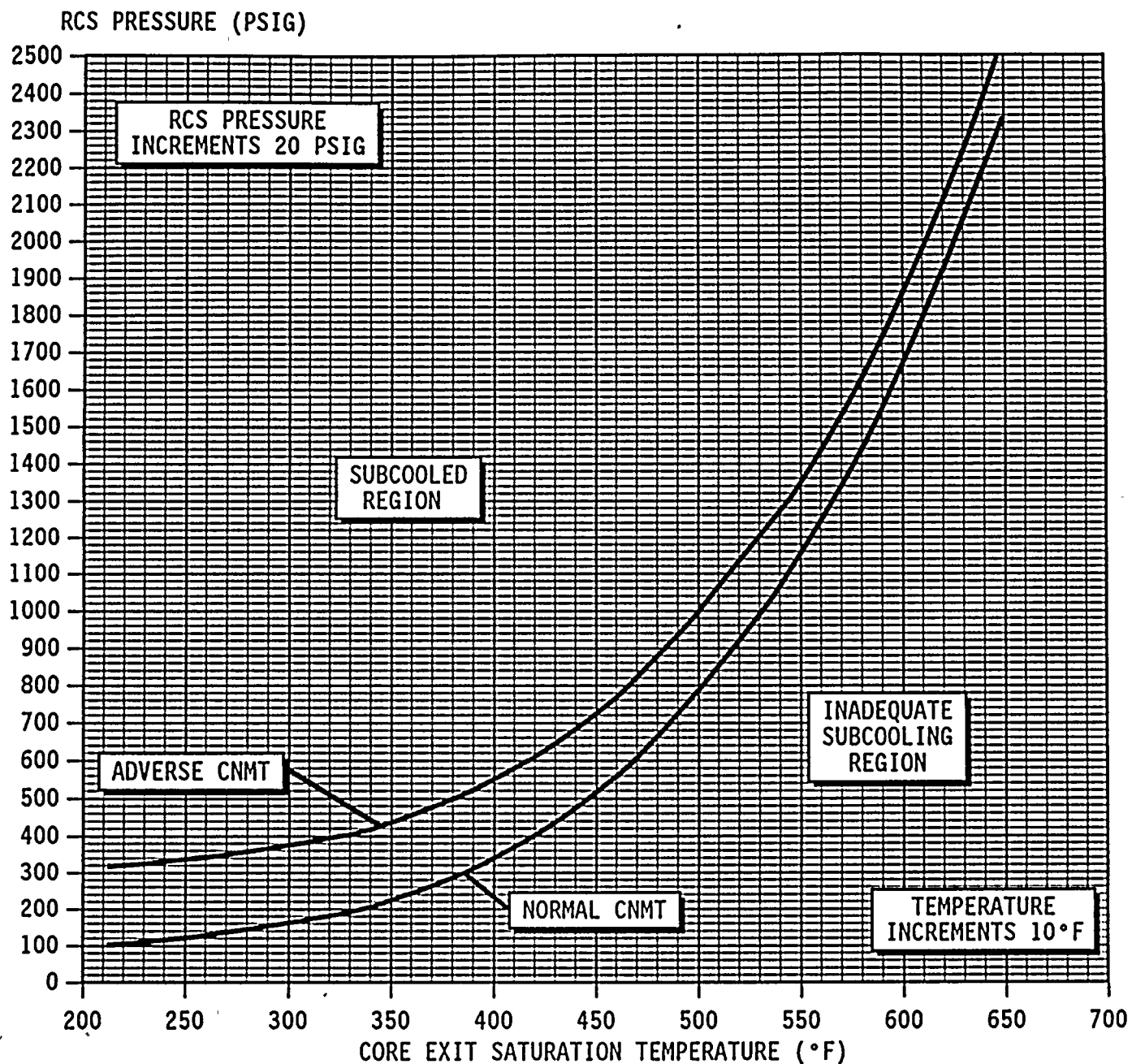
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FIGURE MIN SUBCOOLING

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

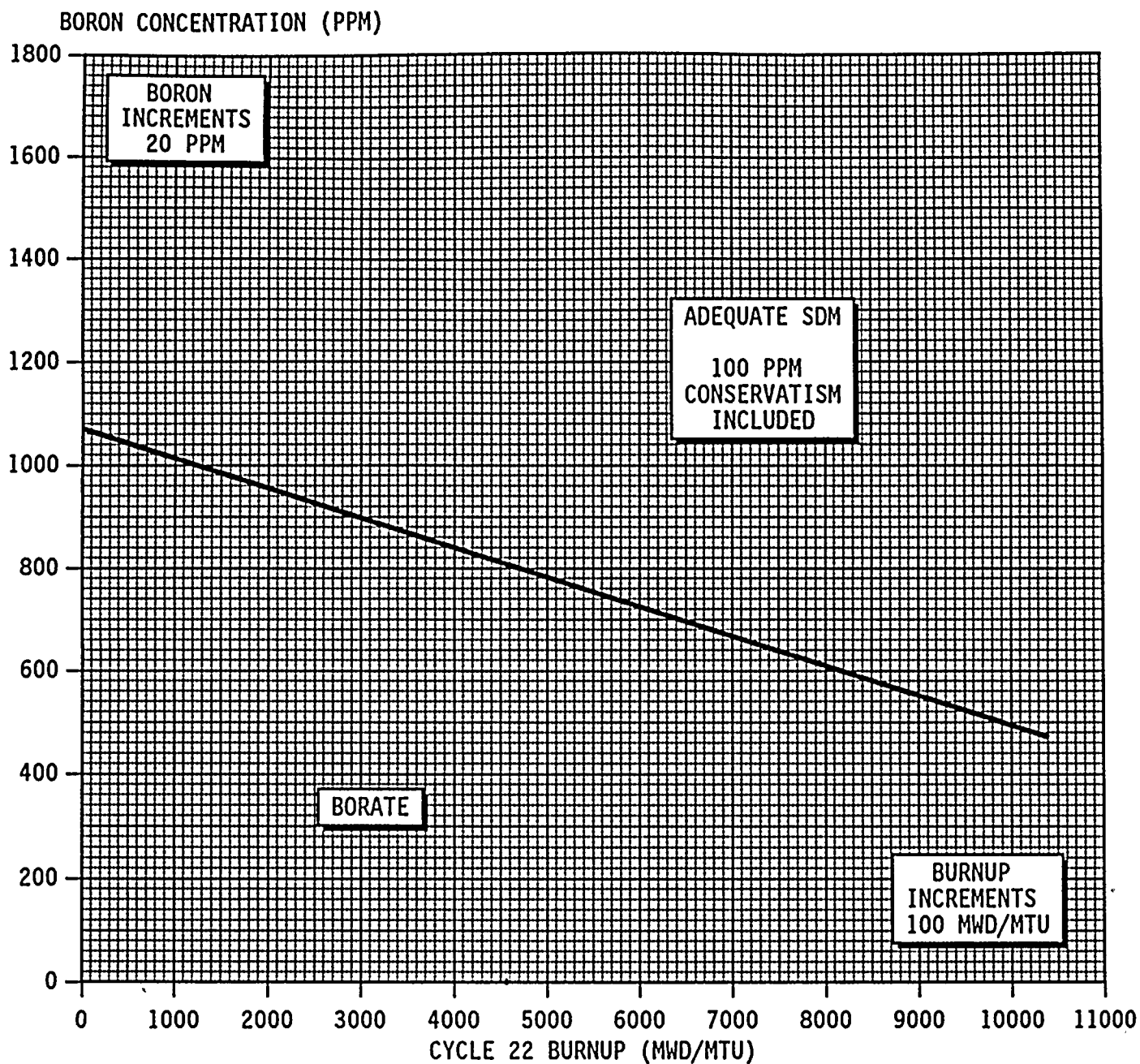


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FIGURE SDM



NOTE: To obtain core burnup, use PPCS turn on code BURNUP.

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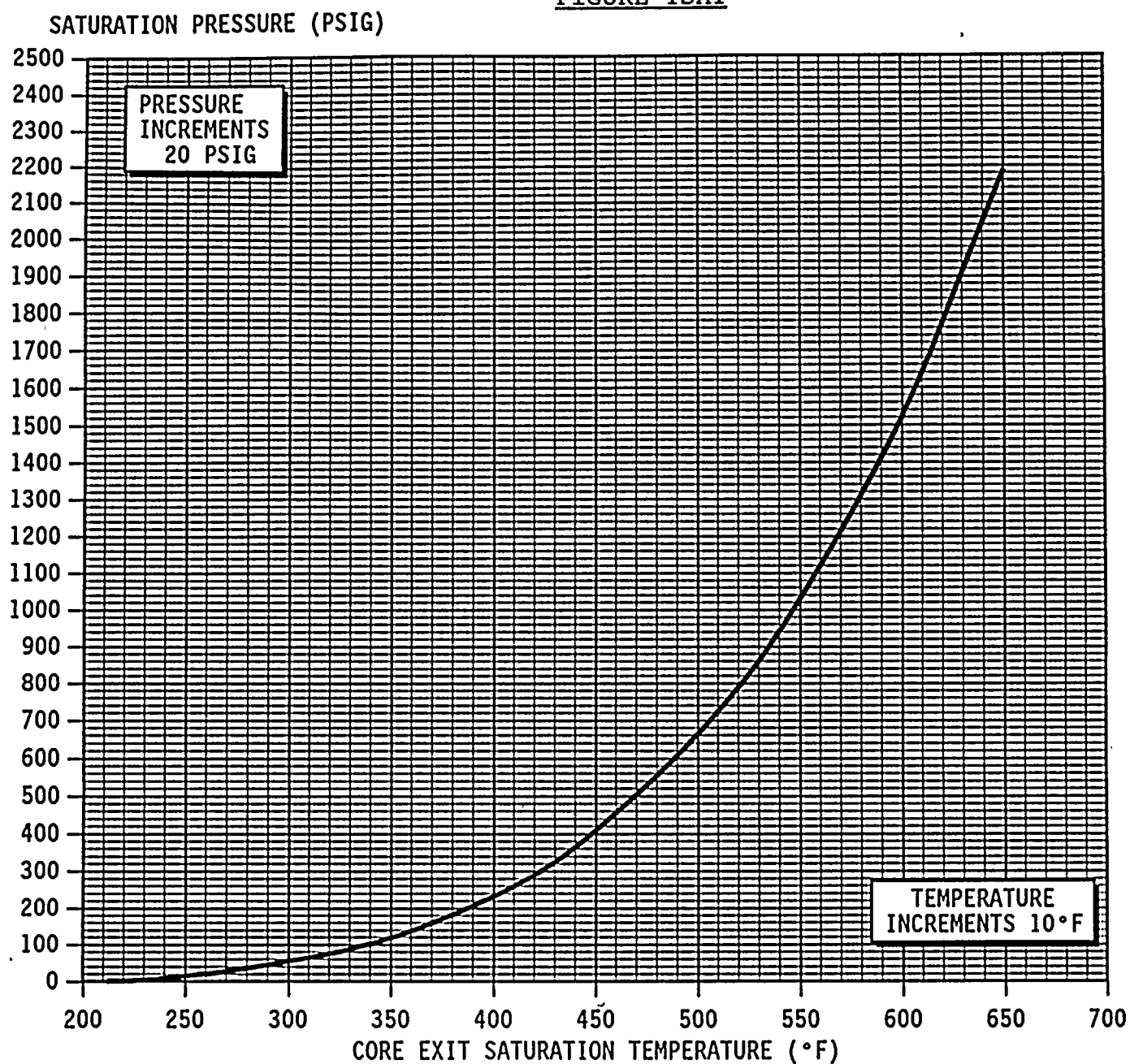
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Figure 1

FIGURE TSAT



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FOLDOUT PAGE

1. SI REINITIATION CRITERIA

IF EITHER condition listed below occurs, THEN manually operate SI pumps as necessary:

- o Core exit T/Cs - INCREASING

-OR-

- o Check RVLIS indication:

Level (no RCPs) - LESS THAN 68% [73% adverse CNMT]

Fluid fraction (any RCP running) - LESS THAN 80%

2. SECONDARY INTEGRITY CRITERIA

IF any S/G pressure is decreasing in an uncontrolled manner or is completely depressurized, and has not been isolated, THEN go to E-2, FAULTED S/G ISOLATION, Step 1, unless faulted S/G needed for RCS cooldown.

3. COLD LEG RECIRCULATION SWITCHOVER CRITERION

IF RWST level decreases to less than 28%, THEN go to ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 1.

4. AFW SUPPLY SWITCHOVER CRITERION

IF CST level decreases to less than 5 feet, THEN switch to alternate AFW water supply (Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).

