ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

PORC REVIEW DATE 4/4/90

Joseph A. Widay
PLANT SUPERINTENDENT

4/9/90
EFFECTIVE DATE

QA X NON-QA _____ CATEGORY 1.0

REVIEWED BY: _____

GINNA STATION
START:
DATE _____
TIME _____
COMPLETED:
DATE _____
TIME: _____

A. PURPOSE - This procedure provides actions for responding to a loss of secondary heat sink in both S/Gs.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

a. E-0, REACTOR TRIP OR SAFETY INJECTION, when minimum AFW flow is not verified.

b. F-0.3, HEAT SINK Critical Safety Function Status Tree on a RED condition.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

* *

CAUTION

- IF TOTAL FEED FLOW IS LESS THAN 200 GPM DUE TO OPERATOR ACTION, THIS PROCEDURE SHOULD NOT BE PERFORMED.
- FEED FLOW SHOULD NOT BE REESTABLISHED TO A FAULTED S/G IF A NON-FAULTED S/G IS AVAILABLE.

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NOTE: 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 Check If Secondary Heat Sink Is Required:

a. RCS pressure - GREATER THAN ANY NON-FAULTED S/G PRESSURE

a. IF RWST level greater than 28%, THEN go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.

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

This Step continued on the next page.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 1 continued from previous page)	
	b. Check the following: o RCS cold leg temperature - GREATER THAN 350°F o RCS pressure - GREATER THAN 400 psig [300 psig adverse CNMT]	b. Try to place RHR System in service while continuing with this procedure: 1) Reset SI if necessary. 2) Place letdown pressure controller in MANUAL CLOSED. 3) Check the following valves - OPEN: • 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) 4) IF pressure on PI-135 less than 400 psig, THEN establish RHR normal cooling (Refer to Attachment RHR COOL). IF adequate cooling with RHR system established, THEN return to procedure and step in effect.
2	Monitor Secondary Heat Sink: o Verify both S/G wide range levels - GREATER THAN 35 inches [110 inches adverse CNMT] o Verify PRZR pressure - LESS THAN 2335 PSIG	Perform the following: a. Trip both RCPs. b. Go to Step 11 to initiate bleed and feed cooling.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	Try to Establish AFW Flow To At Least One S/G:	
	a. Check MCB indications for cause of AFW failure:	
	1) Verify CST level - GREATER THAN 5 FEET	1) Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS.
	2) Verify busses supplying power to MDAFW pumps - ENERGIZED • Bus 14 • Bus 16	2) Continue attempts to restore power to MDAFW pumps.
	3) Check AFW valve alignment o AFW pump discharge valves - OPEN • MOV-4007 • MOV-4008 • MOV-3996 o TDAFW pump flow control valves - OPEN • AOV-4297 • AOV-4298	3) Dispatch AO to locally align valves as necessary.
	b. Check AFW pumps - ALL RUNNING	b. Perform the following: 1) Manually start MDAFW pumps. 2) Check TDAFW pump steam supply valves OPEN. • MOV-3504A • MOV-3505A 3) If necessary dispatch AO to locally reset TDAFW pump governor valve.
	c. Check total flow to S/Gs - GREATER THAN 200 GPM	c. Continue attempts to restore AFW flow and go to Step 4.
	d. Return to procedure and step in effect	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

4 Stop Both RCPs

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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CAUTION

IF OFFSITE POWER IS LOST AFTER SI RESET, SELECTED SW PUMPS AND ONE CCW PUMP WILL AUTO START ON EMERGENCY D/G. MANUAL ACTION WILL BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT.

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5 Try To Establish MFW Flow To At Least One S/G:

a. Check condensate system:

- o Condensate pump - ANY RUNNING
- o MFW pump suction pressure - GREATER THAN 185 PSIG

a. IF offsite power available, THEN try to place condensate system in service.

IF NOT, THEN go to Step 6.

b. Reset SI if necessary

c. Reset feedwater isolation

d. Establish MFW flow:

1) Check MFW pump discharge valves - CLOSED
2) Verify MFW flow control bypass valve - OPERABLE
3) Dispatch AO to restore MFW pump SW cooling
4) Verify S/G blowdown key switches in NORMAL
5) Ensure one MFW pump recirc valve - OPEN
6) Start selected MFW pump
7) Open MFW pump discharge valve
8) Open MFW flow control bypass valves as necessary to restore S/G level

d. IF MFW flow can NOT be established, THEN go to Step 6.

e. Go to Step 9

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Establish SAFW Flow: a. Perform the following: 1) Align SAFW system for operation (Refer to Attachment SAFW) 2) Start both SAFW pumps 3) Verify SAFW total flow - GREATER THAN 200 GPM b. Go to Step 9	a. IF greater than 200 gpm, total SAFW flow can NOT be established, THEN go to Step 7.
7	Establish Condenser Steam Dump Pressure Control: a. Verify condenser available: o Any MSIV - OPEN o Annunciator G-15, STEAM DUMP - LIT b. Adjust condenser steam dump controller HC-484 to desired pressure and verify in AUTO c. Place steam dump mode selector switch to MANUAL	a. Place S/G ARV controllers in AUTO at desired pressure and go to Step 8.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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CAUTION

FOLLOWING BLOCK OF AUTOMATIC SI ACTUATION, MANUAL SI ACTUATION MAY BE REQUIRED IF CONDITIONS DEGRADE.

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NOTE: If auxiliary spray is in use, spray flow may be increased by closing normal charging valve AOV-294 and normal PRZR spray valves.

8	Try To Establish Feed Flow From Condensate System:	
	a. Check condensate pumps - ANY RUNNING	a. IF offsite power available, THEN manually start at least one condensate pump. IF a condensate pump can NOT be started, THEN go to Step 10.
	b. Establish condensate flowpath (Refer to Attachment COND TO S/G)	b. Go to Step 10.
	c. Depressurize RCS to less than 1950 psig:	
	1) Deenergize PRZR heaters	
	2) Check letdown - IN SERVICE	2) 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 and go to Step 8d.
	3) Depressurize using auxiliary spray valve (AOV-296)	
	d. WHEN RCS pressure less than 1950 psig, THEN perform the following:	
	1) Block SI	
	2) Dump steam to condenser at maximum rate to depressurize at least one S/G to less than 380 psig	2) Manually or locally dump steam using intact S/G ARV.
	e. Verify condensate flow to S/Gs	e. Go to Step 10.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9	Check S/G Levels:	
	a. Narrow range level in at least one S/G - GREATER THAN 5% [25% adverse CNMT]	a. IF feed flow verified to at least one S/G, THEN maintain flow to restore narrow range level greater than 5% [25% adverse CNMT]. IF NOT verified, THEN go to Step 10.
	b. Return to procedure and step in effect	
10	Verify Secondary Heat Sink:	
	a. Check the following: o Both S/G wide range levels - GREATER THAN 35 inches [110 inches adverse CNMT] o PRZR pressure - LESS THAN 2335 PSIG	a. Perform the following: 1) Trip both RCPs. 2) Go to Step 11 to initiate bleed and feed cooling.
	b. Return to Step 1	

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CAUTION

STEPS 11 THROUGH 13 MUST BE PERFORMED QUICKLY IN ORDER TO ESTABLISH RCS HEAT REMOVAL BY RCS BLEED AND FEED.

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11 Actuate SI and CI

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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CAUTION

WHEN BAST LEVEL DECREASES TO 10%, THEN SI PUMP AUTOMATIC SWITCHOVER TO RWST SHOULD BE ENSURED.

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12	Verify RCS Feed Path:	Manually start pumps and align valves as necessary to establish RCS feed path.
	a. Check SI pumps - AT LEAST ONE RUNNING	
	b. Check valve alignment for operating SI pumps - PROPER EMERGENCY ALIGNMENT	IF a feed path can NOT be established, THEN continue attempts to establish feed flow. Return to Step 3.
13	Establish RCS Bleed Path:	
	a. Open both PRZR PORV block valves	a. Ensure power to MCCs supplying block valves. • MCC C for MOV-515 • MCC D for MOV-516 IF any block valve can NOT be opened, THEN dispatch AO to locally check breaker: • MOV-515, MCC C position 6C • MOV-516, MCC D position 6C
	b. Place both PRZR PORV switches to OPEN	
	c. Align RCS overpressurization nitrogen system to open both PRZR PORVs (Refer to Attachment N2 PORVS)	c. IF BOTH PRZR PORVs can NOT be opened, THEN perform the following: 1) Ensure both PORV switches in OPEN. 2) Go to Step 14.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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CAUTION

IF OFFSITE POWER IS LOST AFTER SI RESET, SELECTED SW PUMPS AND ONE CCW PUMP WILL AUTO START ON EMERGENCY D/G. MANUAL ACTION WILL BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT.

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14 Check If SI Can Be Reset:

a. Check the following:

- o PRZR pressure - LESS THAN 1750 PSIG

-OR-

- o Either steamline pressure - LESS THAN 514 PSIG

a. IF PRZR pressure stable or increasing, THEN reset SI and go to Step 15.

IF PRZR pressure decreasing, THEN perform the following:

1) WHEN PRZR pressure less than 1750 psig, THEN reset SI.

2) Go to Step 15.

b. Reset SI

15. Reset CI:

a. Operate CI reset key switch

b. Verify annunciator A-26, CONTAINMENT ISOLATION - EXTINGUISHED

b. Perform the following:

1) Reset SI.

2) Operate CI reset key switch.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	Verify Adequate SW Flow To CCW Hx:	
	a. Verify at least two SW pumps - RUNNING	a. Manually start pumps as power supply permits (258 kw each). IF less than two SW pumps can be operated, THEN go to Step 19.
	b. Verify AUX BLDG SW isolation valves - AT LEAST ONE SET OPEN • MOV-4615 and MOV-4734 • MOV-4616 and MOV-4735	b. Establish SW to AUX BLDG (Refer to Attachment AUX BLDG SW).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	Establish IA to CNMT:	
	a. Verify non-safeguards busses energized from offsite power o Bus 13 normal feed - CLOSED -OR- o Bus 15 normal feed - CLOSED	a. Perform the following: 1) Close non-safeguards bus tie breakers: • Bus 13 to Bus 14 tie • Bus 15 to Bus 16 tie 2) Verify adequate emergency D/G capacity to run air compressors (75 kw each). IF NOT, THEN evaluate if CNMT RECIRC fans should be stopped (Refer to Attachment CNMT RECIRC FANS). 3) WHEN bus 15 restored, THEN reset control room lighting.
	b. Verify turbine building SW isolation valves - OPEN • MOV-4613 and MOV-4670 • MOV-4614 and MOV-4664	b. Manually align valves.
	c. Verify at least two air compressors - RUNNING	c. Manually start air compressors as power supply permits (75 kw each). IF air compressors can NOT be started, THEN dispatch AO to locally reset compressors as necessary.
	d. Check IA supply: o Pressure - GREATER THAN 60 PSIG o Pressure - STABLE OR INCREASING	d. Perform the following: 1) Continue attempts to restore IA (Refer to AP-IA.1, LOSS OF INSTRUMENT AIR). 2) Continue with Step 19. WHEN IA restored, THEN do Steps 17e, f and 18.
	e. Reset both trains of XY relays for IA to CNMT AOV-5392	
	f. Verify IA to CNMT AOV-5392 - OPEN	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18	Restore RCS Overpressurization Nitrogen System To Standby:	
	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. Place relief valve PC-431 and PC-430 arming switches to BLOCK • SOV-8619A • SOV-8619B	
	c. Close SURGE TK VLVs • SOV-8616A • SOV-8616B	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: PRZR PORVs may close temporarily until adequate IA pressure is restored in CNMT.

19 Verify Adequate RCS Bleed Path - BOTH PRZR PORVS OPEN

IF PRZR PORVs can NOT be opened, THEN perform the following:

a. Open Rx vessel head vents.

- SOV-590
- SOV-591
- SOV-592
- SOV-593

b. Depressurize at least one intact S/G to atmospheric pressure using S/G ARV.

c. Align any available low pressure water source to the depressurized S/Gs.

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CAUTION

THE RCS BLEED PATH MUST BE MAINTAINED EVEN IF RCS PRESSURE REMAINS GREATER THAN SI PUMP SHUTOFF HEAD.

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20 Maintain RCS Heat Removal:

- o Maintain SI flow
- o Maintain both PRZR PORVs and block valves - OPEN

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21	Check Normal Power Available To Charging Pumps: o Bus 14 normal feed breaker - CLOSED o Bus 16 normal feed breaker - CLOSED	Verify adequate emergency D/G capacity to run charging pumps (75 kw each). IF NOT, THEN evaluate if CNMT RECIRC fans can be stopped (Refer to Attachment CNMT RECIRC FANS).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	Check If Charging Flow Has Been Established:	
	a. Charging pumps - ANY RUNNING	a. Perform the following: 1) IF CCW flow is lost to any RCP thermal barrier OR any RCP #1 seal outlet temperature offscale high, THEN dispatch AO with key to RWST gate to locally close seal injection needle valve(s) to affected RCP: • RCP A, V-300A • RCP B, V-300B 2) Ensure HCV-142 open, demand at 0%.
	b. Align charging pump suction to RWST: o LCV-112B - OPEN o LCV-112C - CLOSED	b. IF LCV-112B can NOT be opened, THEN perform the following: 1) Verify charging pump A NOT running and place in PULL STOP. 2) Dispatch AO to locally open manual charging pump suction from RWST (V-358 located in charging pump room). 3) WHEN V-358 open, THEN direct AO to close V-268 to isolate charging pumps B and C from VCT (V-268 located in charging pump room).
	c. Start charging pumps as necessary and establish maximum charging flow	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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CAUTION

- o IF RWST LEVEL DECREASES TO LESS THAN 28%, THEN THE SI SYSTEM SHOULD BE ALIGNED FOR COLD LEG RECIRCULATION USING STEPS 1 THROUGH 13 OF ES-1.3, TRANSFER TO COLD LEG RECIRCULATION.
- o IF CONTAINMENT PRESSURE INCREASES TO GREATER THAN 28 PSIG, CONTAINMENT SPRAY SHOULD BE VERIFIED.

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23 Continue Attempts To Establish Secondary Heat Sink In At Least One S/G:

- AFW flow
- Main FW flow
- Standby AFW flow
- Condensate flow

24 Check For Adequate Secondary Heat Sink:

a. Check narrow range level in at least one S/G - GREATER THAN 5% [25% adverse CNMT]

a. Return to Step 23.

b. Adjust S/G ARV controllers to existing S/G pressure

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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CAUTION

IF THE RCS IS WATER SOLID, THEN ANY INCREASE IN RCS TEMPERATURE MAY RESULT IN A SIGNIFICANT RCS PRESSURE INCREASE. RCS HEATUP SHOULD BE PREVENTED.

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25	Monitor RCS Temperatures: o Core exit T/Cs - DECREASING o RCS hot leg temperatures - DECREASING	Perform the following: a. Control steam dump and feed flow to establish natural circulation and stabilize RCS temperature. b. Return to Step 23.
26	Check CCW Pumps - ANY RUNNING	Perform the following: a. IF any RCP #1 seal outlet temperature offscale high, THEN isolate CCW to thermal barrier of affected RCP(s). • RCP A, MOV-749A and MOV-759A • RCP B, MOV-749B and MOV-759B b. Manually start one CCW pump (124 kw).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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CAUTION

IF RCS IS SOLID, THEN TERMINATION OF FEED AND BLEED MAY RESULT IN RAPID RCS PRESSURE INCREASE UNLESS RCS INFLOW AND OUTFLOW ARE CAREFULLY CONTROLLED.

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27	Check If One Of Three SI Pumps Should Be Stopped:	
	a. Three SI pumps - RUNNING	a. Go to Step 28.
	b. RCS subcooling based on core exit T/Cs - GREATER THAN 35°F [90°F adverse CNMT] USING FIGURE MIN SUBCOOLING	b. Check the following: o RCS pressure greater than 1625 psig [1825 psig adverse CNMT] o RCS subcooling based on core exit T/Cs greater than 0°F using Figure MIN SUBCOOLING IF NOT, THEN go to Step 30.
	c. Check PRZR level - GREATER THAN 13% [40% adverse CNMT]	c. Do NOT stop SI pump. Go to Step 30.
	d. Stop one SI pump	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

28 Check If One Of Two SI Pumps Should Be Stopped:

a. Two SI pumps - RUNNING

a. Go to Step 29.

b. Determine required RCS subcooling from table:

Charging Pump Availability	RCS Subcooling Criteria
NONE	120°F [200°F adverse CNMT]
ONE	115°F [190°F adverse CNMT]
TWO	105°F [180°F adverse CNMT]
THREE	100°F [175°F adverse CNMT]

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

c. Check the following:

- o RCS pressure greater than 1625 psig [1825 psig adverse CNMT]
- o RCS subcooling based on core exit T/Cs greater than 0°F using Figure MIN SUBCOOLING

IF NOT, THEN go to Step 30.

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

d. Do NOT stop SI pump. Go to Step 30.

e. Stop one SI pump

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29	Check If Last SI Pump Should Be Stopped:	
	a. One SI pump - RUNNING	a. Go to Step 31.
	b. Check the following: o RCS subcooling based on core exit T/Cs greater than 0°F using Figure MIN SUBCOOLING o RCS pressure greater than 1625 psig [1825 psig adverse CNMT]	b. Go to Step 30.
	c. PRZR level - GREATER THAN 13% [40% adverse CNMT]	c. Do NOT stop SI pump. Go to Step 30.
	d. Stop running SI pump	
	e. Go to Step 31	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: After closing a PORV, it may be necessary to wait for RCS pressure to increase to permit stopping SI pumps in Steps 27, 28 and 29.

30 Check PRZR PORV Status:

a. PRZR PORVs - ANY OPEN

a. Close any open Rx vessel head vent valves and go to appropriate plant procedure:

- o IF RWST level greater than 28%, THEN go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.

-OR-

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

b. PRZR PORVs - BOTH OPEN

b. IF PRZR level greater than 75% [65% adverse CNMT], THEN perform the following:

1) Establish excess letdown as follows:

- o Place AOV-312 to NORMAL.
- o Ensure CCW pump running.
- o Ensure CCW from excess letdown Hx open (AOV-745).
- o Open excess letdown isolation valve AOV-310.
- o Slowly open HCV-123.

2) Stop all but one charging pump and decrease charging flow to as necessary to control RCS pressure.

This Step continued on the next page.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 30 continued from previous page)	
	c. Close one open PRZR PORV	c. Close PORV block valve. IF block valve can NOT be closed, THEN go to appropriate plant procedure: o IF RWST level greater than 28%, THEN go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1. -OR- o IF RWST level less than 28%, THEN go to ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 1.
	d. Return to Step 27	

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CAUTION

IF RCS IS SOLID, CLOSURE OF PORVS WILL RESULT IN RAPID RCS PRESSURE INCREASE UNLESS RCS INFLOW AND OUTFLOW ARE CAREFULLY CONTROLLED.

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31	Check PRZR PORVs And Rx Vessel Head Vent Valves - ALL CLOSED	Close all PRZR PORVs and Rx vessel head vent valves. IF any PRZR PORV can NOT be closed, THEN manually close its block valve.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
32	Check If RHR Pumps Should Be Stopped:	
	a. Check RCS pressure: 1) Pressure - GREATER THAN 250 psig [465 psig adverse CNMT] 2) Pressure - STABLE OR INCREASING	a. Go to appropriate plant procedure: o IF RWST level greater than 28%, THEN go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1. -OR- o IF RWST level less than 28%, THEN go to ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 1.
	b. Stop RHR pumps and place in AUTO	
33	Start Charging Pumps As Necessary And Control Charging Flow To Maintain PRZR Level	
34	Go To ES-1.1, SI TERMINATION, Step 8	

-END-

FR-H.1 APPENDIX LIST

	TITLE	PAGES
1)	FIGURE MIN SUBCOOLING	1
2)	ATTACHMENT CNMT RECIRC FANS	1
3)	ATTACHMENT COND TO S/G	1
4)	ATTACHMENT N2 PORVS	1
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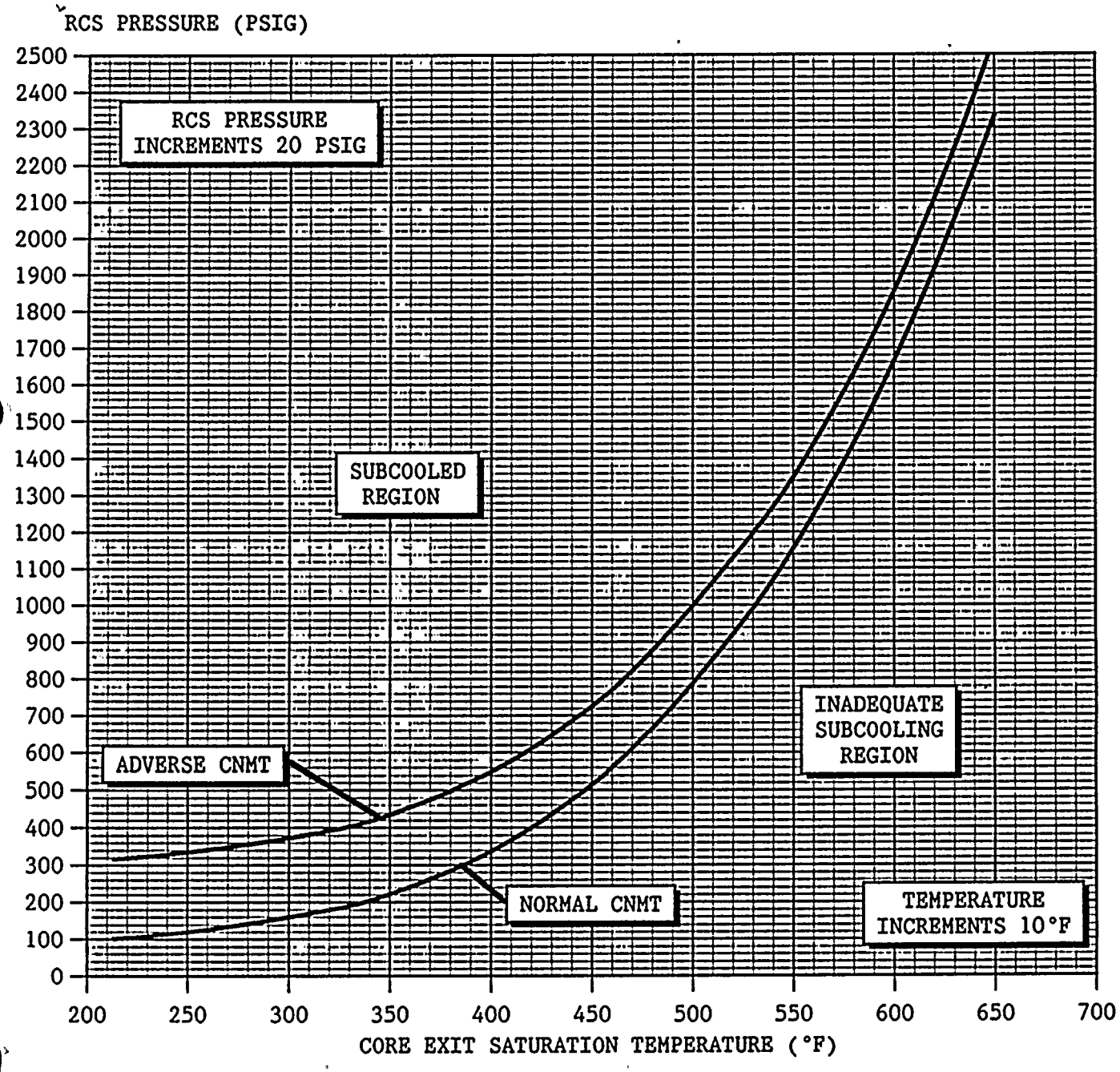
6)	ATTACHMENT RHR COOL	2
7)	ATTACHMENT SAFW	1
8)	ATTACHMENT AUX BLDG SW	1

FIGURE MIN SUBCOOLING

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



EOP:	TITLE:	REV: 1
ATT	EOP/AP ATTACHMENTS	PAGE 1 of 1

ATTACHMENT COND TO S/G Supt. Joseph Widay Date 4-4-90

FLOW THROUGH MFW PUMP B

1. Dispatch AO to MCC B.
2. At main control board place MFW Pump B discharge valve switch to open (MOV-3976).
3. When MFW pump B discharge valve indicates open, direct AO to open breaker for S/G FWP DISCH VLV 1B, MCC B position 8G.
4. Ensure condensate trim valve controller demand at zero.
5. Open MFW flow control valve or bypass valve as necessary to restore S/G level.
6. Start additional condensate pumps as required.

FLOW THROUGH MFW PUMP A

1. Dispatch AO to MCC A.
2. At main control board, place MFW Pump A discharge valve switch to OPEN (MOV-3977).
3. When MFW pump A discharge valve indicates open, direct AO to open breaker S/G FWP DISCH VLV 1A, MCC A position 9J.
4. Ensure condensate trim valve controller demand at zero.
5. Open MFW flow control valve or bypass valves as necessary to restore S/G level.
6. Start additional condensate pumps as required.

EOP: ATT	TITLE: EOP/AP ATTACHMENTS	REV: 1 PAGE 1 of 2

ATTACHMENT RUPTURED S/G Supt. Joseph A. Widay Date 1-4-90

NOTE: Intermediate Building environment should be assessed for radiological and other personnel safety concerns.

PART A. Dispatch AO with locked valve key to complete local isolation of ruptured S/G as follows:

- o Verify ruptured S/G MSIV bypass valve shut (INT BLDG steam header area).
  - o S/G A, V-3615
  - o S/G B, V-3614
- o Locally close the following steam valves from the ruptured S/G:
  - o Steam to sampling system valve (INT BLDG steam header area)
    S/G A close V-3413A
    S/G B close V-3412A
  - o Support heating steam valve (INT BLDG steam header area)
    S/G A close V-3669
    S/G B close V-3668
  - o Upstream trap isolation valve (TURB BLDG near MFW reg vlvs)
    S/G A close V-3521
    S/G B close V-3520

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CAUTION

Control Room should be notified before isolating TDAFW pump flow.

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- o Locally close TDAFW pump manual feedwater isolation valve to ruptured S/G (INT BLDG steam header area):
  - o S/G A, V-4005
  - o S/G B, V-4006
- o Bypass condensate polishing demineralizers as follows:
  1) Place AVT bypass valve controller in MANUAL (east end of AVT panel)
  2) Open bypass valve
  3) Place all AVT bed 4 position selector switches to OFF.
- o Locally place turbine building wall fan switches to close.