ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

PORC REVIEW DATE 8/8/90

Thomas A. Marlow
PLANT SUPERINTENDENT

8/10/90
EFFECTIVE DATE

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

CATEGORY 1.0

REVIEWED BY: _____

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A. PURPOSE - This procedure provides actions to verify proper response of the automatic protection systems following manual or automatic actuation of a reactor trip or safety injection and to assess plant conditions, and identify the appropriate recovery procedure.

B. ENTRY CONDITIONS/SYMPTOMS

1. The following are symptoms that require a reactor trip, if one has not occurred:

   - o Any plant parameter reaches a reactor trip setpoint and logic as listed in procedure P-1, REACTOR CONTROL AND PROTECTION SYSTEM.
   - o Operator discrection.

2. The following are symptoms of a reactor trip:

   - o Any First Out reactor trip annunciator lit.
   - o A rapid decrease in core neutron level as indicated by nuclear instrumentation.
   - o MRPI Indicates all control and shutdown rods on bottom.
   - o Reactor trip breakers indicate open.

3. The following are symptoms that require a reactor trip and safety injection, if one has not occurred:

   - o Any plant parameter reaches the Safety Injection setpoint and logic as listed in procedure P-1, REACTOR CONTROL AND PROTECTION SYSTEM.
   - o Operator discretion.

4. The following are symptoms of a reactor trip and safety injection:

   - o Any SI annunciator lit.
   - o Safeguards sequencing started.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: o Steps 1 through 12 are IMMEDIATE ACTION steps.

o FOLDOUT page should be open and monitored periodically.

o 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	Verify Reactor Trip: o At least one train of reactor trip breakers - OPEN o Neutron flux - DECREASING o MRPI indicates - ALL CONTROL AND SHUTDOWN RODS ON BOTTOM	Manually trip reactor. IF reactor trip breakers NOT open, THEN perform the following: a. Open Bus 13 and Bus 15 normal feed breakers. b. Verify rod drive MG sets tripped. c. Close Bus 13 and Bus 15 normal feed breakers. d. Reset lighting breakers. IF any power range channel greater than 5% OR MRPI indicates more than one control rod not fully inserted, THEN go to FR-S.1, RESPONSE TO REACTOR RESTART/ATWS, Step 1
2	Verify Turbine Stop Valves - CLOSED	Manually trip turbine. IF turbine trip can NOT be verified, THEN close both MSIVs.
3	Verify Both Trains Of AC Emergency Busses Energized To At Least 420 VOLTS: • Bus 14 and Bus 18 • Bus 16 and Bus 17	Attempt to start any failed emergency D/G to restore power to all AC emergency busses. IF power can NOT be restored to at least one train, THEN go to ECA-0.0, LOSS OF ALL AC POWER, Step 1.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4	Check If Any SI Annuciator - LIT	IF any of the following conditions are met, THEN manually actuate SI and CI: o PRZR pressure less than 1750 psig -OR- o Steamline pressure less than 514 psig -OR- o CNMT pressure greater than 4 psig -OR- o Safeguards sequencing started -OR- o Operator determines SI required IF SI is NOT required, THEN go to ES-0.1, REACTOR TRIP RESPONSE, Step 1.
5	Verify SI and RHR Pumps Running: a. All SI pumps - RUNNING b. Both RHR pumps - RUNNING	a. Manually start pumps. b. Manually start pumps.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Verify CNMT RECIRC Fans Running: a. All fans - RUNNING b. Charcoal filter dampers green status lights - EXTINGUISHED	a. Manually start fans. b. Dispatch personnel to relay room with relay rack key to locally open dampers by pushing in trip relay plungers. • AUX RELAY RACK RA-2 for fan A • AUX RELAY RACK RA-3 for fan C
7	Verify CNMT Spray Not Required: o Annunciator A-27, CNMT SPRAY - EXTINGUISHED o CNMT pressure - LESS THAN 28 PSIG	Verify CNMT spray initiated. IF CNMT spray NOT initiated, THEN perform the following: a. Depress manual CNMT spray pushbuttons (2 of 2). b. Ensure CNMT spray pumps running. c. Ensure CNMT spray pump discharge valves open. • MOV-860A • MOV-860B • MOV-860C • MOV-860D d. Ensure NaOH tank outlet valves open. • AOV-836A • AOV-836B

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8	Check If Main Steamlines Should Be Isolated:	
	a. Any MSIV - OPEN	a. Go to Step 9.
	b. Check CNMT pressure - LESS THAN 18 PSIG	b. Ensure BOTH MSIVs closed and go to Step 9.
	c. Check if ANY main steamlines should be isolated: o Low Tavg (545°F) AND high steam flow (0.4×10^6 lb/hr) from either S/G -OR- o High-High steam flow (3.6×10^6 lb/hr) from either S/G	c. Go to Step 9.
	d. Verify MSIV closed on the affected S/G(s)	d. Manually close valves.
9	Verify MFW Isolation:	
	a. MFW pumps - TRIPPED	a. Manually close MFW pump discharge valves and trip MFW pumps.
	b. MFW flow control valves - CLOSED • MFW regulating valves • MFW bypass valves	b. Place A and B S/G MFW regulating valve and bypass valve controllers in MANUAL at 0% demand.
	c. S/G blowdown and sample valves - CLOSED	c. Place S/G blowdown and sample valve isolation switch to CLOSE.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	Verify AFW Pumps Running:	
	a. MDAFW pumps - RUNNING	a. Manually start MDAFW pumps.
	b. TDAFW pump - RUNNING IF NECESSARY	b. Manually open steam supply valves. • MOV-3505A • MOV-3504A
11	Verify At Least Two SW Pumps - RUNNING	Perform the following: a. Ensure one SW pump running on each energized screenhouse AC emergency bus: • Bus 17 • Bus 18 b. IF offsite power NOT available, THEN ensure SW isolation.
12	Verify CI And CVI:	
	a. CI and CVI annunciators - LIT • Annunciator A-26, CNMT ISOLATION • Annunciator A-25, CNMT VENTILATION ISOLATION	a. Depress manual CI pushbutton.
	b. Verify CI and CVI valve status lights - BRIGHT	b. Manually close CI and CVI valves. IF valves can NOT be closed, THEN dispatch AO to locally close valves (Refer to Attachment CI/CVI).
	c. CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT • FCV-4561 • FCV-4562	c. Dispatch AO to locally fail open valves.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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CAUTION

RCP TRIP CRITERIA LISTED ON FOLDOUT PAGE SHOULD BE MONITORED PERIODICALLY.

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13	Check CCW System Status:	
	a. Verify CCW pump - AT LEAST ONE RUNNING	a. IF offsite power available, THEN manually start one CCW pump.
	b. Verify CCW from excess letdown (AOV-745) - CLOSED	b. Manually close valve.
14	Verify SI And RHR Pump Flow:	
	a. SI flow indicators - CHECK FOR FLOW	a. IF RCS pressure less than 1400 psig, THEN manually start pumps and align valves. IF NOT, THEN go to Step 15.
	b. RHR flow indicator - CHECK FOR FLOW	b. IF RCS pressure less than 140 psig, THEN manually start pumps and align valves. IF NOT, THEN go to Step 15.
15	Verify Total AFW Flow - GREATER THAN 200 GPM	IF S/G narrow range level greater than 5% [25% adverse CNMT] in any S/G, THEN control AFW flow to maintain narrow range level. IF narrow range level less than 5% [25% adverse CNMT] in all S/Gs, THEN manually start pumps and align valves as necessary. IF AFW flow greater than 200 gpm can NOT be established, THEN go to FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, Step 1.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	Verify AFW Valve Alignment: a. AFW flow - INDICATED TO BOTH S/G(s) b. AFW flow from each MDAFW pump - LESS THAN 230 GPM	Manually align valves as necessary.
17	Verify SI Pump Suction Alignment:	
	a. Check BAST level: o Level - GREATER THAN 10% o Annunciator B-23, BORIC ACID TANK LO LO LEVEL - EXTINGUISHED	a. Perform the following: 1) Ensure at least one SI pump suction valve from RWST open. • MOV-825A • MOV-825B 2) Ensure at least one valve in each SI pump suction line from BAST closed. • MOV-826A or MOV-826B • MOV-826C or MOV-826D 3) Go to Step 18.
	b. Verify SI pump suction valves from BAST - OPEN • MOV-826A • MOV-826B • MOV-826C • MOV-826D	b. Ensure both valves in either flow path open. o MOV-826A and MOV-826B -OR- o MOV-826C and MOV-826D
	c. Verify SI pump suction from RWST - CLOSED • MOV-825A • MOV-825B	c. Manually align valves as necessary.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18	Verify SI Pump And RHR Pump Emergency Alignment:	
	a. RHR pump discharge to Rx vessel deluge - OPEN • MOV-852A • MOV-852B	a. Ensure at least one valve open.
	b. Verify SI pump C - RUNNING	b. Manually start pump on available bus.
	c. Verify SI pump A - RUNNING	c. Perform the following: 1) Ensure SI pumps B and C running. 2) Ensure SI pump C aligned to discharge line A: o MOV-871A open o MOV-871B closed 3) Go to Step 19.
	d. Verify SI pump B - RUNNING	d. Perform the following: 1) Ensure SI pumps A and C running. 2) Ensure SI pump C aligned to discharge line B: o MOV-871B open o MOV-871A closed 3) Go to Step 19.
	e. Verify SI pump C discharge valves - OPEN • MOV-871A • MOV-871B	e. Manually open valves as necessary.

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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19	Check CCW Flow to RCP Thermal Barriers: o Annunciator A-7, RCP 1A CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED o Annunciator A-15, RCP 1B CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED	IF CCW to a RCP is lost, THEN perform the following: a. Stop affected RCPs. b. Reset SI. c. Verify adequate power available to run one charging pump (75 kw). d. Start one charging pump at minimum speed for seal injection. e. Adjust HCV-142 to establish either of the following: o Labyrinth seal D/P to each RCP greater than 15 inches of water. -OR- o RCP seal injection flow to each RCP greater than 6 gpm. f. IF large imbalance in seal injection flow exists, THEN consider local adjustment of V-300A and V-300B.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20	Check If TDAFW Pump Can Be Stopped: a. Both MDAFW pumps - RUNNING b. PULL STOP TDAFW pump steam supply valves • MOV-3504A • MOV-3505A	a. Go to Step 21.
21	Check RCS Tavg - STABLE AT OR TRENDING TO 547°F	IF temperature less than 547°F and decreasing, THEN perform the following: a. Stop dumping steam. b. IF cooldown continues, THEN control total feed flow greater than 200 gpm until narrow range level greater than 5% [25% adverse CNMT] in at least one S/G. c. WHEN S/G level greater than 5% [25% adverse CNMT] in one S/G, THEN limit feed flow to that required to maintain level in at least one S/G. d. IF cooldown continues, THEN close both MSIVs. IF temperature greater than 547°F and increasing, THEN perform the following: o Dump steam to condenser. -OR- o Control RCS temperature manually using S/G ARVs.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	Check PRZR PORVs And Spray Valves:	
	a. PORVs - CLOSED	a. IF PRZR pressure less than 2335 psig, THEN manually close PORVs. IF any valve can NOT be closed, THEN manually close its block valve. • MOV-516 for PCV-430 • MOV-515 for PCV-431C IF block valve can NOT be closed, THEN go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.
	b. Auxiliary spray valve (AOV-296) - CLOSED	b. Manually close auxiliary spray valve. IF valve can NOT be closed, THEN perform the following: 1) Decrease charging pump flow to minimum. 2) Ensure charging valve to loop B cold leg open (AOV-294).
	c. Check PRZR pressure - LESS THAN 2260 PSIG	c. Continue with Step 23. WHEN pressure less than 2260 psig, THEN do Steps 22d.
	d. Verify normal PRZR spray valve controllers - DEMAND AT 0%	d. Place controllers in MANUAL at 0% demand. IF valves can NOT be closed, THEN stop associated RCP(s).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23	Check If RCPs Should Be Stopped:	
	a. RCP status - ANY RCP RUNNING	a. Go to Step 24.
	b. SI pumps - AT LEAST TWO RUNNING	b. Go to Step 24.
	c. RCS pressure minus maximum S/G pressure - LESS THAN 175 psig [400 psig adverse CNMT]	c. Go to Step 24.
	d. Stop both RCPs	
24	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 go to E-2, FAULTED STEAM GENERATOR ISOLATION, Step 1.
25	Check If S/G Tubes Are Intact: o Air ejector radiation monitors (R-15 or R-15A) - NORMAL o S/G blowdown radiation monitor (R-19) - NORMAL o Steamline radiation monitors (R-31 and R-32) - NORMAL	Go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
26	Check If RCS Is Intact: a. CNMT area radiation monitors - NORMAL • R-2 • R-7 • R-29 • R-30 b. CNMT pressure - LESS THAN .5 PSIG c. CNMT sump B level - LESS THAN 78 IN. d. CNMT sump A level o Level - STABLE o Annunciator C-19, CONTAINMENT SUMP A HI LEVEL - EXTINGUISHED	Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.

NOTE: The following is an attempt to determine whether a PRZR spray valve has failed.

27	Check RCS Pressure - STABLE OR INCREASING	IF RCS pressure decreasing with PRZR level stable or increasing, THEN stop both RCPs.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
28	Check If SI Should Be Terminated:	
	a. RCS pressure: o Pressure - GREATER THAN 1625 PSIG o Pressure - STABLE OR INCREASING	a. Do NOT stop SI pumps. Go to Step 30.
	b. RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIGURE MIN SUBCOOLING	b. Do NOT stop SI pumps. Go to Step 30.
	c. Secondary heat sink: o Total feed flow to S/Gs - GREATER THAN 200 GPM -OR- o Narrow range level in at least one S/G - GREATER THAN 5%	c. IF neither condition met, THEN do NOT stop SI pumps. Go to Step 30.
	d. PRZR level - GREATER THAN 5%	d. Do NOT stop SI pumps. Perform the following: 1) IF normal PRZR spray available, THEN try to stabilize RCS pressure with PRZR spray. 2) Go to Step 30.
29	Go To ES-1.1, SI TERMINATION, Step 1	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: o Conditions should be evaluated for Site Contingency Reporting (Refer to SC-100, GINNA STATION EVENT EVALUATION AND CLASSIFICATION).

o The Critical Safety Function Red Path Summary is available in APPENDIX 1.

30 Initiate Monitoring of Critical Safety Function Status Trees

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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).

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31 Check S/G Levels:

a. Narrow range level - GREATER THAN 5%

a. Maintain total feed flow greater than 200 gpm until narrow range level greater than 5% in at least one S/G.

b. Control feed flow to maintain narrow range level between 17% and 50%

b. IF narrow range level in any S/G continues to increase in an uncontrolled manner, THEN go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
32	Check Secondary Radiation Levels - NORMAL o Steamline radiation monitor (R-31 and R-32) o Dispatch AO to locally check steamline radiation o Request HP sample S/Gs for activity	Go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.

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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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33	Reset SI	
34	Reset CI:	
	a. Operate CI reset key switch	
	b. Verify annunciator A-26, CNMT ISOLATION - EXTINGUISHED	b. Perform the following: 1) Reset SI. 2) Operate CI reset key switch.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
35	Verify Adequate SW Flow:	
	a. At least three SW pumps - RUNNING	a. Manually start SW pumps as power supply permits (258 kw each). IF less than three pumps running, THEN ensure SW isolation.
	b. Dispatch AO to establish normal shutdown alignment (Refer to Attachment SD-1)	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
36	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 SW isolation valves to turbine building - 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 37. WHEN IA restored, THEN do Steps 36e and f.
	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
37	Check Auxiliary Building Radiation - NORMAL • Plant vent iodine (R-10B) • Plant vent particulate (R-13) • Plant vent gas (R-14) • CCW liquid monitor (R-17) • LTD line monitor (R-9) • CHG pump room (R-4)	Evaluate cause of abnormal conditions. IF the cause is a loss of RCS inventory outside CNMT, THEN go to ECA-1.2, LOCA OUTSIDE CONTAINMENT, Step 1.
38	Check PRT Conditions o PRT level (LI-442) - LESS THAN [illegible] o PRT temperature (TI-439) - LESS THAN 120°F o PRT pressure (PI-440A) - LESS THAN 3 PSIG	Evaluate the following flowpaths for cause of abnormal conditions: • RCP seal return relief • PRZR PORVs • PRZR safeties • Letdown line relief IF excess letdown previously in service, THEN close AOV-310, excess letdown isolation valve from loop A cold.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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CAUTION

RCS PRESSURE SHOULD BE MONITORED. IF RCS PRESSURE DECREASES TO LESS THAN 250 PSIG, THE RHR PUMPS MUST BE MANUALLY RESTARTED TO SUPPLY WATER TO THE RCS.

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39	Check If RHR Pumps Should Be Stopped: a. Check RCS pressure: 1) Pressure - GREATER THAN 250 PSIG 2) Pressure - STABLE OR INCREASING b. Stop both RHR pumps and place in AUTO	 1) Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1. 2) Go to Step 40.
40	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
41	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 close seal injection needle valve(s) to affected RCP: • V-300A for RCP A • V-300B for RCP B 2) Ensure HCV-142 open, demand at 0%.
	b. Charging pump suction aligned to RWST: o LCV-112B - OPEN o LCV-112C - CLOSED	b. Manually align valves as necessary. 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 adjust charging flow to restore PRZR level	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

42 Maintain PRZR Pressure Between 1800 PSIG And 2235 PSIG

- o Reset PRZR heaters
- o Use normal PRZR spray

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
43	Check If Emergency D/Gs Should Be Stopped:	
	a. Verify AC emergency busses energized by offsite power: o Emergency D/G output breakers - OPEN o AC emergency bus voltage - GREATER THAN 420 VOLTS o AC emergency bus normal feed breakers - CLOSED	a. Perform the following: 1) Verify non-safeguards bus tie breakers closed: • Bus 13 to Bus 14 tie • Bus 15 to Bus 16 tie 2) Place the following pumps in PULL STOP: • EH pumps • Turning gear oil pump • HP seal oil backup pump 3) Ensure condenser steam dump mode control in MANUAL. 4) Restore power to MCCs: • A from Bus 13 • B from Bus 15 • E from Bus 15 • F from Bus 15 5) Refer to Attachment SI/UV for other equipment lost with loss of offsite power. 6) Try to restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER).
	b. Stop any unloaded emergency D/G and place in standby (Refer to Attachment D/G STOP)	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

44 Return to Step 21

-END-

E-0 APPENDIX LIST

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RED PATH SUMMARY

a. SUBCRITICALITY - Nuclear power greater than 5%

b. CORE COOLING - Core exit T/Cs greater than 1200°F
-OR-
Core exit T/Cs greater than 700°F AND RVLIS level (no RCPs) less than 43% [46% adverse CNMT]

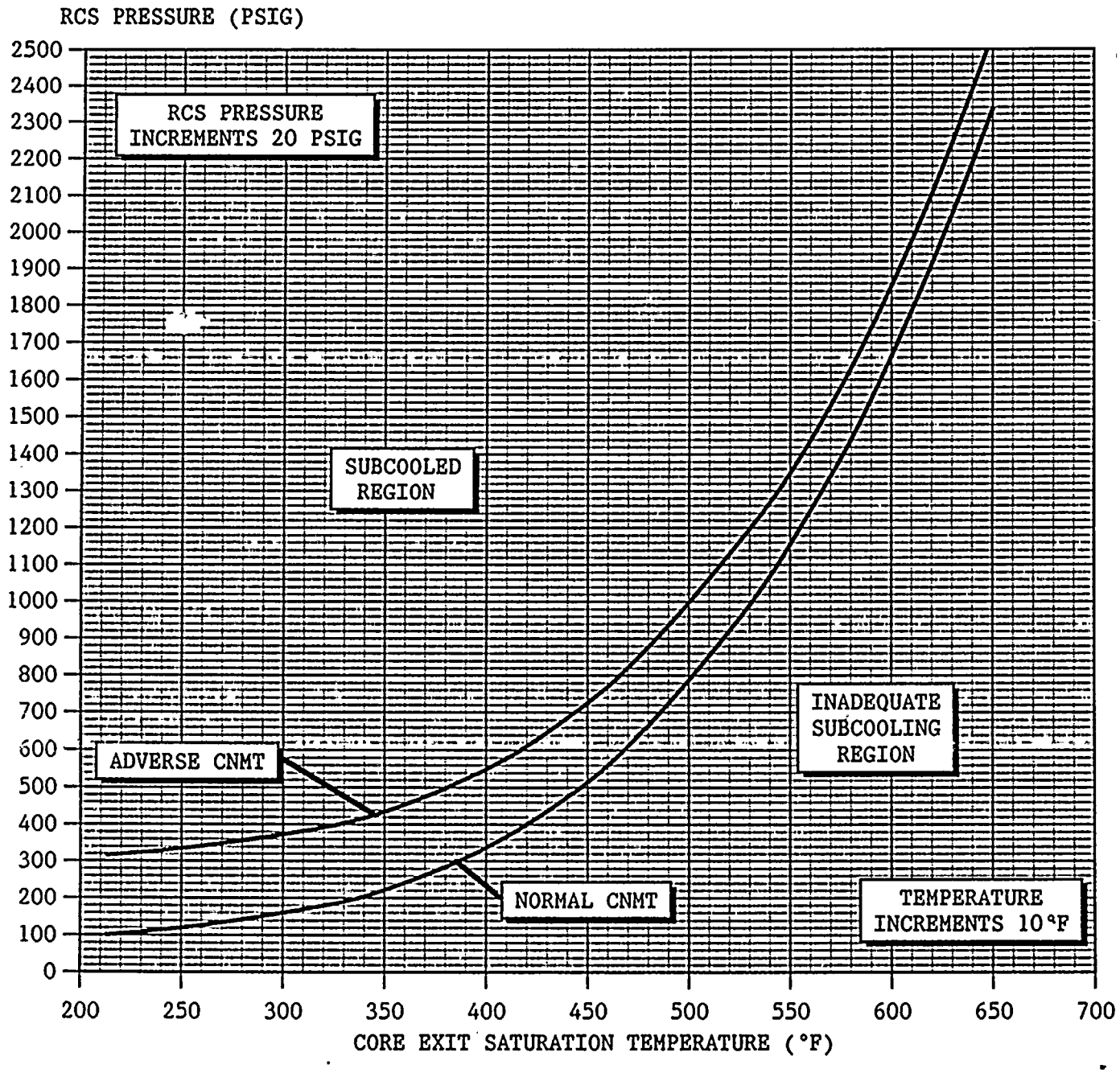
c. HEAT SINK - Narrow range level in all S/Gs less than 5% [25% adverse CNMT] AND total feedwater flow less than 200 gpm

d. INTEGRITY - Cold leg temperatures decrease greater than 100°F in last 60 minutes AND RCS cold leg temperature less than 285°F

e. CONTAINMENT - CNMT pressure greater than 60 psig

FIGURE MIN SUBCOOLING

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



FOLDOUT PAGE

NOTE: The Critical Safety Function Red Path Summary is available in APPENDIX 1.

1. RCP TRIP CRITERIA

IF BOTH conditions listed below occur, THEN trip both RCPs:

a. SI pumps - AT LEAST TWO RUNNING

b. RCS pressure minus maximum S/G pressure - LESS THAN 175 psig [400 psig adverse CNMT]

2. SI ACTUATION CRITERIA

IF ANY condition listed below occurs, THEN actuate SI and go to E-0, REACTOR TRIP OR SAFETY INJECTION, Step 1:

- RCS subcooling based on core exit T/Cs - LESS THAN 0°F USING FIGURE MIN SUBCOOLING

-OR-

- PRZR level - LESS THAN 5% [30% adverse CNMT] AND RCS subcooling based on core exit T/Cs - LESS THAN 20°F USING FIGURE MIN SUBCOOLING

-OR-

- Any automatic SI setpoint reached

3. SI PUMP AUTO SWITCHOVER CRITERION

WHEN BAST level decreases to 10%, THEN ensure SI pump automatic switchover to RWST.

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).