ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

RESPONSIBLE MANAGER

12-14-98

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY:_____

A. PURPOSE - This procedure provides actions to restore core cooling.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

a. F-0.2, CORE COOLING Critical Safety Function Status Tree, on a RED condition.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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	Monitor RWST Level - GREATER THAN 28%	Perform the following: a. Ensure SI system aligned for cold leg recirculation using Steps 1 through 13 of ES-1.3, TRANSFER TO COLD LEG RECIRCULATION. b. WHEN the SI system is aligned for sump recirculation, THEN go to Step 4.
2	Verify SI Pump Suction Aligned to RWST:	
	a. Verify SI pump suction valves from RWST - OPEN • MOV-825A • MOV-825B	a. Ensure at least one SI pump suction valve from RWST open. • MOV-825A • MOV-825B

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

RHR PUMPS SHOULD NOT BE RUN LONGER THAN 1 HOUR WITHOUT CCW TO THE RHR HEAT EXCHANGERS.

3 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 both RHR pumps - RUNNING

b. Manually start pumps

c. Verify SI pump C - RUNNING

c. Manually start pump on available bus.

d. Verify SI pump A - RUNNING

d. Perform the following:

1) Ensure SI pumps B and C running.

2) Ensure SI pump C aligned to discharge line A:

o MOV-871B closed

o MOV-871A open

3) Go to Step 4.

e. Verify SI pump B - RUNNING

e. 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 4.

f. Verify both SI pump C discharge valves - OPEN

- MOV-871A
- MOV-871B

f. Manually open valves as necessary.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4	Verify SI Flow In Both Trains: o SI line loop A and B flow indicators - CHECK FOR FLOW o RHR loop flow indicator - CHECK FOR FLOW	Perform the following: a. Manually start pumps and align valves as necessary. b. Establish maximum charging flow.
5	Check RCP Support Conditions: a. Verify Bus 11A or 11B - ENERGIZED b. Check other RCP support conditions (Refer to Attachment RCP START)	a. Restore power to Bus 11A or 11B (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER). b. Continue attempts to establish RCP support conditions.
6	Check SI ACCUM Discharge Valves - OPEN • MOV-841 • MOV-865	IF SI ACCUM discharge valves closed after ACCUM discharge, THEN go to Step 7. IF NOT, THEN perform the following: a. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves. • MOV-841, MCC C position 12F • MOV-865, MCC D position 12C b. Open SI ACCUM discharge valves. • ACCUM A, MOV-841 • ACCUM B, MOV-865

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	Check Core Exit T/Cs - LESS THAN 1200°F	Go to Step 10.
8	Check RVLIS Indication:	
	a. RCPs - BOTH SECURED	a. Return to procedure and step in effect
	b. RVLIS level - GREATER THAN 52% [55% adverse CNMT]	b. IF RVLIS increasing, THEN return to Step 1. IF NOT, THEN go to Step 9.
	c. Return to procedure and step in effect	
9	Check Core Exit T/Cs:	
	a. Temperature - LESS THAN 700°F	a. IF decreasing, THEN return to Step 1. IF NOT, THEN go to Step 10.
	b. Return to procedure and step in effect	

CAUTION

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.

10 Reset SI

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

11 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.

NOTE: This procedure should be continued while obtaining CNMT hydrogen sample in Step 12.

12 Check CNMT Hydrogen Concentration:

a. Direct RP to start CNMT hydrogen monitors as necessary

b. Hydrogen concentration - LESS THAN 0.5%

b. Consult TSC to determine if hydrogen recombiners should be placed in service.

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).
- A FAULTED OR RUPTURED S/G SHOULD NOT BE USED IN SUBSEQUENT STEPS UNLESS NO INTACT S/G IS AVAILABLE.

NOTE: TDAFW pump flow control valves fail open on loss of IA.

***13** Monitor Intact S/G Levels:

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.

IF total feed flow greater than 200 gpm can NOT be established, THEN perform the following:

1) Continue attempts to establish a heat sink in at least one S/G (Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).

2) Go to Step 23.

b. Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

IF ANY PRZR PORV OPENS BECAUSE OF HIGH PRZR PRESSURE, IT SHOULD BE CLOSED AFTER PRESSURE DECREASES TO LESS THAN 2335 PSIG (REFER TO STEP 14B).

14 Check RCS Vent Paths:

a. Power to PRZR PORV block valves - AVAILABLE

a. Restore power to block valves unless block valve was closed to isolate an open PORV:

- MOV-515, MCC D position 6C
- MOV-516, MCC C position 6C

b. PORVs - CLOSED

b. IF PRZR pressure less than 2335 psig, THEN manually close PORVs.

IF any PORV can NOT be closed, THEN manually close its block valve.

c. Block valves - AT LEAST ONE OPEN

c. Open one block valve unless it was closed to isolate an open PORV.

d. Rx vessel head vent valves - CLOSED

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

d. Manually close valves.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15	Establish Condenser Steam Dump Manual Control	
	a. Verify condenser available: o Intact S/G MSIV - OPEN o Annunciator G-15, STEAM DUMP ARMED - LIT	a. Place intact S/G ARV controller in MANUAL and go to Step 16.
	b. Place steam dump mode selector switch in MANUAL	
	c. Place steam dump controller in MANUAL	
NOTE:	Partial uncovering of S/G tubes is acceptable in the following steps.	
16	Depressurize All Intact S/Gs To 200 PSIG:	
	a. Dump steam to condenser at maximum rate	a. Manually or locally dump steam at maximum rate using S/G ARVs.
	b. Check S/G pressure - LESS THAN 200 PSIG	b. IF S/G pressure decreasing, THEN return to Step 13. IF NOT, THEN go to Step 23.
	c. Check RCS hot leg temperatures BOTH LESS THAN 400°F	c. IF RCS hot leg temperatures decreasing, THEN return to Step 13. IF NOT, THEN go to Step 23.
	d. Stop S/G depressurization	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	Check If SI ACCUMs Should Be Isolated:	
	a. RCS hot leg temperatures - BOTH LESS THAN 400°F	a. Go to Step 23.
	b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves if necessary • MOV-841 MCC C position 12F • MOV-865 MCC D position 12C	
	c. Verify SI reset	c. Manually reset SI.
	d. Close SI ACCUM discharge valves • ACCUM A, MOV-841 • ACCUM B, MOV-865	d. Perform the following: 1) Reset CI. 2) Ensure two air compressors running. 3) Establish IA to CNMT. 4) Open vent valves for unisolated SI ACCUMs. • ACCUM A, AOV-834A • ACCUM B, AOV-834B 5) Open HCV-945.
	e. Locally reopen breakers for MOV-841 and MOV-865	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18	Stop Both RCPs	
19	Dump Steam to Condenser At Maximum Rate To Depressurize All Intact S/Gs To Atmospheric Pressure	Manually or locally dump steam at maximum rate using S/G ARVs.
20	Verify SI Flow: o SI line loop A and B flow indicators - CHECK FOR FLOW -OR- o RHR loop flow indicator - CHECK FOR FLOW	Perform the following: a. Continue efforts to establish SI flow. b. Try to establish charging flow. c. IF core exit T/Cs less than 1200°F, THEN return to Step 19. IF NOT, THEN go to Step 23.
21	Check Core Cooling: a. Core exit T/Cs - LESS THAN 1200°F b. RCS hot leg temperatures - BOTH LESS THAN 320°F c. RVLIS level (no RCPs) GREATER THAN 77% [82% adverse CNMT]	a. Go to Step 23. b. Return to Step 19. c. Return to Step 19.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	Go to Appropriate Plant Procedure	
	a. Check RWST level - GREATER THAN 28%	a. Go to ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 1.
	b. Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 17	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: Normal conditions are desired but not required for starting the RCPs.

23 Check If RCPs Should Be Started:

a. Core Exit T/Cs - GREATER THAN 1200°F

a. Go to Step 24.

b. Check if an idle RCS cooling loop is available

- o Narrow range S/G level - GREATER THAN 5% [25% adverse CNMT]
- o RCP in associated loop - AVAILABLE AND NOT OPERATING

b. Perform the following:

1) Reset SI.

2) Reset CI.

3) Ensure two air compressors running.

4) Establish IA to CNMT.

5) Open all PRZR PORVs and block valves

a) IF any block valve can NOT be opened, THEN ensure power supplied to block valve.

b) IF IA NOT available, THEN refer to Attachment N2 PORVS.

6) IF core exit T/Cs remain greater than 1200°F, THEN open Rx vessel head vent valves.

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

7) Go to Step 24.

c. Start RCP in one idle RCS cooling loop

d. Return to Step 23a

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24	Try To Locally Depressurize All Intact S/Gs To Atmospheric Pressure: o Use intact S/G(s) ARVs -OR- o Open TDAFW pump steam supply valve from intact S/G(s) • S/G A, MOV-3505A • S/G B, MOV-3504A -OR- o Perform the following: a. Open intact S/G MSIV bypass valves b. Open both priming air ejector steam inlet valves • V-3580 • V-3581	Use faulted or ruptured S/G.
25	Check Core Exit T/Cs - LESS THAN 1200°F	IF core exit temperatures decreasing, THEN return to step 23. IF core exit temperatures increasing, THEN go to SACRG-1, SEVERE ACCIDENT CONTROL ROOM GUIDELINE INITIAL RESPONSE, step 1.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
26	Check If SI ACCUMs Should Be Isolated:	
	a. RHR loop flow indicator - AT LEAST INTERMITTENT FLOW	a. Return to Step 23.
	b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves if necessary • MOV-841 MCC C position 12F • MOV-865 MCC D position 12C	
	c. Reset SI.	
	d. Close SI ACCUM discharge valves • ACCUM A, MOV-841 • ACCUM B, MOV-865	d. Perform the following: 1) Reset CI. 2) Ensure two air compressors running. 3) Establish IA to CNMT. 4) Open vent valves for unisolated SI ACCUMs. • ACCUM A, AOV-834A • ACCUM B, AOV-834B 5) Open HCV-945.
	e. Locally reopen breakers for MOV-841 and MOV 865	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27	Check If RCPs Should Be Stopped:	
	a. Both RCS hot leg temperatures - LESS THAN 320°F	a. Go to Step 28.
	b. Stop all RCPs	
28	Verify SI Flow:	Perform the following:
	o SI line loop A and B flow indicators - CHECK FOR FLOW	a. Continue efforts to establish SI flow.
	-OR-	b. Try to establish charging flow.
	o RHR loop flow indicator - CHECK FOR FLOW	c. Return to Step 23.
29	Check Core Cooling:	
	a. RCPs - BOTH SECURED	a. Return to Step 23.
	b. RCS hot leg temperatures LESS THAN 320°F	b. Return to Step 23.
	c. RVLIS level - GREATER THAN 77% [82% adverse CNMT]	c. Return to Step 23.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
30	Go to Appropriate Plant Procedure	
	a. IF PRZR PORVs and head vents were opened in Step 23, THEN consult TSC to evaluate long term status AND continue with transitions.	
	b. Check RWST level - GREATER THAN 28%	b. Go to ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 1.
	c. Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 17.	

-END-

FR-C.1 APPENDIX LIST

TITLE

1) ATTACHMENT RCP START (ATT-15.0)

2) ATTACHMENT N2 PORVS (ATT-12.0)