ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

PORC REVIEW DATE 5-31-90

Joseph A. Widay
PLANT SUPERINTENDENT

6-1-90
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

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

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PDR ADOCK 05000244
P PDC

A. PURPOSE - This procedure provides guidance in the event of a loss of RHR cooling at or above normal loop levels. (i.e. at indicated "B" loop levels of 64 inches or greater)

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from;

   a. FR-C.3, RESPONSE TO SATURATED CORE COOLING,

   b. AP-CCW.3, LOSS OF CCW - PLANT SHUTDOWN

2. SYMPTOMS - The symptoms of (Loss of RHR) are;

   a. Annunciator A-20, RESIDUAL HEAT REMOVAL LOOP LO FLOW 2900 GPM (Set at 400 GPM per 0-2.2 in RHR Cooling mode) alarm lit, or

   b. Annunciator J-9, SAFEGUARD BREAKER TRIP alarm lit, or

   c. Unexpected increase in RCS temperature while on RHR cooling, or

   d. Erratic or no flow on FI-626, RHR Loop Flow

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: IF at any time during the performance of this procedure the indicated "B" loop level falls below 64 inches, THEN go to AP-RHR.2, LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS.

1 Check RHR Pumps:

o RHR pumps - AT LEAST ONE RUNNING AND NO TRIP INDICATION

IF 2 RHR pumps were running AND 1 has tripped, THEN perform the following:

a. Adjust cooling as necessary.

b. IF S/G cooling also required, THEN go to Step 9.

IF 1 RHR pump was running AND has tripped, THEN start the other RHR pump AND go to Step 15.

IF all available RHR pumps have tripped, THEN perform the following:

a. Reset and attempt to restart 1 RHR pump.

b. IF RHR pump starts, THEN go to Step 7.

c. IF RHR cannot be restored, THEN go to Step 9.

* *

CAUTION

DO NOT START A SECOND RHR PUMP UNTIL THE CAUSE OF THE ERRATIC FLOW OR LOSS OF FLOW ON THE FIRST PUMP HAS BEEN DETERMINED AND CORRECTED.

* *

2 Check RHR Flow:

IF an RHR pump(s) is running with less than 200 gpm flow OR erratic flow is indicated, THEN stop all running RHR pump(s) AND go to Step 4.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	Verify CCW Operation: o CCW pumps - AT LEAST ONE RUNNING o CCW to RHR Hxs, MOV-738A AND MOV-738B - OPEN AS NECESSARY o CCW temperature and flow alarms - EXTINGUISHED	To restore CCW to RHR: o Start the standby CCW pump if it is not running. o Open MOV-738A AND MOV-738B as necessary. IF CCW can NOT be restored, THEN continue attempts to restore CCW, refer to AP-CCW.3, LOSS OF CCW - PLANT SHUTDOWN AND go to Step 5.
4	Verify RHR Valve Alignment - NORMAL (Refer to Attachment A)	IF RHR valve alignment not normal, THEN stop all running RHR pump(s) AND align valves per Attachment A as required AND start one RHR pump.
5	Check RCS Temperature: a. RCS temperature - STABLE OR DECREASING b. Go to Step 16	a. IF RCS closed, THEN go to Step 6, OR IF Rx vessel head removed, THEN go to Step 13.
6	Check PRZR Wide Range Level (LI-433) - GREATER THAN 0 INCHES	To restore desired PRZR level, perform the following: a. Direct AO to manually open MOV-856 as required. IF level can NOT be restored quickly enough, THEN manually open MOV-856 from the Control Board. b. WHEN desired level obtained, THEN close MOV-856.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	Start At Least 1 RHR Pump: o RHR pump(s) - RESET BREAKER AND START ONE PUMP	IF both RHR pumps will not start, THEN: o Notify electricians AND go to Step 9.
8	Check RHR Flow: a. RHR flow - AS DESIRED AND STABLE b. Go to Step 15	a. Go to Step 9.
9	Check RCP Status: a. RCP - AT LEAST ONE RUNNING	IF NO RCP running, THEN: a. Establish conditions for starting an RCP using Attachment RCP START, AND start one RCP. b. Go to Step 10. IF an RCP cannot be started, THEN verify conditions for Natural Circulation using Attachment NC.
10	Check S/G Status: o Narrow range level in either S/G - GREATER THAN 17% -OR- o AFW flow - AT LEAST 200 GPM AVAILABLE	IF S/Gs are not operable, THEN: a. Place RCDT pumps in service (Refer to ER-RHR.1, RCDT PUMP OPERATION FOR CORE COOLING). b. Go to Step 15.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	Establish Condenser Steam Dump: o Steam dump - ESTABLISHED	IF the condenser is NOT available, THEN: o Dump steam via S/G ARVs.
12	Check RCS Temperature: a. RCS temperature - STABLE OR DECREASING b. Go to Step 15	a. IF dumping steam does not provide adequate cooling, THEN initiate S/G blowdown from both S/Gs AND maintain both S/G levels stable by controlling AFW flow AND go to Step 15.
13	Check If 1 RHR Loop Is Operable: a. RHR pumps - RUNNING OR START ONE b. RHR flow - GREATER THAN 200 GPM AND STABLE	IF NO RHR loops operable, THEN verify 1 or more containment recirculation fans running AND verify refueling cavity sweep fans running AND place RCDT pumps in operation (Refer to ER-RHR.1, RCDT PUMP OPERATION FOR CORE COOLING).
14	Check Refueling Cavity Level: a. Refueling cavity level - GREATER THAN 23 FEET ABOVE Rx VESSEL FLANGE	a. Stop refueling AND increase refueling cavity level to greater than 23 feet (Refer to RF-2D, FILLING THE REFUELING CANAL) AND go to Step 15.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

15 Verify Maintenance Notified And Continue Attempts To Restore Inoperable RHR Pumps Or RHR Flow:

a. Maintenance - NOTIFIED

b. Attempts continued - TO RESTORE INOPERABLE RHR PUMPS OR FLOW

16 Establish Monitoring Of RCS Temperature:

- o RCS temperature - MONITORING ESTABLISHED

17 Complete - NOTIFICATION TO HIGHER SUPERVISION

18 Check Alternatives For Long Term Cooling:

- o Refer to ER-RHR.1, RCDT PUMP OPERATION FOR CORE COOLING
- o Consider establishing secondary heat sink
- o Consider RCS feed and bleed

19 Check For Site Contingency Classification:

- o Site contingency classification - REFER TO SC-100, GINNA STATION EVENT EVALUATION AND CLASSIFICATION

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

20 Check For NRC Reporting Requirements:

- o NRC reporting requirements - REFER TO 0-9.3, NRC IMMEDIATE NOTIFICATION

21 Verify RHR Cooling:

a. RHR cooling normal:

- o RHR cooling - RESTORED
- o RCS temperature - STABLE OR DECREASING

a. Return to Step 1.

b. Return to REQUIRED PLANT OPERATION

-END-

ATTACHMENT A

NORMAL RHR COOLING VALVE ALIGNMENT

RHR Pump Suction From Loop A Hot Leg	MOV-700	Open
	MOV-701	Open
RHR Pump Discharge To Loop B Cold Leg	MOV-720	Open
	MOV-721	Open
RHR Letdown to CVCS	HCV-133	Open
RHR Pump Discharge Cross-Connect	V-709C	Open
	V-709D	Open
RHR HX Bypass	V-712A	Open
	V-712B	Open
	FCV-626	as desire
RHR HX Outlet 1A	HCV-625	as desire
RHR HX Outlet 1B	HCV-624	as desire
RHR Pump Suction From RWST	MOV-856	Closed
RHR Pump Suction Valves		
A RHR Pump	MOV-704A	Open
B RHR Pump	MOV-704B	Open

ATTACHMENT RCP START

A) The following are prerequisites for starting an RCP:
- o RCP oil lift pump running (2 minutes)
- o RCP oil lift pressure white light - LIT

B) In addition, the following conditions should be met prior to starting an RCP:

1) Both PRZR spray valves closed - DEMAND AT 0%

2) CCW in service and aligned to RCP

3) RCP temperatures normal:
   - o Seal inlet temperature - LESS THAN 135°F
   - o CCW temperature and flow alarms - EXTINGUISHED
   - o Motor bearing temperatures - NORMAL
     (PPCS - GD RCPS or recorder, if selected)

4) RCP seal injection in service
   - o Seal injection flow - GREATER THAN 6 gpm
   - o Labyrinth seal D/P - GREATER THAN 15 INCHES OF WATER

5) RCP #1 seal D/P - GREATER THAN 220 psid

6) RCP oil levels:
   - o Level alarms - EXTINGUISHED
   - o Level indicators - ON SCALE

7) RCP seal return:

   a) RCP #1 seal outlet valves open:
      - o AOV-270A for RCP A
      - o AOV-270B for RCP B

   b) IF MOV-313, seal return isolation, open, THEN verify the following:
      - o VCT pressure - GREATER THAN 15 psig
      - o RCP #1 seal leakoff flow - BETWEEN 0.25 gpm AND 5.5 GPM
      - o RCP #2 seal standpipe low level alarm - EXTINGUISHED

   c) IF MOV-313 closed, THEN verify other RCP #1 seal parameters normal prior to starting an RCP:
      - o RCP #1 seal inlet temperature
      - o RCP #1 seal D/P

NOTE: RCP oil lift pump should be stopped after RCP is running.

ATTACHMENT NC

NOTE: It may take several minutes following initial transient for natural circulation to develop.

The following conditions indicate natural circulation flow:

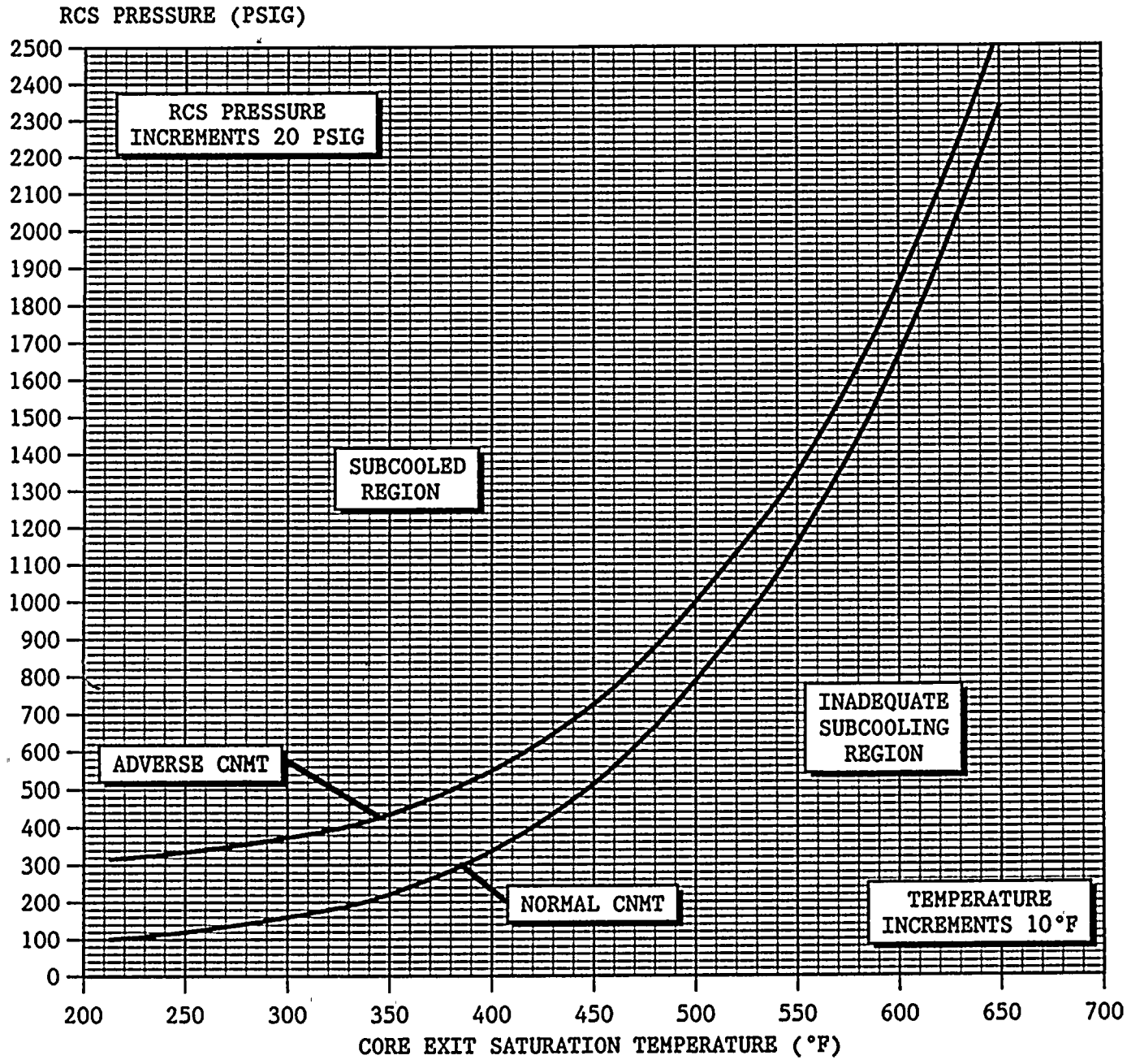
- RCS subcooling based on core exit T/Cs - GREATER THAN REQUIREMENTS OF FIGURE MIN SUBCOOLING
- S/G pressures - STABLE OR DECREASING
- Core exit T/Cs - STABLE OR DECREASING
- RCS cold leg temperatures - AT SATURATION TEMPERATURE FOR S/G PRESSURE

The following equipment should be operating to support natural circulation and cooling:

- Control rod shroud fans
- PRZR heaters (Refer to ER-PRZR.1, RESTORATION OF PRZR HEATERS DURING BLACKOUT)
- One Reactor Compartment Cooling Fan

FIGURE MIN SUBCOOLING

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



Superintendent [signature] Date 7-26-94

NOTE: Locked valve key may be required for local operations.

AUTO ISOL VALVE	ALTERNATE ISOL	ALTERNATE ISOL LOCATION
AOV-200A	AOV-371/133	MCB
AOV-200B	AOV-371/133	MCB
AOV-202	AOV-371/133	MCB
AOV-5392	V-5397/5410	IB BASEMENT CLEAN SIDE
AOV-371	V-204A/820	NRHX ROOM (locked area)
MOV-313	V-315A/315C	SWRF ROOM (reach rods)
AOV-9227	V-9225	IB BASEMENT CLEAN SIDE
AOV-508	AOV-548/550A/550B	MCB
AOV-5738	V-5701	IB BASEMENT CLEAN SIDE
AOV-5737	V-5702	IB BASEMENT CLEAN SIDE
AOV-5735	V-5733	SAMPLE HOOD
AOV-5736	V-5734	SAMPLE HOOD
SOV-921	V-928A	INSIDE A H2 MON PNL (AFW PUMP AREA)(key 59)
SOV-922	V-928B	INSIDE A H2 MON PNL (AFW PUMP AREA)(key 59)
SOV-923	V-929A	INSIDE B H2 MON PNL (AFW PUMP AREA)(key 59)
SOV-924	V-929B	INSIDE B H2 MON PNL (AFW PUMP AREA)(key 59)
AOV-539	V-546	BY SFP HX
AOV-1789	V-1655	BY SFP HX
AOV-1786	AOV-1787	MCB
AOV-1787	AOV-1786	MCB
AOV-1721	AOV-1003A/1003B/1722	WASTE DISPOSAL PANEL/AB SUB-BASEMENT

AUTO ISOL VALVE	ALTERNATE ISOL	ALTERNATE ISOL LOCATION
AOV-1003A	AOV-1721	WASTE DISPOSAL PANEL
AOV-1003B	AOV-1721	WASTE DISPOSAL PANEL
AOV-1597	V-1596	IB BASEMENT CLEAN SIDE
AOV-1598	AOV-1599	MCB
AOV-1599	AOV-1598	MCB
MOV-813	MOV-817	MCB
MOV-814	V-815A	AB INT LEVEL
AOV-1723	AOV-1728	WASTE DISPOSAL PANEL
AOV-1728	AOV-1723	WASTE DISPOSAL PANEL
AOV-951	AOV-966A	MCB
AOV-953	AOV-966B	MCB
AOV-955	AOV-966C	MCB
AOV-959	V-957	PRIMARY SAMPLE ROOM
AOV-966A	V-956F	SAMPLE HOOD
AOV-966B	V-956E	SAMPLE HOOD
AOV-966C	V-956D	SAMPLE HOOD
AOV-846	V-8629/944A	BY SFP HX
AOV-8418	V-5021	IB BASEMENT CLEAN SIDE
AOV-7971	AOV-7970	MCB REAR
AOV-7970	AOV-7971	MCB REAR
AOV-7445	AOV-7478	MCB REAR
AOV-7478	AOV-7445	MCB REAR

AUTO ISOL VALVE	ALTERNATE ISOL	ALTERNATE ISOL LOCATION
PEVO-5879	N/A FLANGED	
PSVO-5869	N/A FLANGED	
MOV-7443	N/A FLANGED	
MOV-7444	N/A FLANGED	
SOV-1B *(10214S1)	V-1080A	SAMPLE HOOD
SOV-2B *(10214S)	V-1080A	SAMPLE HOOD
SOV-3B *(10211S1)	V-1076B	SAMPLE HOOD
SOV-5B *(10213S1)	V-1084B	SAMPLE HOOD
SOV-1A *(10215S1)	V-1080A	SAMPLE HOOD
SOV-2A *(10215S)	V-1080A	SAMPLE HOOD
SOV-3A *(10205S1)	V-1076A	IB BASEMENT CLEAN SIDE
SOV-5A *(10209S1)	V-1084A	IB BASEMENT CLEAN SIDE

*NOTE: Valves normally deenergized with manual isolation valve locked closed.

Superintendent _____ Date 7-26-94

A) Ensure at least one door closed in EACH CNMT airlock:
- o Equipment airlock
- o Personnel airlock

B) Verify valves in column 1 closed. IF any valve NOT closed, THEN evaluate penetration and isolate as necessary (Refer to columen 2).

NOTE: Locked valve key may be required for local operation.

COLUMN 1 AUTO ISOL VALVE	COLUMN 2 ALTERNATE ISOL	ALTERNATE ISOL LOCATION
AOV-5392 (IA)	V-5397/5410	IB CLEAN BSMT
AOV-371 (L/D)	V-204A/820	NRHX ROOM (locked area)
MOV-313 (RCP Seal)	V-315A/315C	SWRF ROOM (reach rods)
AOV-9227 (Fire Sys)	V-9225	IB CLEAN BSMT
AOV-508 (DI Water)	AOV-548/550A/550B	MCB
AOV-5738 (S/G B/D)	V-5701	IB CLEAN BSMT
AOV-5737 (S/G B/D)	V-5702	IB CLEAN BSMT
AOV-5735 (S/G samp)	V-5733	SAMPLE HOOD
AOV-5736 (S/G samp)	V-5734	SAMPLE HOOD
AOV-539 (PRT gas)	V-546	BY SFP HX
AOV-1789 (RCDT to gas anal)	V-1655	BY SFP HX
AOV-1786 (RCDT/VH)	AOV-1787 (V-1716A)	BY SFP HX
AOV-1721 (RCDT pumps)	AOV-1003A/1003B/1722	WASTE PANEL/AB SUB-BASEMENT
AOV-1597 (CNMT rad)	V-1596	IB CLEAN BSMT
AOV-1598 (CNMT rad)	AOV-1599	MCB
MOV-813 (CCW)	CCW SYSTEM INTACT	AUX BLDG INT (BY RWST)

COLUMN 1 AUTO ISOL VALVE	COLUMN 2 ALTERNATE ISOL	ALTERNATE ISOL LOCATION
MOV-814 (CCW)	CCW SYSTEM INTACT	AUX BLDG INT (BY RWST)
AOV-1723 (CNMT sump)	AOV-1728	WASTE PANEL
AOV-846 (ACCUM N2)	V-8629/944A	BY SFP HX
AOV-8418 (DI water)	V-5021	IB CLEAN BSMT
AOV-7970 (Mini purge)	AOV-7971	MCB REAR
AOV-7445 (Mini purge)	AOV-7478	MCB REAR
MOV-7443 (Leak test)	Notify S/G office and locally close valve	
MOV-7444 (Leak test)	Flanged except for ILRT	
AOV-5879 (Purge)	Purge Exhaust Fan OFF	
AOV-5869 (Purge)	Purge Supply Fan OFF	

C) Verify both S/Gs intact in CNMT OR steam and feed headers isolated outside CNMT (Refer to O-15.2, REQUIRED VALVE LINEUP FOR REACTOR HEAD REMOVAL, for specific guidance).

D) Evaluate and isolate any other known openings from CNMT to the outside atmosphere. Contact Outage Coordinator or Maintenance Manager and refer to O-2.3.1A, CONTAINMENT CLOSURE CAPABILITY IN TWO HOURS DURING REDUCED RCS INVENTORY OPERATION, for additional guidance.

E) Verify fuel transfer flange installed or gate valve, V-650J, closed.

F) Contact S/G office to ensure that S/G maintenance penetration is isolated (no openings to outside).