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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER _23

TECHNICAL REVIEW

PLANT SUPERINTENDENT

4-7-6 EFFECTIVE DATE

CATEGORY 1.0

9404190168 940414 PDR ADDCK 05000244 PDR

REVIEWED BY:_____

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- A. PURPOSE This procedure provides actions to restore adequate core cooling.
- B. ENTRY CONDITIONS/SYMPTOMS

TITLE:

- 1. ENTRY CONDITIONS This procedure is entered from:
 - a. F-0.2, CORE COOLING Critical Safety Function Status Tree, on any ORANGE condition.

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EOP:		· REV: 9
FR-C.2	RESPONSE TO D	EGRADED CORE COOLING
	<u> </u>	
STEP A	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<u>NOTE</u> : Adve than	erse CNMT values should b n 4 psig or CNMT radiatio	e used whenever CNMT pressure is greater n is greater than 10 ⁺⁰⁵ R/hr.
1 Check THAN 2	RWST Level - GREATER 8%	Perform the following:
		a. Ensure SI system aligned for cold leg recirculation using Steps 1 through 11 of ES-1.3, TRANSFER TO COLD LEG RECIRCULATION.
		b. Go to Step 3.
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RESPONSE TO DEGRADED CORE COOLING

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

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FR-C.2		RESPONSE

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RESPONSE TO DEGRADED CORE COOLING

PAGE 5 of 14

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3 Verify SI Pump Suction aligned to RWST:	· · · · · · · · · · · · · · · · · · ·
a. SI pump succion valves from RWST - OPEN	f a. Ensure at least one SI pump suction valve from RWST open
• MOV-825A • MOV-825B	• MOV-825A • MOV-825B
 b. SI pump suction valve from BASTs - CLOSED • MOV-826A 	b. Ensure at least one valve in each SI pump suction line from BAST closed.
• MOV-826B • MOV-836C • MOV-826D	• MOV-826A or MOV-826B • MOV-826C or MOV-826D
4 Verify SI Flow In Both Trains	: :
a. SI line loop A and B flow indicators - CHECK FOR FLOW	a. Perform the following:
· · ·	 Manually start SI pumps and align valves as necessary.
· · · · · ·	2) Establish maximum charging flow.
b. RCS pressure - LESS THAN 250 psig [465 psig adverse CNMT]	b. Go to Step 5.
c. RHR loop flow indicator - CHECK FOR FLOW	c. Manually start RHR pumps and align valves.
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FR-C.2	RESPONSE TO DEGRAF	ED CORE COOLING	REV: 9
			PAGE 6 of
	• معتب •	,	
STEP A	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAIN	NED
* * * * * *	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * [<u>ON</u>	* * * * * * * *
IF ANY PRZ AFTER PRES	R PORV OPENS BECAUSE OF HIGH P SURE DECREASES TO LESS THAN 23	RZR PRESSURE, IT SHOULD S5 PSIG (REFER TO STEP) BE CLOSED 5B).
* * * * * *	* * * * * * * * * * * * * *	* * * * * * * * * * *	* * * * * * * *
5 Ohook '	DOG Vort Datas		
5 Check i	RCS vent Paths:		
a. Powe AV	r to PRZR PORV block valves AILABLE	a. Restore power to unless block valv isolate an open P	block valves ve was closed to VORV:
		• MOV-515, MCC C • MOV-516, MCC D	position 6C [.] position 6C
b. PORV	s - CLOSED	b. <u>IF</u> PRZR pressure 2335 psig, <u>THEN</u> m PORVs.	less than anually close
	•	<u>IF</u> any PORV can <u>N</u> <u>THEN</u> manually clo valve.	OT be closed, se its block
c. Block	<pre>< valves - AT LEAST ONE OPEN </pre>	c. Open one block va was closed to iso PORV.	lve unless it late an open
d. Rx ve CLOSE	essel head vent valves - 2D	d. Manually close va	lves.
• SO • SO • SO • SO	7-590 7-591 7-592		,
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FR-C.2 RESPONSE TO DEGRA	ADED CORE COOLING PAGE 7 of
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<u>NOTE</u> : Normal conditions for running RC be tripped if normal conditions	Ps are desired, but RCPs should not cannot be established or maintained.
6 Check RCP Status:	
a. At least one RCP - RUNNING	a. Go to Step 9.
b. Support conditions for the operating RCP(s) available (Refer to Attachment RCP START)	b. Try to establish support conditions for the operating RCP.
7 Check RVLIS Fluid Fraction	
a. Fluid fraction (any RCP on) - GREATER THAN 60%	a. <u>IF</u> increasing, <u>THEN</u> return to Step 1.
	<u>IF NOT</u> , then go to Step 8.
b. Return to procedure and step in effect.	
8 Check If One RCP Should Be Stopped:	
a. Both RCPs - RUNNING	a. Go to Step 10.
b. Stop one RCP	
c. Go to Step 10	
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FR-C.2 RESPONSE TO DEGRAD	ED CORE COOLING
	PAGE 8 of
• • • • • • • • • • • • • • • • • • •	,
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9 Check Core Cooling:	
a. RVLIS level (no RCPs) - GREATER THAN 43% (46% adverse CNMT)	a. <u>IF</u> increasing, <u>THEN</u> return to Step 1. <u>IF NOT, THEN</u> go to Step 10.
b. Core exit T/Cs - LESS THAN 700°F	b. <u>IF</u> decreasing, <u>THEN</u> return to Step 1. <u>IF NOT, THEN</u> go to Step 10.
c. Return to procedure and step in .effect	
10 Check SI ACCUM Discharge Valves - OPEN	<u>IF</u> SI ACCUM discharge valves closed after ACCUM discharge, <u>THEN</u> go to Step 11. IF NOT, THEN perform the
• MOV-841 • MOV-865	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
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FR-C.2	RESPONSE TO DEGR	ADED CORE COOLING	PAGE 9 of
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STEP A	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAIN	ED
* * * * * *	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *	* * * * * * * *
• IF CST FOR AFW TO AFW	LEVEL DECREASES TO LESS THAN PUMPS WILL BE NECESSARY (RE PUMPS).	N 5 FEET, THEN ALTERNATE WA SFER TO ER-AFW.1, ALTERNATH	ATER SOURCES 3 WATER SUPPLY
O A FAULT INTACT	ED OR RUPTURED S/G SHOULD NO S/G IS AVAILABLE.	OT BE USED IN SUBSEQUENT ST	CEPS UNLESS NO
* * * * * *	* * * * * * * * * * * * *	* * * * * * * * * * * * *	* * * * * * * *
<u>NOTE</u> : TDẠF	W pump flow control valves f	Eail open on loss of IA.	
*11 Monito:	r Intact S/G Levels:		
a. Narr THAN	ow range level - GREATER 5% [25% adverse CNMT]	a. Increase total fee restore narrow ran greater than 5% [2 CNMT] in at least	ed flow to nge level 25% adverse one S/G.
b. Cont narro (25%	rol feed flow to maintain ow range level between 17% adverse CNMT] and 50%		
12 Verify In Manı	Condenser Steam Dump Jal:	,	
a. Veri	fy condenser available:	a. Place intact S/G A	ARV controller
o In	ntact S/G MSIV - OPEN	in matche and go t	.0 Step 15.
o An Al	nnunciator G-15, STEAM DUMP RMED - LIT		
h Plan	e steam dump mode selector		
b. flac swite			£
c. Place MANUA	steam dump controller in		,

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STEP	CTION/EXPECTED RESPONSE	DESPONSE NOT OPTAINE	
	NOTION/EXTENTED RESPONSE		
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THE FOLLO RED PATH (COMPLETED THERMAL SI	JING STEP WILL CAUSE SI ACCU CONDITION IN F-0.4, INTEGRIT BEFORE TRANSITION TO FR-P.1 HOCK.	JMULATOR INJECTION WHICH MAY TY STATUS TREE. THIS PROCED L, RESPONSE TO IMMINENT PRES	RESULT IN A URE SHOULD BE SURIZED
* * * * * *	* * * * * * * * * * * * * * *	* * * * * * * * * * * * * *	* * * * * * *
13 Depres To 200	surize All Intact S/Gs PSIG:		
a. Main colo	ntain cooldown rate in RCS 1 legs - LESS THAN 100°F/HR		
b. Dump	steam to condenser	 b. Manually or locally from intact S/Gs: 	y dump steam
		o Use S/G ARVs.	
		-OR-	
•		o Open TDAFW pump valve(s) for af:	steam supply fected S/G(s):
		• S/G A, MOV-350 • S/G B, MOV-350)5A)4A
ч		-OR-	
		o Locally perform	the following
		o Open intact S bypass valve.	S/G MSIV
		, o Open priming steam isolati	air ejector ion valves.
	,	• V-3580 • V-3581	
c. Chec	k S/G pressures - LESS THAN	c. Return to Step 11.	,
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FR-C.2 R	ESPONSE TO DEGRAI	DED CORE COOLING	REV: 9
			PAGE 11 of
		-	
STEP ACTION/EXPE	CTED RESPONSE	RESPONSE NOT OBTAIN	ED
		· · · · · · · · · · · · · · · · · · ·	
* * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * <u>ION</u>	* * * * * * * * *
RHR PUMPS SHOULD NO EXCHANGERS.	F BE RUN LONGER THAN	1 HOUR WITHOUT CCW TO TH	HE RHR HEAT
* * * * * * * * * * *	* * * * * * * * * * *	* * * * * * * * * * * *	* * * * * * * * *
		4	
14 Check RHR Pump	s - RUNNING	Manually start pumps	as necessary.
		y	,
15 Check If SI AC Isolated:	CUMs Should Be		
a. RCS hot leg to LESS THAN 400	emperatures – BOTH PF	a. Go to Step 17.	
b. Dispatch AO wi	th locked valve		1
key to locally	close breakers		4
for SI ACCUM o	lischarge valves if		
necessary			
• MOV-841, MCC • MOV-865, MCC	C position 12F D position 12C		
c. Close SI ACCUM	l discharge valves	c. Vent any unisolate	ed ACCUMs:
• MOV-841		1) Open vent valve	es for
• MOV-865		unisolated SI A	ACCUMs.
•	7		00/1
		 ACCUM A, AOV ACCUM B AOV 	- 834A . 834B
·		- AUUUII D, AUV	-07-17
		2) Open HCV-945.	
d. Locally reopen	breakers for		

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FR-C.2 RESPONSE TO DEGI	RADED CORE COOLING	REV: 9 PAGE 12 of
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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAIN	ED
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**************************************	* * * * * * * * * * * * * * * * <u>AUTION</u>	* * * * * * * * *
SYMPTOMS FOR FR-C.1, RESPONSE TO INAD MONITORED DURING SUBSEQUENT STEPS.	DEQUATE CORE COOLING, SHOULD	BE CLOSELY
* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * *	* * * * * * * *
16 Stop All RCPs		
17 Depressurize All Intact S/Gs To Atmospheric Pressure:		
a. Maintain cooldown rate in RCS cold legs - LESS THAN 100°F/HR		
b. Dump steam to condenser	b. Manually or locall from intact S/Gs:	y dump steam
	1) Use S/G ARVs.	
	2) Open TDAFW pump valve(s) for af	steam supply fected S/G(s):
- -	• S/G A, MOV-35 • S/G B, MOV-35	05A 04A
	3) Locally perform	the following:
	o Open intact bypass valve	S/G MSIV
	o Open priming steam isolat	air ejector ion valves.
	• V-3580 • V-3581	

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FR-C.2	TITLE:	RESPONSE	то	DEGRADED	CORE	COOLING
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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18 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- o RHR loop flow indicator - CHECK FOR FLOW	 b. Try to establish maximum charging flow. c. Return to Step 17.
19 Isolate Both SI ACCUMs:	
a. Close SI ACCUM discharge valves	a. Vent any unisolated ACCUMs:
• MOV-841 • MOV-865	 Open vent valves for unisolated SI ACCUMs.
•	• ACCUM A, AOV-834A • ACCUM B, AOV-834B
	2) Open HCV-945.
b. Locally reopen breakers for MOV-841 and MOV-865	
20 Stop All RCPs	
21 Check Core Cooling:	Return to Step 17.
o RVLIS level (no RCPs) - GREATER THAN 68% [73% adverse CNMT]	
 Both RCS hot leg temperatures - LESS THAN 320°F 	
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ST	EP -	ACTION	I/EXPECTED	RESPONSE	<u> </u>	RESPONSE	NOT OBTAI	NED	······································
22	Go Pro	to Appr cedure	opriate :	Plant					
	a.	Check RWS 28%	ST level -	GREATER '	THAN	a. Go to l LEG RE	ES-1.3, TRA CIRCULATION	ANSFER TO (N, Step 1.	COLD
	∕b.	Go to E-1 SECONDARY	L, LOSS OF Y COOLANT,	REACTOR (Step 17	OR				
					- END -				,
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FR-C.2 APPENDIX LIST

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PAGES

1) ATTACHMENT RCP START

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PAGE 1 of 5

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER $\underline{-23}$

TECHNICAL REVIEW

PORC REVIEW DATE <u>3-1-95</u>

3-2-95 EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY:



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EOP:	TITLE:	REV:	5	
FR-C.3	RESPONSE TO SATURATED CORE COOLING		•	
•		PAGE	2 01	5

- A. PURPOSE This procedure provides actions to restore core cooling.
- B. ENTRY CONDITIONS/SYMPTOMS

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- 1. ENTRY CONDITIONS This procedure is entered from:
 - a. F-0.2, CORE COOLING Critical Safety Function Status Tree, on a YELLOW condition.

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•	EOP: TITLE:	REV: 5)
•	FR-C.3 RESPONSE TO SATURATED CORE COOL	ING PAGE 3	of 5
	· · ·		
1	STEP ACTION/EXPECTED RESPONSE RESPONSE N	OT OBTAINED	
	NOTE: o If either ECA-3.2, SGTR WITH LOSS OF REACTOR OR RECOVERY DESIRED or ES-1.3, TRANSFER TO COLD I in effect, this procedure should not be perfor	COOLANT - SATURATED LEG RECIRCULATION is cmed.	,
	o Adverse CNMT values should be used whenever Cl greater than 4 psig or CNMT radiation is great	MT pressure is cer than 10 ⁺⁰⁵ R/hr.	
	1 Check RHR Normal Cooling - Refer to AP NOT IN SERVICE	-RHR.1, LOSS OF RHR.	
¥ þ	2 Check RWST Level - GREATER THAN 28% COLD LEG RE	ystem aligned for co lation using Steps 1 of ES-1.3, TRANSFER CIRCULATION.	ld TO
	3 Verify SI Flow:		
	a. SI line loop A and B flow a. Manually indicators - CHECK FOR FLOW align va	start SI pumps and lves.	
	b. RCS pressure - LESS THAN b. Go to St 250 psig [465 psig adverse CNMT]	ep 4.	
	c. RHR loop flow indicator - CHECK c. Manually FOR FLOW align va	start RHR pumps and lves.	i
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EOP:	ITLE:		BEV: 5
FR-C.3	RESPONSE TO SATURATE	D CORE COOLING	
•			PAGE 4 Of
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STEP AC	TION/EXPECTED RESPONSE	RESPONSE NOT OBTAINE	D
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* * * * * *	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * !	* * * * * * *
IF ANY PRZR AFTER PRESS	PORV OPENS BECAUSE OF HIGH PE URE DECREASES TO LESS THAN 233	RZR PRESSURE, IT SHOULD I 35 PSIG (REFER TO STEP 41	BE CLOSED B).
* * * * * *	* * * * * * * * * * * * * * *	* * * * * * * * * * * *	* * * * * * *
4 Check P Valves:	RZR PORVs And Block		
a. Power AVAIL	to PORV block valves - ABLE	a. Restore power to b unless block valve isolate an open PO	lock valves was closed to RV:
		• MOV-515, MCC C p • MOV-516, MCC D p	osition 6C osition 6C
b. PORVs	- CLOSED	b. <u>IF</u> PRZR pressure 1 ' 2335 psig, <u>THEN</u> may PORVs.	ess than nually close
	,	<u>IF</u> any PORV can <u>NO</u> <u>THEN</u> manually clos valve.	<u>T</u> be closed, e its block
c. Block	valves - AT LEAST ONE OPEN	c. Open one block val was closed to isol PORV.	ve unless it ate an open
d. Rx ve CLOSE	ssel head vent valves – D	d. Manually close val	ves.
 SOV SOV SOV 	2-590 2-591 2-592	· ·	
• SOV • SOV	- 593		
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	FR-C.3	RESPONSE TO	SATURATED	CORE COOLING	REV: 5 PAGE 5 of 5
()		CTION/EXPECTED RESPON	ISE	RESPONSE NOT OBTAINED	
	5 Return In Eff	To Procedure And ect	Step		
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