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JOSEPH A. WIDAY
VICE PRESIDENT & PLANT MANAGER
GINNA STATION

February 8, 2001

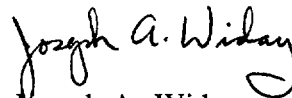
U.S. Nuclear Regulatory Commission
Document Control Desk
Attn: Guy S. Vissing
Project Directorate I
Washington, D.C. 20555

Subject: Emergency Operating Procedures
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Vissing:

As requested, enclosed are Ginna Station Emergency Operating Procedures.

Very truly yours,


Joseph A. Widay

JAW/jdw

xc: U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Ginna USNRC Senior Resident Inspector

Enclosure(s):

AP Index
FIG Index
AP-ELEC.14/16, rev 2
AP-RHR.1, rev 15
FIG-3.1, rev 1

A002

REPORT NO. 01
REPORT: NPSP0200
DOC TYPE: PRAP

GINNA NUCLEAR POWER PLANT
PROCEDURES INDEX
ABNORMAL PROCEDURE

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PARAMETERS: DOC TYPES - PRFIG PRER PRAR PRAP STATUS: EF QU 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
AP-CCW.1	LEAKAGE INTO THE COMPONENT COOLING LOOP	014	01/09/01	05/01/98	05/01/03	EF
AP-CCW.2	LOSS OF CCW DURING POWER OPERATION	014	05/18/00	08/17/99	08/17/04	EF
AP-CCW.3	LOSS OF CCW - PLANT SHUTDOWN	012	05/18/00	08/17/99	08/17/04	EF
AP-CR.1	CONTROL ROOM INACCESSIBILITY	016	01/11/00	01/11/00	01/11/05	EF
AP-CVCS.1	CVCS LEAK	012	05/01/98	05/01/98	05/01/03	EF
AP-CVCS.3	LOSS OF ALL CHARGING FLOW	002	02/11/00	02/26/99	02/26/04	EF
AP-CW.1	LOSS OF A CIRC WATER PUMP	010	07/16/98	05/01/98	05/01/03	EF
AP-ELEC.1	LOSS OF 12A AND/OR 12B BUSES	020	09/08/00	05/01/98	05/01/03	EF
AP-ELEC.2	SAFEGUARD BUSES LOW VOLTAGE OR SYSTEM LOW FREQUENCY	009	03/22/99	03/22/99	03/22/04	EF
AP-ELEC.3	LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350 F)	008	09/08/00	05/01/98	05/01/03	EF
AP-ELEC.14/16	LOSS OF SAFEGUARDS BUS 14/16	002	02/08/01	06/09/97	06/09/02	EF
AP-ELEC.17/18	LOSS OF SAFEGUARDS BUS 17/18	002	10/18/99	06/09/97	06/09/02	EF
AP-FW.1	PARTIAL OR COMPLETE LOSS OF MAIN FEEDWATER	012	02/11/00	02/27/98	02/27/03	EF
AP-IA.1	LOSS OF INSTRUMENT AIR	017	12/02/99	05/01/98	05/01/03	EF
AP-PRZR.1	ABNORMAL PRESSURIZER PRESSURE	011	12/02/99	12/02/99	12/02/04	EF
AP-RCC.1	CONTINUOUS CONTROL ROD WITHDRAWAL/INSERTION	006	02/24/96	05/14/98	05/14/03	EF
AP-RCC.2	RCC/RPI MALFUNCTION	008	11/16/98	02/06/97	02/06/02	EF
AP-RCC.3	DROPPED ROD RECOVERY	004	11/16/98	02/27/98	02/27/03	EF
AP-RCP.1	RCP SEAL MALFUNCTION	013	06/09/00	05/01/98	05/01/03	EF
AP-RCS.1	REACTOR COOLANT LEAK	015	09/08/00	05/01/98	05/01/03	EF
AP-RCS.2	LOSS OF REACTOR COOLANT FLOW	010	12/14/98	05/01/98	05/01/03	EF
AP-RCS.3	HIGH REACTOR COOLANT ACTIVITY	007	08/05/97	08/05/97	08/05/02	EF
AP-RCS.4	SHUTDOWN LOCA	011	12/02/99	05/01/98	05/01/03	EF
AP-RHR.1	LOSS OF RHR	015	02/08/01	05/01/98	05/01/03	EF

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PARAMETERS: DOC TYPES - PRFIG PRER PRAR PRAP STATUS: EF QU 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
AP-RHR.2	LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS	009	10/13/00	03/31/00	03/31/05	EF
AP-SG.1	STEAM GENERATOR TUBE LEAK	000	09/08/00	09/08/00	09/08/05	EF
AP-SW.1	SERVICE WATER LEAK	015	10/18/99	06/03/98	06/03/03	EF
AP-TURB.1	TURBINE TRIP WITHOUT RX TRIP REQUIRED	010	02/12/99	10/10/97	10/10/02	EF
AP-TURB.2	TURBINE LOAD REJECTION	017	02/11/00	05/13/98	05/13/03	EF
AP-TURB.3	TURBINE VIBRATION	010	02/11/00	02/10/98	02/10/03	EF
AP-TURB.4	LOSS OF CONDENSER VACUUM	014	05/01/98	05/01/98	05/01/03	EF
AP-TURB.5	RAPID LOAD REDUCTION	005	06/09/00	06/09/00	06/09/05	EF
TOTAL FOR PRAP	32					

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EOP FIGURE PROCEDURES

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PARAMETERS: DOC TYPES - PRFIG PRER PRAR PRAP STATUS: EF QU 5 YEARS ONLY:


PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
FIG-1.0	FIGURE MIN SUBCOOLING	000	05/01/98	05/01/98	05/01/03	EF
FIG-2.0	FIGURE SDM	002	10/13/00	05/01/98	05/01/03	EF
FIG-3.0	FIGURE NAT CIRC C/D WITH SHROUD FANS	000	05/01/98	05/01/98	05/01/03	EF
FIG-3.1	FIGURE NAT CIRC C/D WITHOUT SHROUD FANS	001	02/08/01	05/01/98	05/01/03	EF
FIG-3.2	FIGURE NC C/D WITH VOID IN UPPER HEAD	000	05/01/98	05/01/98	05/01/03	EF
FIG-4.0	FIGURE RCP SEAL LEAKOFF	001	10/13/00	05/01/98	05/01/03	EF
FIG-5.0	FIGURE RHR INJECTION	000	05/01/98	05/01/98	05/01/03	EF
FIG-6.0	FIGURE MIN RCS INJECTION	000	05/01/98	05/01/98	05/01/03	EF
FIG-7.0	FIGURE INTACT S/G PRESSURE	001	05/18/98	05/01/98	05/01/03	EF
FIG-8.0	FIGURE TSAT	000	05/01/98	05/01/98	05/01/03	EF
FIG-9.0	FIGURE TECH SPEC C/D	000	05/01/98	05/01/98	05/01/03	EF
FIG-9.1	FIGURE C/D LIMITS	000	05/01/98	05/01/98	05/01/03	EF
FIG-10.0	FIGURE LIMIT A	000	05/01/98	05/01/98	05/01/03	EF
FIG-11.0	FIGURE SOAK LIMITS	000	05/01/98	05/01/98	05/01/03	EF
FIG-12.0	FIGURE CNMT HYDROGEN	000	05/01/98	05/01/98	05/01/03	EF
FIG-13.0	FIGURE BACK PRESSURE	000	05/01/98	05/01/98	05/01/03	EF
FIG-14.0	FIGURE IA ISOL	000	05/01/98	05/01/98	05/01/03	EF
TOTAL FOR PRFIG	17					

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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23



RESPONSIBLE MANAGER

2-8-2001

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: AP-ELEC.14/16	TITLE: LOSS OF SAFEGUARDS BUS 14/16	REV: 2 PAGE 2 of 17
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A. PURPOSE - This procedure provides actions to respond to a loss of AC Emergency Bus 14 or Bus 16.

B. ENTRY CONDITIONS/SYMPTOMS

2. SYMPTOMS - The symptoms of a LOSS OF SAFEGUARDS BUS 14/16 are;

- a. Annunciator J-7, 480V MAIN OR TIE BREAKER TRIP, lit, or
- b. Annunciator J-29, 480V TRANSFORMER BREAKER TRIP, lit.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

- o IF A LOSS OF BUS 12A OR 12B HAS OCCURRED, THEN NO OUTSIDE, SHOULD BE PERFORMED.
- o IF A TURBINE RUNBACK HAS OCCURRED, THEN AP-TURB.2, TURBINE LOAD REJECTION, SHOULD BE PERFORMED.
- o OBSERVE D/G LOADING LIMITS OF 2300 KW FOR 1/2 HOUR, 2250 KW FOR 2 HOURS, AND 1950 KW FOR CONTINUOUS SERVICE.
- o DO NOT ATTEMPT TO ENERGIZE A BUS THAT IS POTENTIALLY FAULTED.

NOTE: Conditions should be evaluated for site contingency reporting (Refer to EPIP-1.0, GINNA STATION EVENT EVALUATION AND CLASSIFICATION).

1 Establish Manual Rod Control

a. Place Rod Control Bank Selector Switch to MANUAL

b. Verify control rod motion stops

c. Manually move control rods as necessary

b. Manually trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.

2 Verify Emergency D/G Associated With Affected Bus - RUNNING AND LOADED

Attempt to start and load emergency D/G(s) manually. (Refer to ER-D/G.1, RESTORING D/Gs)

o Bus 14 - D/G A

o Bus 16 - D/G B

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	<p>Verify At Least One Train of AC Emergency Busses Energized to at Least 420 Volts:</p> <ul style="list-style-type: none"> o Bus 14 and Bus 18 -OR- o Bus 16 and Bus 17 	Go to ECA-0.0, LOSS OF ALL AC POWER step 1.
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF CCW FLOW TO A RCP IS INTERRUPTED FOR GREATER THAN 2 MINUTES OR IF EITHER RCP MOTOR BEARING TEMPERATURE EXCEEDS 200°F, THEN TRIP THE AFFECTED RCP.</p> <p>*****</p>		
4	Verify CCW Pump Status	
	<p>a. At least one CCW Pump - RUNNING</p> <p>b. Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSIG - EXTINGUISHED</p>	<p>a. Start one CCW pump (124 KW)</p> <p>1) <u>IF</u> neither CCW pump can be started, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a) Trip the reactor. b) Trip <u>BOTH</u> RCP's. c) Go to E-0, REACTOR TRIP OR SAFETY INJECTION. <p>b. Start second CCW pump (124 KW).</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	Verify Charging Pump Status- AT LEAST ONE RUNNING	Secure letdown flowpaths <ul style="list-style-type: none"> o Close loop B cold leg to REGEN Hx, AOV-427. o Ensure closed loop A cold leg to EXCESS LETDOWN Hx, AOV-310. o Ensure closed EXCESS LETDOWN HCV-123.
6	Monitor S/G Level Control: <ul style="list-style-type: none"> o S/G level - TRENDING TO 52% o MFW regulating valves - CONTROLLING IN AUTO 	Place MFW regulating valves in MANUAL and control feed flow as necessary.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	Verify Bus 14 - ENERGIZED TO AT LEAST 420 VOLTS	<p>Perform the following:</p> <ul style="list-style-type: none"> a. Close loop B cold leg to REGEN Hx, AOV-427. b. <u>IF</u> steam dump is armed, <u>THEN</u> place STEAM DUMP MODE SELECTOR Switch to MANUAL. c. Ensure only one charging pump operating. d. Transfer Inst Bus B to maintenance supply. e. Return steam dump to AUTO, if desired. f. Ensure the following equipment operating as necessary: <ul style="list-style-type: none"> • CCW Pump B • PRZR Backup Heaters • CNMT Recirc Fans B and C • Boric Acid Pump B • RMW Pump B • Reactor Compartment Cooling Fan B • Penetration Cooling Fan B g. <u>IF</u> Bus 14 can <u>NOT</u> be energized, <u>THEN</u>: <ul style="list-style-type: none"> o Provide alternate room cooling for D/G A. o Cross-connect D/G B fuel oil transfer pump to D/G A (Refer to ER-D/G.1).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8	Verify Bus 16 - ENERGIZED TO AT LEAST 420 VOLTS	<p>Perform the following:</p> <p>a. Ensure the following equipment operating as necessary:</p> <ul style="list-style-type: none"> • CCW Pump A • Charging Pump A • PRZR Proportional Heaters • CNMT Recirc Fans A and D • Boric Acid Pump A • RMW Pump A • Reactor Compartment Cooling Fan A • Penetration Cooling Fan A <p>b. <u>IF</u> Bus 16 can <u>NOT</u> be energized, <u>THEN</u>:</p> <ul style="list-style-type: none"> o Provide alternate room cooling for D/G B. o Cross-connect D/G A fuel oil transfer pump to D/G B (Refer to ER-D/G.1).

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: IF VCT level decreased to 5%, charging pump suction will swap to the RWST. This may required a load reduction.

9 Check VCT Makeup System:

a. Verify the following:

- 1) RMW mode selector switch in
AUTO
- 2) RMW control armed - RED LIGHT
LIT

b. Check VCT level:

- o Level GREATER THAN 20%
-OR-
o Level - STABLE OR INCREASING

a. Adjust controls as necessary.

b. Check letdown divert valve,
LCV-112A, aligned to VCT.

Manually increase VCT makeup
flow as follows:

- 1) Ensure BA transfer pumps and
RMW pumps running.
- 2) Adjust RMW flow control
valve, HCV-111, to increase
RMW flow.
- 3) Increase boric acid flow as
necessary to maintain
required concentration.

IF VCT level can NOT be
maintained, THEN refer to
ER-CVCS.1, REACTOR MAKEUP
CONTROL MALFUNCTION, if
necessary.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	<p>Check Charging Pump Suction Aligned To VCT:</p> <p>a. VCT level - GREATER THAN 20%</p> <p>b. Verify charging pumps aligned to VCT</p> <ul style="list-style-type: none"> o LCV-112C open o LCV-112B closed 	<p>a. <u>IF</u> VCT level can <u>NOT</u> be maintained greater than 5%, <u>THEN</u> perform the following:</p> <p>1) Ensure charging pump suction aligned to RWST</p> <ul style="list-style-type: none"> o LCV-112B open o LCV-112C closed <p>2) Continue with Step 11. <u>WHEN</u> VCT level greater than 20%, <u>THEN</u> do Step 10b.</p> <p>b. Manually align valves as necessary.</p>

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: When restarting equipment for recovery, it is preferable to start equipment on busses being supplied from offsite power, if possible.

11 Check CVCS Operation:

a. Charging pumps - AT LEAST ONE
RUNNING

a. IF charging pump(s) available,
THEN perform the following:

- 1) Start charging pumps as necessary.
- 2) Establish greater than 20 gpm charging line flow.

IF NO charging pumps available,
THEN go to step 13

b. Charging line flow - GREATER
THAN 20 GPM

b. Establish charging line flow to
REGEN Hx - GREATER THAN 20 GPM

c. Check letdown indications:

c. Perform the following:

- o Check PRZR level - GREATER
THAN 13%
- o Letdown flow - APPROXIMATELY
40 GPM
- o Letdown flow - STABLE

- 1) Close loop B cold leg to
REGEN Hx, AOV-427.
- 2) Close letdown orifice valves
(AOV-200A, AOV-200B, and
AOV-202)
- 3) IF PRZR level greater than
13%, THEN go to Step 12. IF
NOT, THEN continue with
Step 14. WHEN PRZR level
greater than 13%, THEN do
Steps 12 and 13.

d. Adjust charging pump speed and
HCV-142 as necessary to restore
PRZR level and labyrinth seal D/P

e. Go to Step 13

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Steps 12 and 13 may be performed concurrently.

12 Establish Normal Letdown:

- a. Establish charging line flow to REGEN Hx - GREATER THAN 20 GPM
- b. Place letdown controllers in MANUAL at 40% open
 - TCV-130
 - PCV-135
- c. Open AOV-427
- d. Open letdown orifice valves as necessary
- e. Place TCV-130 in AUTO at 105°F
- f. Place PCV-135 in AUTO at 250 psig
- g. Adjust charging pump speed and HCV-142 as necessary

- Perform the following steps in sequence to establish excess letdown, if desired:
- o Place excess letdown divert valve, AOV-312, to NORMAL
 - o Ensure CCW from excess letdown open, AOV-745
 - o Ensure RCP seal return isolation valve open, MOV-313
 - o Open excess letdown isolation valve, AOV-310
 - o Slowly open HCV-123 to maintain excess letdown temperature less than 195°F and pressure less than 100 psig

13 Verify PRZR Heaters Restored:

- o PRZR proportional heater breaker - CLOSED
- o PRZR backup heater breaker - RESET/IN AUTO

IF adequate D/G capacity available for PRZR heaters (400 kw each bank), THEN perform the following:

- a. Reset and close PRZR proportional heater breaker if necessary.
- b. Reset PRZR backup heater breaker and return to AUTO if necessary.

IF adequate D/G capacity NOT available, THEN refer to ER-PRZR.1.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14	Verify Normal Rod Control Restored:	
a.	Annunciator C-5, PPCS ROD SEQUENCE OR ROD DEVIATION - EXTINGUISHED	a. <u>IF</u> alarm is due to a loss of power to MRPI, <u>THEN</u> maintain rods in manual <u>AND</u> minimize rod motion. <u>IF</u> alarm is due to actual rod misalignment, <u>THEN</u> refer to AP-RCC.2, RCC/RPI MALFUNCTION, while continuing with this procedure.
b.	Annunciator E-28, POWER RANGE ROD DROP ROD STOP - EXTINGUISHED	b. Perform the following: 1) Place rod control bank selector switch in MANUAL. 2) Reset NIS rod drop rod stop signals (at NIS racks) as necessary.
c.	Annunciator F-15, RCS TAVG DEV 4°F - EXTINGUISHED	c. Go to step 15
d.	Place rod control bank selector switch in AUTO if desired	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15	Establish Stable Plant Conditions:	
	a. Check Tav _g - TRENDING TO TREF	a. Insert control rods or, if necessary, decrease turbine load to match Tav _g to Tref.
	b. Check PRZR pressure - TRENDING TO 2235 PSIG	b. Verify proper operation of PRZR heaters and spray or take manual control of PRZR pressure controller 431K.
	c. Check PRZR level - TRENDING TO PROGRAM	c. Verify proper operation of charging pump speed controllers or take manual control of speed controllers to control PRZR level.
16	Restore Normal Electric System Alignment:	
	a. Verify circuit 767 and/or 751 - AVAILABLE	a. Continue with Step 17. <u>WHEN</u> offsite power available, <u>THEN</u> do Steps 16b and c.
	b. Verify all emergency AC bus normal feed breakers - CLOSED	b. Perform the following:
	<ul style="list-style-type: none"> • Bus 14 • Bus 16 • Bus 17 • Bus 18 	1) Restore emergency AC busses to normal power supply (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER) 2) <u>IF</u> normal power is restored to all AC emergency buses, <u>THEN</u> return to step 7. <u>IF NOT</u> , <u>THEN</u> go to step 17.
	c. Stop any unloaded emergency D/G and place in standby (Refer to T-27.4)	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	Establish Normal Plant Conditions:	
a.	Verify 2 charging pumps - RUNNING	a. Perform the following: 1) Manually start charging pumps as necessary. 2) Place selected charging pump speed controller in AUTO if desired.
b.	Verify at least 2 CNMT recirc fans - RUNNING	b. Start CNMT recirc fans as necessary (240 kw each).
c.	Check CCW pumps - ONLY ONE RUNNING	c. Locally verify two CCW pumps running, <u>THEN</u> manually stop one pump.
d.	Check radiation monitoring systems: o CNMT vent sample pump - RUNNING o Plant vent sample pump - RUNNING o All area and process monitors operating as required	d. Restore sample pumps and radiation monitors as necessary. (Refer to CHA-RETS-ODCM).
18	Check Status Of DC System Loads:	
a.	Verify TDAFW pump DC oil pump - OFF IN AUTO	a. Perform the following: 1) Direct AO to locally check TDAFW AC oil pump running. <u>IF</u> not running, <u>THEN</u> start pump from MCB. 2) Stop TDAFW pump DC oil pump.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Inst Bus C provides power to all MCB manual controllers.

19 Check Status of Battery
Chargers:

a. Battery Chargers 1A OR 1A1 -
ENERGIZED.

a. IF BOTH battery chargers are
deenergized, THEN direct the
Electricians to crosstie TSC
battery charger to main battery
A (Refer to ATTACHMENT TRANSFER
BATTERY TO TSC).

b. Battery Chargers 1B OR 1B1 -
ENERGIZED

b. IF BOTH battery chargers are
deenergized, THEN direct the
Electricians to crosstie TSC
battery charger to main battery
B (Refer to ATTACHMENT TRANSFER
BATTERY TO TSC).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	20 Restore Equipment Alignment:	
	a. Verify annunciator L-1, AUX BLDG VENT SYSTEM CONTROL PANEL - EXTINGUISHED	a. Dispatch AO to restore AUX BLDG ventilation (Refer to T-35A, AUX AND INTERMEDIATE BUILDING VENTILATION STARTUP AND SHUTDOWN)
	b. Restore affected bus equipment as desired	
	o SFP Cooling	
	o Penetration cooling fans	
	o Reactor compartment cooling fans	
	o Hydrogen panel	
	o PA system inverter (Battery Room A)	
	o Auxiliary Bldg lighting (normal supply MCC D, manual throwover to MCC C)(located at MCC C)	
	o Fire system (Refer to SC-3.16.2.3)	
	c. Check control board annunciator panels - ALARM STATUS VALID FOR PLANT CONDITIONS	c. Perform alarm response procedures for unexpected alarms.
	d. Verify control board valve alignment - NORMAL (Refer to O-6.13, DAILY SURVEILLANCE LOG)	d. Manually align valves as necessary.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE: Refer to O-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.

21 Verify emergency AC bus
normal feed breakers closed

Return to Step 7

o Bus 14

o Bus 16

22 Verify Inst Bus B on normal
supply

Place Inst Bus B on normal supply
(Refer to ER-INST.3, INSTRUMENT BUS
POWER RESTORATION).

23 Reset UV relay targets on
undervoltage cabinets

o Bus 14

o Bus 16

24 Notify Higher Supervision

25 Return To Procedure Or
Guidance In Effect

-END-

EOP:	TITLE:	REV: 2
AP-ELEC.14/16	LOSS OF SAFEGUARDS BUS 14/16	PAGE 1 of 1

AP-ELEC.14/16 APPENDIX LIST

TITLE

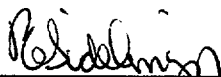
- 1) ATTACHMENT TRANSFER BATTERY TO TSC (ATT-24.0)

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 1 of 13
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23



RESPONSIBLE MANAGER

2-8-2001

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 2 of 13
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A. PURPOSE - This procedure provides guidance in the event of a loss of RHR cooling at or above normal loop levels. (i.e. RCS 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, or
- b. AP-ELEC.3, LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F), when RHR flow can NOT be restored, or
- c. AP-CCW.3, LOSS OF CCW - PLANT SHUTDOWN when CCW is inadequate for RHR cooling

2. SYMPTOMS - The following are symptoms of LOSS OF RHR;

- a. No RHR pumps running, or
- b. Annunciator A-20, RESIDUAL HEAT REMOVAL LOOP LO FLOW 2900 GPM (Set at 400 GPM per 0-2.2 in RHR Cooling mode), lit, or
- c. Unexpected increase in temperature while on RHR cooling, or
- d. Erratic or no flow on FI-626, RHR Loop Flow, or
- e. Annunciator J-9, SAFEGUARD BREAKER TRIP, lit.

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 3 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>DO NOT START ANOTHER RHR PUMP UNTIL THE CAUSE OF THE ABNORMAL RHR INDICATIONS HAS BEEN DETERMINED. IF A RUNNING PUMP HAS TRIPPED FOR REASONS OTHER THAN LOSS OF SUCTION FLOW, THEN REDUNDANT PUMP MAY BE STARTED.</p> <p>*****</p> <p><u>NOTE:</u> Conditions should be evaluated for site contingency reporting (Refer to EPIP-1.0, GINNA STATION EVENT EVALUATION AND CLASSIFICATION).</p>		
1	Check PRZR Wide Range Level - GREATER THAN 0 INCHES	<p><u>IF</u> RCS loop level indicator in service and loop level less than 64 inches, <u>THEN</u> go to AP-RHR.2, LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS.</p>

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 4 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2	Check If RHR Pump(s) Should Be Stopped:	
a.	RHR pump - ANY RUNNING	a. Go to Step 3.
b.	Check RHR pump flow - LESS THAN 1500 GPM PER PUMP	b. Decrease RHR flow as necessary. <u>IF</u> RHR flow can <u>NOT</u> be controlled, <u>THEN</u> perform the following: <ol style="list-style-type: none"> 1) Stop running RHR pump. 2) Dispatch an AO with a locked valve key to locally throttle RHR Hx outlet valves to approximately half open. <ul style="list-style-type: none"> • A RHR Hx, HCV-625 handwheel • B RHR Hx, HCV-624 handwheel 3) Start an RHR pump. 4) Direct AO to locally adjust RHR flow to less than 1500 gpm.
c.	RHR pumps cavitating: <ol style="list-style-type: none"> o RHR pump flow - OSCILLATING -OR- o RHR pump NPSH - APPROXIMATELY ZERO (PPCS group GD NPSH) 	c. Go to Step 17.
d.	Stop RHR pumps	

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 5 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED								

<u>CAUTION</u>										
<ul style="list-style-type: none">o DO NOT INITIATE ANY ACTIONS WHICH MAY ADD POSITIVE REACTIVITY TO THE CORE.o NOTIFY S/G OFFICE THAT CNMT BREATHING AIR MAY BE LOST.o IF REFUELING IN PROGRESS, THEN STOP REFUELING OPERATIONS (NOTIFY REFUELING SRO).										

<p><u>NOTE:</u> Personnel remaining in CNMT to assist in event mitigation should consult Health Physics for changes in radiological concerns.</p>										
<p>3 Initiate Actions To Protect Personnel In CNMT:</p>										
<table><tbody><tr><td>a. Evacuate non-essential personnel from CNMT</td><td>b. Manually start available CNMT RECIRC fans.</td></tr><tr><td>b. Verify all available CNMT RECIRC fan(s) - RUNNING</td><td>c. Refer to appropriate alarm response procedures for required actions.</td></tr><tr><td>c. Initiate monitoring of CNMT area and process radiation monitors</td><td>d. Within 4 hours, close all CNMT penetrations to outside atmosphere.</td></tr><tr><td>d. Verify CNMT penetrations with direct access to outside atmosphere - CLOSED (Refer to Attachment CNMT CLOSURE)</td><td></td></tr></tbody></table>			a. Evacuate non-essential personnel from CNMT	b. Manually start available CNMT RECIRC fans.	b. Verify all available CNMT RECIRC fan(s) - RUNNING	c. Refer to appropriate alarm response procedures for required actions.	c. Initiate monitoring of CNMT area and process radiation monitors	d. Within 4 hours, close all CNMT penetrations to outside atmosphere.	d. Verify CNMT penetrations with direct access to outside atmosphere - CLOSED (Refer to Attachment CNMT CLOSURE)	
a. Evacuate non-essential personnel from CNMT	b. Manually start available CNMT RECIRC fans.									
b. Verify all available CNMT RECIRC fan(s) - RUNNING	c. Refer to appropriate alarm response procedures for required actions.									
c. Initiate monitoring of CNMT area and process radiation monitors	d. Within 4 hours, close all CNMT penetrations to outside atmosphere.									
d. Verify CNMT penetrations with direct access to outside atmosphere - CLOSED (Refer to Attachment CNMT CLOSURE)										

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 6 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4	Check RHR Cooling Valve Alignment - NORMAL (Refer to Attachment NORMAL RHR COOLING)	Manually or locally align valves as necessary.
<p style="text-align: center;">***** <u>CAUTION</u> THE RHR HX OUTLET VALVES (HCV-624 AND HCV-625) WILL FAIL OPEN ON LOSS OF INSTRUMENT AIR PRESSURE. *****</p>		
5	Check IA System:	
a.	Verify 2 IA compressors - RUNNING	a. Manually start IA compressors as necessary (75 kw each). <u>IF</u> IA compressors can <u>NOT</u> be started manually, <u>THEN</u> dispatch AO to locally reset and start compressors (75 kw each).
b.	Check IA supply	b. <u>IF</u> IA pressure can <u>NOT</u> be restored, <u>THEN</u> perform the following:
	o Pressure - GREATER THAN 60 PSIG	1) Dispatch AO with a locked valve key to locally throttle RHR Hx outlet valves to approximately half open.
	o Pressure - STABLE OR INCREASING	<ul style="list-style-type: none"> • A RHR Hx, HCV-625 handwheel • B RHR Hx, HCV-624 handwheel
		2) <u>WHEN</u> conditions permit, <u>THEN</u> refer to AP-IA.1, LOSS OF INSTRUMENT AIR, to restore IA.

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 7 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* 6	Monitor RCS Temperature - GREATER THAN 200°F	<p>Perform the following:</p> <ul style="list-style-type: none"> a. Notify Plant Staff to attempt to establish CNMT integrity <u>AND</u> CNMT heat removal capability. b. Go to step 8.
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>o CHANGES IN RCS PRESSURE COULD RESULT IN INACCURACIES IN RCS LOOP LEVEL INDICATION</p> <p>o UNSTABLE OR FLUCTUATING LEVEL INSTRUMENTS SHOULD NOT BE RELIED ON FOR INDICATION OF RCS INVENTORY.</p> <p>*****</p>		
7	Verify RCS Intact:	<p>Perform the following:</p> <ul style="list-style-type: none"> a. Verify charging line flow control valve, HCV-142, open as necessary. b. Ensure charging line valve to loop B cold leg, AOV-294, open. c. Start charging pumps as necessary. d. Control charging pump speed and letdown flow as necessary to stabilize RCS conditions. <ul style="list-style-type: none"> • PRZR pressure • PRZR level • Loop level <p><u>IF</u> charging flow greater than 75 gpm with letdown isolated <u>OR</u> unable to verify RCS inventory, <u>THEN</u> go to AP-RCS.4, SHUTDOWN LOCA.</p>

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 8 of 13
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

8 Establish Conditions To Start RHR Pump:

a. RHR pump - AVAILABLE

a. Perform the following:

- 1) Start trending core exit TCs.
- 2) IF RCS closed, THEN go to Step 10. IF RCS open to atmosphere, THEN go to Step 16.

b. Verify CCW cooling to RHR system in service

b. Perform the following:

- o CCW pumps - AT LEAST ONE RUNNING
- o CCW to RHR Hxs, MOV-738A AND MOV-738B - OPEN AS NECESSARY

- 1) Ensure at least one CCW pump running.
- 2) Open MOV-738A and MOV-738B as necessary.

IF CCW can NOT be restored, THEN continue with Step 9 while attempting to restore CCW (Refer to AP-CCW.3, LOSS OF CCW - PLANT SHUTDOWN).

c. Close RHR pump flow control valves (controllers at 100% demand)

- HCV-624
- HCV-625

d. Place RHR Hx bypass valve, HCV-626, to MANUAL and close valve

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 9 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>STARTING AN RHR PUMP MAY RESULT IN AN RCS LEVEL OR PRESSURE DECREASE DUE TO SHRINK OR VOID COLLAPSE.</p> <p>*****</p>		
9	Restore RHR Flow:	
	a. Start one RHR pump - RHR PUMP RUNNING	a. Go to Step 9e.
	b. Check RHR flow - LESS THAN 1500 GPM PER PUMP	b. Manually adjust RHR flow as necessary.
	c. Adjust RHR Hx bypass flow control valve, HCV-626, to desired flowrate	
	d. Place RHR Hx bypass flow control valve, HCV-626, controller in AUTO	
	e. RHR flow - RESTORED	e. Perform the following:
		1) Start trending core exit T/Cs.
		2) <u>IF</u> RCS closed, <u>THEN</u> go to Step 10. <u>IF</u> RCS vented to atmosphere, <u>THEN</u> go to Step 16.
	f. Open RHR Hx outlet valves as necessary to control RCS temperature	
	<ul style="list-style-type: none"> • HCV-624 • HCV-625 	

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 10 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10 Monitor RCS Temperature:		
a. RCS temperature - STABLE OR DECREASING		a. <u>IF</u> RCS closed, <u>THEN</u> go to Step 11. <u>IF</u> RCS open to atmosphere, <u>THEN</u> go to Step 16.
b. Go to Step 19		
11 Check Any S/G Level - GREATER THAN 17%		Verify at least 200 gpm AFW flow available. <u>IF NOT</u> , <u>THEN</u> go to Step 17.
12 Check RCS Pressure - GREATER THAN 300 PSIG		Increase RCS pressure to greater than 300 psig. <u>IF</u> RCS pressure can <u>NOT</u> be increased, <u>THEN</u> go to Step 17.
13 Check RCP Status - ANY RCP RUNNING		Perform the followig: a. Establish conditions for starting an RCP. o Verify bus 11A or 11B energized. o Refer to Attachment RCP START. b. Start one RCP. <u>IF</u> an RCP can <u>NOT</u> be started, <u>THEN</u> verify natural circulation. (Refer to Attachment NC.) <u>IF</u> natural circulation <u>NOT</u> verified, <u>THEN</u> increase dumping steam.

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 11 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14	<p>Establish Condenser Steam Dump Manual Control:</p> <ul style="list-style-type: none"> a. Verify condenser available: <ul style="list-style-type: none"> o Any MSIV - OPEN o Annunciator G-15, STEAM DUMP ARMED - LIT b. Place condenser steam dump controller HC-484 in MANUAL c. Place steam dump mode selector switch to MANUAL d. Open steam dump valves as necessary to stabilize RCS temperature 	<ul style="list-style-type: none"> a. Perform the following: <ul style="list-style-type: none"> 1) Place S/G ARV controller in MANUAL and open ARVs as necessary to stabilize RCS temperature. 2) Go to Step 15.
15	<p>Monitor RCS Temperature:</p> <ul style="list-style-type: none"> a. RCS temperature - STABLE OR DECREASING 	<ul style="list-style-type: none"> a. <u>IF</u> dumping steam does <u>NOT</u> provide adequate cooling, <u>THEN</u> perform the following: <ul style="list-style-type: none"> 1) Initiate S/G blowdown from both S/Gs. 2) Maintain both S/G levels stable by controlling AFW flow. 3) Go to Step 17. b. Go to Step 18

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 12 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	Check RCS Conditions:	
	a. Rx vessel head - REMOVED	a. Go to Step 17.
	b. Stop refueling operations if in progress	
	c. Verify Refueling Cavity Level - GREATER THAN 23 FEET ABOVE VESSEL FLANGE	c. Increase refueling cavity level to greater than 23 feet (Refer to O-15.3, FILLING REFUELING CANAL).
	d. Verify refueling cavity sweep fans - RUNNING	d. Locally start refueling cavity sweep fans if available.
17	Check CCW System Operation:	To restore CCW cooling to RHR Hxs, perform the following:
	o CCW pumps - AT LEAST ONE RUNNING	
	o CCW to RHR Hxs, MOV-738A AND MOV-738B - OPEN AS NECESSARY	a. Ensure the standby CCW pump is running.
	o Annunciator A-21, COMP COOLING HX OUT HI TEMP - EXTINGUISHED	b. Open MOV-738A and MOV-738B as necessary.
	o Annunciator A-22, CCW PUMP DISCHARGE LO PRESS - EXTINGUISHED	<u>IF</u> CCW can <u>NOT</u> be restored, <u>THEN</u> continue attempts to restore CCW (Refer to AP-CCW.3, LOSS OF CCW - PLANT SHUTDOWN).
	o Annunciator A-30, CCW PUMP INLET HEADER HI TEMP - EXTINGUISHED	

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 13 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE: Consult with Plant Staff to determine alternatives for long term cooling.

18 Monitor RHR Cooling:

Perform the following:

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

- a. Evaluate alternatives for long term cooling (Consult Plant Staff)

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

- b. Continue attempts to restore RHR to operable.

- c. Return to Step 3.

NOTE: Refer to 0-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.

19 Notify Higher Supervision

20 Return to Procedure Or Guidance In Effect

-END-

EOP: AP-RHR.1	TITLE: LOSS OF RHR	REV: 15 PAGE 1 of 1
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AP-RHR.1 APPENDIX LIST

TITLE

- 1) FIGURE MIN SUBCOOLING (FIG-1.0)
- 2) ATTACHMENT NORMAL RHR COOLING (ATT-14.0)
- 3) ATTACHMENT RCP START (ATT-15.0)
- 4) ATTACHMENT NC (ATT-13.0)
- 5) ATTACHMENT CNMT CLOSURE (ATT-3.1)

EOP: FIG-3.1	TITLE: FIGURE NAT CIRC C/D WITHOUT SHROUD FANS	REV: 1 PAGE 1 of 1
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Responsible Manager Residehman Date 2-8-2001
RCS PRESSURE (PSIG)

