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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

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CATEGORY 1.0

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AP-ELEC.1	LOSS OF 12A AND/OR 12B BUSES	PAGE 2 of 22

A. PURPOSE - This procedure provides actions to respond to a loss of 12A and/or 12B Buses from HSD or at power conditions.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure may be entered from:

a. AP-TURB.2, TURBINE LOAD REJECTION, when busses 12A and/or 12B are found to be deenergized.

2. SYMPTOMS - The symptoms of loss of #12A or 12B SS Transformer are:

a. Annunciator L-20, 12A XFMR OR 12A BUS TROUBLE, lit, or

b. Annunciator L-28, 12B XFMR OR 12B BUS TROUBLE, lit.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

<u>CAUTION</u>	<ul style="list-style-type: none">o IF, AT ANY TIME DURING THIS PROCEDURE, A REACTOR TRIP OR SI OCCURS, E-0, REACTOR TRIP OR SAFETY INJECTION, SHALL BE PERFORMED.o IF RCS TEMPERATURE IS < 350°F, THEN AP-ELEC.3, LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F) SHOULD BE PERFORMED.o IF A TURBINE RUNBACK HAS OCCURRED, THEN AP-TURB.2, TURBINE LOAD REJECTION, SHOULD BE PERFORMED.o IF ANY RADIOACTIVE RELEASE IN PROGRESS, THEN IT SHOULD BE TERMINATED UNTIL SUPPORT CONDITIONS ARE EVALUATED.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.	

<u>NOTE:</u>	<ul style="list-style-type: none">o Conditions should be evaluated for site contingency reporting (Refer to EPIP-1.0, GINNA STATION EVENT EVALUATION AND CLASSIFICATION).o AP-ELEC.14/16, LOSS OF SAFEGUARDS BUS 14/16 AND AP-ELEC.17/18, LOSS OF SAFEGUARDS BUS 17/18 provide additional guidance for the loss of safeguards busses.	
1 Establish Manual Rod Control		
<ul style="list-style-type: none">a. Place Rod Control Bank Selector Switch to MANUALb. Verify control rod motion stopsb. Manually trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.c. Manually move control rods as necessary		

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2	<p>Verify Emergency D/G Associated With Dead Bus - RUNNING</p> <ul style="list-style-type: none"> Bus 12A - D/G A Bus 12B - D/G B 	<p><u>IF</u> appropriate emergency D/G(s) <u>NOT</u> running, <u>THEN</u> attempt to start manually. (Refer to ER-D/G.1, RESTORATION OF A FAILED D/G.)</p>
3	<p>Verify Both Trains Of AC Emergency Buses Energized To At Least 420 VOLTS:</p> <ul style="list-style-type: none"> Bus 14 and bus 18 Bus 16 and bus 17 	<p>Try to restore power to all AC emergency buses. <u>IF</u> power can <u>NOT</u> be restored to at least one train, <u>THEN</u> refer to ECA-0.0, LOSS OF ALL AC POWER, Step 1.</p>
4	<p>Verify Service Water System Operation:</p> <ul style="list-style-type: none"> SW pumps - AT LEAST ONE RUNNING IN EACH LOOP SW header pressure - GREATER THAN 40 PSIG IN EACH LOOP . 	<ul style="list-style-type: none"> Verify selected SW pumps start on a timer (40 sec) after D/G start. <u>IF NOT</u>, <u>THEN</u> manually start pumps as necessary (258 kw each). Manually align valves as necessary.
5	<p>Check CCW Pump Status:</p> <ul style="list-style-type: none"> At least one CCW pump - RUNNING Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSIG - EXTINGUISHED 	<ul style="list-style-type: none"> Start one CCW pump (124 kw). Start second CCW pump (124 kw).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Verify Bus 11A And 11B Normal Feed Breakers - CLOSED	<p><u>IF</u> turbine trip has occurred from power less than 50%, <u>THEN</u> go to AP-TURB.1, TURBINE TRIP WITHOUT RX TRIP REQUIRED, Step 1.</p> <p><u>IF</u> turbine stop valves open, <u>THEN</u> trip turbine and go to AP-TURB.1, TURBINE TRIP WITHOUT RX TRIP REQUIRED, Step 1.</p> <p><u>IF</u> turbine <u>NOT</u> previously latched, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Ensure reactor power less than 8%. b. Go to Step 16.
7	Verify Annunciator H-16, INSTRUMENT AIR COMP - EXTINGUISHED	Dispatch AO to locally reset and start IA compressors as necessary.
8	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
	<p>NOTE: When restarting equipment for recovery, it is preferable to start equipment on busses being supplied from offsite power, if possible.</p> <p>9 Check CVCS Operation:</p> <p>a. Charging pumps - AT LEAST ONE RUNNING</p> <p>b. Check letdown indications:</p> <ul style="list-style-type: none"> o Check PRZR level - GREATER THAN 13% o Letdown flow - APPROXIMATELY 40 GPM o Letdown flow - STABLE <p>c. Adjust charging pump speed and HCV-142 as necessary to restore PRZR level and labyrinth seal D/P</p> <p>d. Go to Step 11</p>	
		<p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) Close loop B cold leg to REGEN Hx, AOV-427. 2) Start charging pumps as necessary. 3) Establish greater than 20 gpm charging line flow. <p>b. Perform the following:</p> <ol style="list-style-type: none"> 1) Close loop B cold leg to REGEN Hx, AOV-427. 2) Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202) 3) <u>IF</u> PRZR level greater than 13%, <u>THEN</u> go to Step 10. <u>IF NOT</u>, <u>THEN</u> continue with Step 12. <u>WHEN</u> PRZR level greater than 13%, <u>THEN</u> do Steps 10 and 11.



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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Steps 10 and 11 may be performed concurrently.

10 Establish Normal Letdown:

Perform the following steps in sequence to establish excess letdown:

- | | |
|--|---|
| <ul style="list-style-type: none"> a. Establish charging line flow to REGEN Hx - GREATER THAN 20 GPM b. Verify the following switches in CLOSE: <ul style="list-style-type: none"> • Letdown orifice valve (AOV-200A, AOV-200B, and AOV-202) • Loop B cold leg to REGEN Hx AOV-427 c. Place letdown controllers in MANUAL at 40% open <ul style="list-style-type: none"> • TCV-130 • PCV-135 d. Open AOV-427 e. Open letdown orifice valves as necessary f. Place TCV-130 in AUTO at 105°F . g. Place PCV-135 in AUTO at 250 psig h. Adjust charging pump speed and HCV-142 as necessary | <ul style="list-style-type: none"> 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 |
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	Verify PRZR Heaters Restored: <ul style="list-style-type: none"> o PRZR proportional heater breaker - CLOSED o PRZR backup heater breaker - RESET/IN AUTO 	<p><u>IF</u> adequate D/G capacity available for PRZR heaters (400 kw each bank), <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Reset and close PRZR proportional heater breaker if necessary. b. Reset PRZR backup heater breaker and return to AUTO if necessary. <p><u>IF</u> adequate D/G capacity <u>NOT</u> available, <u>THEN</u> refer to ER-PRZR.1.</p>
12	Verify Normal Rod Control Restored: <ul style="list-style-type: none"> a. Annunciator C-5, PPCS ROD SEQUENCE OR ROD DEVIATION - EXTINGUISHED b. Annunciator E-28, POWER RANGE ROD DROP ROD STOP - EXTINGUISHED c. Annunciator F-15, RCS TAVG DEV 4°F - EXTINGUISHED d. Place rod control bank selector switch in AUTO if desired 	<ul style="list-style-type: none"> a. Go to AP-RCC.2, RCC/RPI MALFUNCTION. b. Perform the following: <ul style="list-style-type: none"> 1) Place rod control bank selector switch in MANUAL. 2) Reset NIS rod drop rod stop signals (at NIS racks) as necessary. c. Go to step 13.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13	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.
	NOTE: Power operation may continue if conditions required by ITS section 3.8 are met.	
14	Restore Normal Electric System Alignment:	
	a. Verify circuit 767 and/or 751 - AVAILABLE	a. Continue with Step 15. <u>WHEN</u> offsite power available, <u>THEN</u> do Steps 14b, c and d.
	b. Restore power to 12A and/or 12B bus (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)	
	c. Verify all emergency AC bus normal feed breakers - CLOSED	c. Restore emergency AC busses to normal power supply (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)
	<ul style="list-style-type: none"> • Bus 14 • Bus 16 • Bus 17 • Bus 18 	
	d. Stop any unloaded emergency D/G and place in standby (Refer to Attachment D/G STOP)	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15	Establish Normal Plant Conditions:	
a.	Verify EH control in OPER PAN and IMP IN	a. <u>IF</u> conditions requiring runback have cleared, <u>THEN</u> place EH in OPER PAN and IMP IN.
b.	Ensure steam dump controller, HC-484, in AUTO at 1005 psig	
c.	Verify annunciator G-15, STEAM DUMP ARMED - EXTINGUISHED	c. <u>IF</u> Tav _g within 5°F of Tref, <u>THEN</u> perform the following: 1) Ensure steam dump valves closed. 2) Reset steam dump.
d.	Verify 2 charging pumps - RUNNING	d. Perform the following: 1) Manually start charging pumps as necessary. 2) Place selected charging pump speed controller in AUTO if desired.
e.	Verify Rod Control Selector Switch in AUTO	e. Place Rod Control Selector Switch in AUTO if desired.
f.	Go to Step 29	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u></p> <ul style="list-style-type: none"> o Following RCP trip, a decrease in idle S/G level may occur. Also, swell may be anticipated in the operating S/G due to load pickup from the idle loop. o Temperatures in the loop with the stopped RCP will not be indicative of true Tavg and ΔT values. o If only one RCP is operating, refer to AP-RCS.2, LOSS OF REACTOR COOLANT FLOW. o Attempts to restore offsite power should continue (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER.) 		
16	Check Secondary Heat Sink Status:	
	a. Any main feed pump - RUNNING	a. Perform the following: <ul style="list-style-type: none"> 1) Verify MDAFW pumps running as necessary. 2) Verify TDAFW pump running if necessary. 3) Ensure Rx power less than 2%.
	b. Verify S/G levels - TRENDING TO 52%	b. Control feed flow as necessary to restore S/G level.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	<p>Check TDAFW Pump Status:</p> <ul style="list-style-type: none"> a. TDAFW pump - RUNNING b. Check S/G status <ul style="list-style-type: none"> o At least one S/G level - GREATER THAN 17% -OR- o Both MDAFW pumps - OPERABLE c. Pull stop TDAFW pump steam supply valves <ul style="list-style-type: none"> • MOV-3504A • MOV-3505A 	<ul style="list-style-type: none"> a. Go to Step 18. b. Go to Step 18.
18	Check Any RCP - RUNNING	Verify natural circulation. (Refer to Attachment NC.) <u>IF</u> natural circulation can <u>NOT</u> be verified, <u>THEN</u> increase dumping steam.
19	<p>Establish Condenser Steam Dump Pressure 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. Adjust condenser steam dump controller HC-484 to 1005 psig in AUTO c. Place steam dump mode selector switch to MANUAL 	<ul style="list-style-type: none"> a. Perform the following: <ol style="list-style-type: none"> 1) Place S/G ARV controllers in AUTO at 1005 psig and verify proper operation. <u>IF</u> S/G ARVs <u>NOT</u> controlling in AUTO, <u>THEN</u> control S/G ARVs manually. 2) Go to Step 20.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20	Restore Non-Safeguards Buses As Follows:	
a.	Verify Bus 13 and 15 - ENERGIZED	a. <u>IF</u> offsite power available, <u>THEN</u> attempt to restore offsite power and normal feed to Bus 13/15 (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER). 1) <u>IF</u> offsite power is <u>NOT</u> available, <u>THEN</u> perform the following: o Close Bus 13 to Bus 14 tie breaker o Close Bus 15 to Bus 16 tie breaker
b.	Verify MCC A - ENERGIZED	b. Perform the following: 1) Ensure the following pumps in PULL STOP: • EH pump A • Turning gear oil pump • HP seal oil backup pump 2) Close MCC A supply breaker from bus 13.
c.	Verify MCC B - ENERGIZED	c. Perform the following: 1) Ensure EH pump B in PULL STOP. 2) Close MCC B supply breaker from bus 15.
d.	Verify annunciator J-8, 480V MCC SUPPLY BREAKER TRIP - EXTINGUISHED	d. Restore power to other MCCs as D/G loading permits.
e.	Reset control room lighting if necessary	
f.	Reset MAIN XFMR AUX PWR SUPPLY breakers as necessary • Bus 13 • Bus 15	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u> When restarting equipment for recovery, it is preferable to start equipment on buses being supplied from offsite power, if possible.</p>		
21	Check IA System:	
	<ul style="list-style-type: none"> a. Verify at least 2 air compressors - RUNNING b. Check IA supply <ul style="list-style-type: none"> o Pressure - GREATER THAN 60 PSIG o Pressure - STABLE OR INCREASING 	<ul style="list-style-type: none"> a. Manually start air compressors as necessary (75 kw each). b. Dispatch an AO to locally reset and start IA compressors (75 kw each). <p><u>IF</u> IA can <u>NOT</u> be established, <u>THEN</u> refer to AP-IA.1, LOSS OF INSTRUMENT AIR.</p>
22	Verify Instrument Bus D - ENERGIZED	<p>Energize MCC B. <u>IF</u> MCC B <u>NOT</u> available, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Verify MCC A energized. b. Place instrument bus D on maintenance supply.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23	Check CVCS Operation:	
a.	Charging pumps - AT LEAST ONE RUNNING	a. Perform the following: 1) Close loop B cold leg to REGEN Hx, AOV-427. 2) Start charging pumps as necessary. 3) Establish greater than 20 gpm charging line flow.
b.	Check letdown indications: o Check PRZR level - GREATER THAN 13% o Letdown flow - APPROXIMATELY 40 GPM o Letdown flow - STABLE	b. Perform the following: 1) Close loop B cold leg to REGEN Hx, AOV-427. 2) Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202) 3) <u>IF</u> PRZR level greater than 13%, <u>THEN</u> go to Step 24. <u>IF NOT</u> , <u>THEN</u> continue with Step 26. <u>WHEN</u> PRZR level greater than 13%, <u>THEN</u> do Steps 24 and 25.
c.	Adjust charging pump speed and HCV-142 as necessary to restore PRZR level and labyrinth seal D/P	
d.	Go to Step 25	



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><u>NOTE:</u> Steps 24 and 25 may be performed concurrently.</p>	
24	Establish Normal Letdown:	Perform the following steps in sequence to establish excess letdown:
	<ul style="list-style-type: none"> a. Establish charging line flow to REGEN Hx - GREATER THAN 20 GPM. b. Verify the following switches in CLOSE: <ul style="list-style-type: none"> • Letdown orifice valve (AOV-200A, AOV-200B, and AOV-202) • Loop B cold leg to REGEN Hx AOV-427 c. Place letdown controllers in MANUAL at 40% open <ul style="list-style-type: none"> • TCV-130 • PCV-135 d. Open AOV-427. e. Open letdown orifice valves as necessary. f. Place TCV-130 in AUTO at 105°F. g. Place PCV-135 in AUTO at 250 psig. h. Adjust charging pump speed and HCV-142 as necessary. 	<ul style="list-style-type: none"> 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

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25	Verify PRZR Heaters Restored: <ul style="list-style-type: none"> o PRZR proportional heater breaker - CLOSED o PRZR backup heater breaker - RESET/IN AUTO 	<p><u>IF</u> adequate D/G capacity available for PRZR heaters (400 kw each bank), <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Reset and close PRZR proportional heater breaker if necessary. b. Reset PRZR backup heater breaker and return to AUTO if necessary. <p><u>IF</u> adequate D/G capacity <u>NOT</u> available, <u>THEN</u> refer to ER-PRZR.1.</p>
26	Establish Stable Plant Conditions: <ul style="list-style-type: none"> a. Check Rx power - LESS THAN 2.5×10^{-6} AMPS b. Check PRZR pressure - TRENDING TO 2235 PSIG c. Verify 2 charging pumps - RUNNING d. Check PRZR level - between 35% and 40% e. Check S/G levels - TRENDING TO 52% f. Check RCS Tavg - GREATER THAN 540°F 	<ul style="list-style-type: none"> a. Ensure rod control bank selector in MANUAL and insert rods to reduce Rx power as necessary. b. Verify proper operation of PRZR heaters and spray or take manual control of PRZR pressure controller 431K. c. Perform the following: <ul style="list-style-type: none"> 1) Manually start charging pumps as necessary. 2) Place selected charging pump speed controller in AUTO if desired. d. Control charging as necessary. e. Control feed flow as necessary to restore both S/G levels to 52%. f. Control dumping steam as necessary. <u>IF</u> cooldown continues, <u>THEN</u> close both MSIVs.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

<p><u>CAUTION</u> ANYTIME EMERGENCY D/GS ARE THE ONLY SOURCE OF AC POWER TO THE PLANT, PERSONNEL SHOULD BE ASSIGNED TO MAINTAIN SURVEILLANCE OF THE D/GS.</p> <p>*****</p>		
27	Restore Normal Electric System Alignment:	
a.	Verify circuit 767 and/or 751 - AVAILABLE	a. Continue with Step 28: <u>WHEN</u> offsite power available, <u>THEN</u> do Steps 27b, c and d.
b.	Restore power to 12A and/or 12B bus if necessary (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)	
c.	Verify all emergency AC bus normal feed breakers - CLOSED <ul style="list-style-type: none"> • Bus 14 • Bus 16 • Bus 17 • Bus 18 	c. Restore emergency AC busses to normal power supply (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)
d.	Stop any unloaded emergency D/G and place in standby (Refer to Attachment D/G STOP)	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>NOTE: Evaluate conditions to determine if turbine should be placed on turning gear.</p>		
<p>28 Establish Normal Shutdown Alignment:</p>		
a.	Verify turning gear oil pump - RUNNING	<p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) Manually start turning gear oil pump (42 kw). 2) Break vacuum to accelerate turbine coastdown. 3) Continue with Step 28b. <u>WHEN</u> shaft stops, <u>THEN</u> dispatch AO to place turbine on turning gear.
b.	Verify adequate Rx head cooling:	
	<ol style="list-style-type: none"> 1) Verify at least one control rod shroud fan - RUNNING 2) Verify one Rx compartment cooling fan - RUNNING 	<ol style="list-style-type: none"> 1) Manually start one fan as power supply permits (45 kw). 2) Manually start one fan as power supply permits (23 kw).
c.	Dispatch AO to start waste gas compressor as necessary	
d.	Dispatch AO to restore SFP cooling as necessary	



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29	Check Status Of DC System Loads:	
a.	Verify turb emergency DC lube oil pump - OFF	a. Manually stop emergency DC lube oil pump.
b.	Verify TDAFW pump DC oil pump - OFF IN AUTO	b. Perform the following: 1) Ensure TDAFW AC oil pump running. 2) Stop TDAFW pump DC oil pump.
c.	Verify both MFW pump DC oil pumps - OFF	c. Perform the following: 1) Ensure associated MFW pump AC oil pump running. 2) Stop MFW pump DC oil pump and place in AUTO

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
30 Restore Equipment Alignment:		
	a. Verify at least 2 CNMT recirc fans - RUNNING	a. Start CNMT recirc fans as necessary (240 kw each).
	b. Check CCW pumps - ONLY ONE RUNNING	b. <u>IF</u> two CCW pumps running, <u>THEN</u> manually stop one pump.
	c. Check radiation monitoring systems: <ul style="list-style-type: none"> o CNMT vent sample pump - RUNNING o Plant vent sample pump - RUNNING o All area and process monitors operating as required 	c. Restore sample pumps and radiation monitors as necessary.
	d. Dispatch AO to verify proper operation of seal oil system	
	e. Verify motor fire pump breaker - CLOSED	e. Close motor fire pump breaker.
	f. Verify annunciator L-1, AUX BLDG VENT SYSTEM CONTROL PANEL - EXTINGUISHED	f. <u>IF</u> bus 11A or 11B energized, <u>THEN</u> dispatch AO to restore AUX BLDG ventilation (Refer to T-35A, AUX AND INTERMEDIATE BUILDING VENTILATION STARTUP AND SHUTDOWN)
	g. Verify service air compressor - RUNNING	g. Dispatch AO to locally start service air compressor.
	h. Verify MCC G - ENERGIZED	h. Manually close breaker.
	i. Check control board annunciator panels - ALARM STATUS VALID FOR PLANT CONDITIONS	i. Perform alarm response procedures for unexpected alarms.
	j. Verify control board valve alignment - NORMAL (Refer to O-6.13, DAILY SURVEILLANCE LOG)	j. Manually align valves as necessary.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
31	Reset UV Relay Targets On Undervoltage Cabinets • Bus 14 • Bus 16 • Bus 17 • Bus 18	
	<u>NOTE:</u> Refer to O-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.	
32	Notify Higher Supervision	
33	Return To Procedure Or Guidance In Effect	
	-END-	

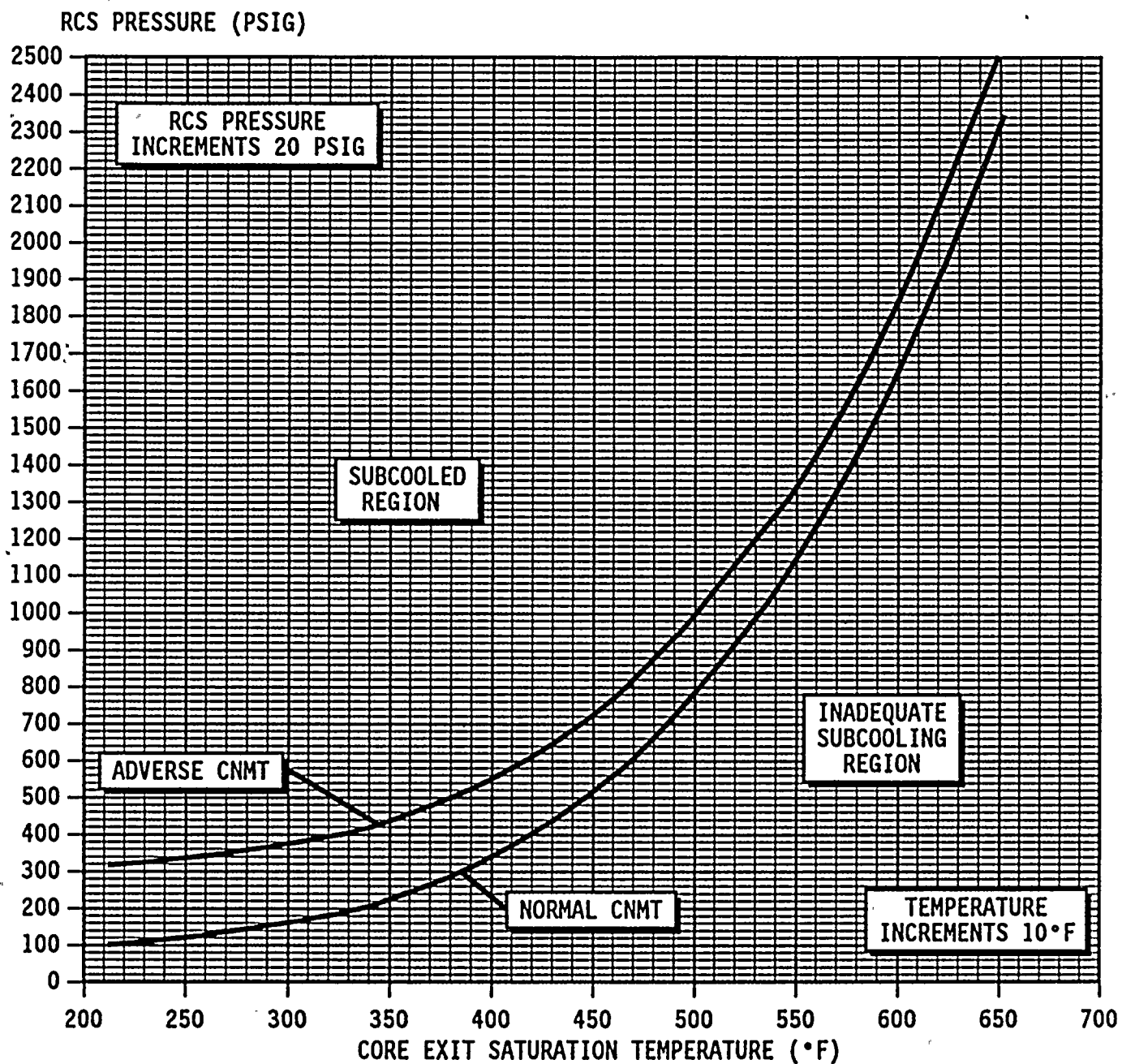
EOP: AP-ELEC.1	TITLE: LOSS OF 12A AND/OR 12B BUSSES	REV: 14 PAGE 1 of 1
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AP-ELEC. 1 APPENDIX LIST

	<u>TITLE</u>	<u>PAGES</u>
1)	FIGURE MIN SUBCOOLING	1
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3)	ATTACHMENT D/G STOP	1

FIGURE MIN SUBCOOLING

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



EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 1 of 20
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

Redidman

RESPONSIBLE MANAGER

5-22-97

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 2 of 20
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A. PURPOSE - This procedure provides actions to respond to a loss of 12A or 12B SS Transformer when RCS temperature is less than 350°F.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure may be entered from:

a. AP-ELEC.1, LOSS OF 12A AND/OR 12B BUSSES, when
busses 12A and/or 12B are found to be deenergized
and RCS temperature is less than 350°F.

2. SYMPTOMS - The symptoms of loss of #12A or 12B SS Transformer are:

a. Annunciator L-20, 12A XFMR OR 12A BUS TROUBLE,
lit, or

b. Annunciator L-28, 12B XFMR OR 12B BUS TROUBLE,
lit.

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 3 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

<u>CAUTION</u>	<ul style="list-style-type: none"> IF THE RCS IS WATER SOLID, THEN ANY INCREASE IN RCS TEMPERATURE MAY RESULT IN A SIGNIFICANT RCS PRESSURE INCREASE. RCS HEATUP SHOULD BE PREVENTED. OBSERVE D/G LOADING LIMITS OF 2300 KW FOR 1/2 HOUR, 2250 KW FOR 2 HOURS, AND 1950 KW FOR CONTINUOUS SERVICE. ANYTIME EMERGENCY D/GS ARE THE ONLY SOURCE OF AC POWER TO THE PLANT, PERSONNEL SHOULD BE ASSIGNED TO MAINTAIN SURVEILLANCE OF THE D/GS. IF ANY RADIOACTIVE RELEASE IN PROGRESS, THEN IT SHOULD BE TERMINATED UNTIL SUPPORT CONDITIONS ARE EVALUATED. 	

	<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	<p>Verify Emergency D/G Associated With Dead Bus - RUNNING</p> <ul style="list-style-type: none"> Bus 12A - D/G A Bus 12B - D/G B 	<p>IF appropriate emergency D/G(s) <u>NOT</u> running, <u>THEN</u> attempt to start manually. (Refer to ER-D/G.1, RESTORATION OF A FAILED D/G.)</p>
2	<p>Verify Both Trains Of AC Emergency Busses Energized To At Least 420 VOLTS:</p> <ul style="list-style-type: none"> Bus 14 and bus 18 Bus 16 and bus 17 	<p>Try to restore power to all AC emergency busses. IF power can <u>NOT</u> be restored to at least one train, <u>THEN</u> refer to ECA-0.0, LOSS OF ALL AC POWER.</p>

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 4 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>NOTE: When restarting equipment for recovery, it is preferable to start equipment on busses being supplied from offsite power, if possible.</p>		
<p>3 Verify Service Water System Operation:</p>		
a.	SW pumps - AT LEAST ONE RUNNING IN EACH LOOP	a. Verify selected SW pumps start on a timer (40 sec) after D/G start. <u>IF NOT, THEN</u> manually start pumps as conditions permit (258 kw each).
b.	SW header pressure - GREATER THAN 40 PSIG IN EACH LOOP	b. Manually align valves as necessary.
<p>4 Check CCW Pump Status:</p>		
a.	At least one CCW pump - RUNNING	a. Start one CCW pump (124 kw).
b.	Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSIG - EXTINGUISHED	b. Start second CCW pump (124 kw).

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 5 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	Check RCS Temperature - STABLE	<p><u>IF</u> RCS temperature increasing, <u>THEN</u> stabilize temperature using available method.</p> <ul style="list-style-type: none"> • RHR normal cooling • Dump steam and feed • Blowdown and feed <p><u>IF</u> RCS temperature decreasing, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> a. Stop dumping steam or control RHR normal cooling. b. <u>IF</u> cooldown continues, <u>THEN</u> perform the following: <ol style="list-style-type: none"> 1) <u>IF</u> either MDAFW pump operable, <u>THEN</u> ensure TDAFW pump steam supply valves in PULL STOP. 2) <u>WHEN</u> S/G level greater than 5% in one S/G, <u>THEN</u> limit feed flow to that required to maintain S/G level.

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 6 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE, NOT OBTAINED

CAUTION IF REFUELING IN PROGRESS, THEN STOP REFUELING OPERATIONS (NOTIFY REFUELING SRO).		

6	Restore Non-Safeguards Busses As Follows:	
a.	Verify non-safeguards busses - ENERGIZED <ul style="list-style-type: none"> • Bus 13 • Bus 15 	a. Close non-safeguards bus tie breaker for affected bus(es) if possible: <ul style="list-style-type: none"> • Bus 13 to bus 14 tie • Bus 15 to bus 16 tie
b.	Verify MCC A - ENERGIZED	b. Perform the following: <ol style="list-style-type: none"> 1) Ensure the following pumps in PULL STOP: <ul style="list-style-type: none"> • EH pump A • Turning gear oil pump • HP seal oil backup pump 2) Close MCC A supply breaker from bus 13.
c.	Verify MCC B - ENERGIZED	c. Perform the following: <ol style="list-style-type: none"> 1) Ensure EH pump B in PULL STOP. 2) Close MCC B supply breaker from bus 15.
d.	Check CNMT vent sample pump - RUNNING	d. IF CNMT purge or mini-purge in progress, THEN secure purging.
e.	Verify annunciator J-8, 480V MCC SUPPLY BREAKER TRIP - EXTINGUISHED	e. Restore power to other MCCs as D/G loading permits. <ul style="list-style-type: none"> • MCC E • MCC F • MCC G
f.	Reset control room lighting if necessary	

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 7 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7 Check IA System:		
a.	Verify at least 2 air compressors - RUNNING	a. Manually start air compressors as necessary (75 kw each).
b.	Check IA supply	b. Dispatch an AO to locally reset and start air compressors as necessary (75 kw each).
	o Pressure - GREATER THAN 60 PSIG	IF IA can <u>NOT</u> be established, <u>THEN</u> refer to AP-IA.1, LOSS OF INSTRUMENT AIR.
	o Pressure - STABLE OR INCREASING	
8 Check RCS Cooling:		
a.	RHR system - PREVIOUSLY ALIGNED FOR RHR NORMAL COOLING	a. Go to Step 18.
b.	Check RHR pumps - ANY RUNNING	b. IF RHR normal cooling previously in service, <u>THEN</u> go to Step 9. IF RHR normal cooling <u>NOT</u> required, <u>THEN</u> go to Step 18.
c.	Go to Step 11	

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 8 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9	Establish Conditions To Start RHR Pump:	
a.	Any RHR pump - AVAILABLE	a. <u>IF</u> RCS level greater than 64 inches, <u>THEN</u> go to AP-RHR.1, LOSS OF RHR. <u>IF NOT</u> , <u>THEN</u> go to AP-RHR.2, LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS.
b.	Verify CCW cooling to RHR system in service <ul style="list-style-type: none"> o CCW pumps - AT LEAST ONE RUNNING o CCW to RHR Hxs, MOV-738A AND MOV-738B - OPEN AS NECESSARY 	b. Perform the following: <ol style="list-style-type: none"> 1) Ensure at least one CCW pump running. 2) Open MOV-738A and MOV-738B as necessary. <p><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).</p>
c.	Place RHR Hx bypass valve, HCV-626, to MANUAL and close valve	

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

- o STARTING AN RHR PUMP MAY RESULT IN AN RCS LEVEL OR PRESSURE DECREASE DUE TO SHRINK OR VOID COLLAPSE.
- o THE RHR HX OUTLET VALVES (HCV-624 AND HCV-625) WILL FAIL OPEN ON LOSS OF INSTRUMENT AIR PRESSURE.

10 Restore RHR Flow:

- | | |
|--|---|
| a. Start one RHR pump | |
| b. At least one RHR pump - RUNNING | b. Go to Step 10d. |
| c. Establish RHR flow - WITHIN LIMITS OF TABLE BELOW | c. Manually adjust RHR flow as necessary. |

B LOOP LEVEL	RHR FLOW
100 - 70 inches	< 3000 gpm
< 70 - 30 inches	≤ 1400 gpm
< 30 - 16 inches	≤ 1000 gpm
< 16 - 10 inches	≤ 800 gpm
< 10 - 6 inches	≤ 500 gpm

- | | |
|---|--|
| d. RHR flow - RESTORED | d. <u>IF</u> RCS level greater than 64 inches, <u>THEN</u> go to AP-RHR.1, LOSS OF RHR. <u>IF NOT</u> , <u>THEN</u> go to AP-RHR.2, LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS. |
| e. Place RHR Hx bypass valve, HCV-626, controller in AUTO at desired flowrate | |

This Step continued on the next page.

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 10 of 20
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

(Step 10 continued from previous page)

- f. Open RHR pump flow control valves as necessary to stabilize RCS temperature

- HCV-624
- HCV-625

- g. Check core exit T/Cs. - STABLE OR DECREASING

- g. Start another RHR pump or increase RHR flow to establish required RCS cooling. DO NOT exceed RHR flow limits from table above.

11 Check AFW Pump Status:

- a. AFW pumps - ANY RUNNING

- a. Go to Step 12.

- b. Both S/G levels - AT DESIRED LEVEL

- b. Continue with Step 12. WHEN desired S/G levels established, THEN do Step 11c.

- c. Stop running AFW pumps and place switches in PULL STOP

12 Evaluate RCS Conditions:

- a. Check RCS status:

- a. IF RCS is open to atmosphere, THEN go to Step 17.

- o RCS - CLOSED

- o RCS pressure - GREATER THAN ATMOSPHERIC

- b. Verify RCP #1 seal D/Ps - GREATER THAN 220 PSID

- b. IF any RCP running with #1 seal D/P less than 220 psid, THEN stop affected RCP.

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 11 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13	<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> <ol style="list-style-type: none"> 1) Ensure charging pump suction aligned to RWST <ul style="list-style-type: none"> o LCV-112B open o LCV-112C closed 2) Continue with Step 14. <u>WHEN</u> VCT level greater than 20%, <u>THEN</u> do Step 13b. <p>b. Manually align valves as necessary.</p>
14	<p>Check Charging Pumps - ANY CHARGING PUMP RUNNING</p>	<p><u>IF</u> charging pumps required, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> a. Verify charging to loop B cold leg, AOV-294, open. b. Verify charging flow control valve, HCV-142, open as necessary. c. <u>IF</u> desired, <u>THEN</u> place letdown pressure controller, PCV-135, in MANUAL. d. Start one charging pump (75 kw each pump). e. Increase charging pump speed and control PCV-135 as necessary to control PRZR pressure or level.

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 12 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15 Monitor RCS Pressure:		
a. Pressure - LESS THAN 390 PSIG		<p>a. <u>IF</u> RCS is solid, <u>THEN</u> control charging and letdown pressure control valve (PCV-135) as necessary to stabilize RCS pressure.</p> <p><u>IF</u> PRZR bubble established, <u>THEN</u> operate normal or auxiliary spray to decrease pressure.</p>
b. Pressure - STABLE		<p>b. Stabilize RCS pressure using appropriate means.</p> <ul style="list-style-type: none"> • Charging • Letdown • PCV-135 (solid) • Normal spray • Auxiliary spray • PRZR heaters
16 Check PRZR Level:		
a. Narrow range level - ON SCALE		a. <u>IF</u> RCS is solid, <u>THEN</u> go to Step 17.
b. Level - TRENDING TO PROGRAM		b. Adjust charging pump speed as necessary to control PRZR level.
17 Monitor RCS Temperature		
a. Core exit T/Cs - STABLE OR DECREASING		<p>a. Adjust RCS cooling as necessary and return to Step 3.</p> <ul style="list-style-type: none"> • S/G steaming • S/G feeding • RHR cooling
b. Go to Step 26		

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 13 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18	Check AFW System Status:	
	<p>a. Verify TDAFW pump steam supply valves in PULL STOP</p> <p>b. Verify MDAFW pump crosstie valves closed</p> <ul style="list-style-type: none"> • MOV-4000A • MOV-4000B 	<p>a. <u>IF</u> S/Gs providing heat sink, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) Verify adequate MDAFW flow. 2) Pull stop TDAFW pump. 3) Adjust AFW flow as necessary to stabilize S/G level and RCS temperature. <p>b. Ensure at least one MDAFW pump off. <u>IF</u> two pumps required, <u>THEN</u> close both MDAFW pump crosstie valves.</p>
19	Check Any S/G Level - GREATER THAN 17%	Start MDAFW pumps as necessary to restore S/G level.
20	Check RCS Pressure - GREATER THAN 300 PSIG	Increase RCS pressure to greater than 300 psig. <u>IF</u> RCP #1 seal D/P can <u>NOT</u> be maintained greater than 220 psid, <u>THEN</u> trip any running RCP.
21	Check RCP Status - ANY RCP RUNNING	Verify natural circulation (Refer to Attachment NC). <u>IF</u> natural circulation <u>NOT</u> verified, <u>THEN</u> increase dumping steam.

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 14 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	Monitor RCS Temperature - STABLE OR DECREASING	Control S/G ARVs to stabilize RCS temperature. <u>IF</u> S/G ARVs do <u>NOT</u> provide adequate cooling, <u>THEN</u> perform the following: a. Initiate S/G blowdown from both S/Gs. b. Maintain both S/G levels stable by controlling AFW flow.
23	Check CVCS Operation: a. Charging pumps - AT LEAST ONE RUNNING b. Check letdown indications: o Check PRZR level - GREATER THAN 13% o Letdown flow - APPROXIMATELY 40 GPM o Letdown flow - STABLE c. Adjust charging pump speed and HCV-142 as necessary to restore PRZR level and labyrinth seal D/P d. Go to Step 25	a. Perform the following: 1) Start charging pumps as necessary. 2) Establish greater than 20 gpm charging line flow. b. Perform the following: 1) Close loop B cold leg to REGEN Hx, AOV-427. 2) Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202) 3) <u>IF</u> PRZR level greater than 13%, <u>THEN</u> go to Step 24. <u>IF NOT</u> , <u>THEN</u> continue with Step 26. <u>WHEN</u> PRZR level greater than 13%, <u>THEN</u> do Steps 24 and 25.

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 15 of 20
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Steps 24 and 25 may be performed concurrently.

24 Establish Normal Letdown:

- a. Establish charging line flow to REGEN Hx - GREATER THAN 20 GPM
- b. Verify the following switches in CLOSE:
 - Letdown orifice valve (AOV-200A, AOV-200B, and AOV-202)
 - Loop B cold leg to REGEN Hx AOV-427
- c. Place letdown controllers in MANUAL at 40% open
 - TCV-130
 - PCV-135
- d. Open AOV-427
- e. Open letdown orifice valves as necessary
- f. Place TCV-130 in AUTO at 105°F
- g. Place PCV-135 in AUTO at 250 psig
- h. Adjust charging pump speed and HCV-142 as necessary

Perform the following steps in sequence to establish excess letdown:

- 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

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 16 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25	Verify PRZR Heaters Restored: <ul style="list-style-type: none"> o PRZR proportional heater breaker - CLOSED o PRZR backup heater breaker - RESET/IN AUTO 	<p><u>IF</u> PRZR heaters required, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Verify adequate D/G capacity available for PRZR heaters (400 kw each bank). b. Reset and close PRZR proportional heater breaker if necessary. c. Reset PRZR backup heater breaker and return to AUTO if necessary. <p><u>IF</u> at least 100 kw of PRZR heaters can <u>NOT</u> be restored, <u>THEN</u> refer to ITS 3.4.9.</p>
<p><u>NOTE:</u> Check ITS section 3.8 for limiting conditions for operation.</p>		
26	Restore Normal Electric System Alignment: <ul style="list-style-type: none"> a. Verify circuit 767 and/or 751 - AVAILABLE b. Restore power to 12A and/or 12B bus (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER) c. Verify all emergency AC bus normal feed breakers - CLOSED <ul style="list-style-type: none"> • Bus 14 • Bus 16 • Bus 17 • Bus 18 d. Stop any unloaded emergency D/G and place in standby (Refer to Attachment D/G STOP) 	<ul style="list-style-type: none"> a. Continue with Step 28. <u>WHEN</u> offsite power available, <u>THEN</u> do Steps 26b, c, d and 27. c. Restore emergency AC busses to normal power supply (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)

EOP:
AP-ELEC.3

TITLE:
LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW
350°F)

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

27 Check If An RCP Should Be Started:

a. Check the following:

- o Both RCPs - OFF
- o RCP operation - DESIRED

b. RCS pressure - APPROXIMATELY 325 PSIG

c. Check PRZR level - LESS THAN 38%

d. Try to start an RCP

1) Establish conditions for starting an RCP

- a) Bus 11A or 11B energized
- b) Refer to Attachment RCP START

2) Start one RCP

a. Go to Step 28.

b. Control PRZR heaters and/or charging pump speed as necessary to restore RCS pressure.

c. Verify S/G temperature (obtained locally in CNMT at S/G handhole) less than RCS cold leg temperature. IF NOT, THEN go to Step 28.

d. IF an RCP can NOT be started, THEN continue to monitor natural circulation conditions (Refer to Attachment NC)..

28 Check RCS Temperature - STABLE OR DECREASING

Adjust RCS cooling as necessary.

- S/G steaming
- S/G feeding
- RHR cooling

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 18 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29	Establish Normal Shutdown Alignment:	
a.	Verify turning gear oil pump - RUNNING	a. <u>IF</u> turbine oil system operation required, <u>THEN</u> perform the following: 1) Manually start turning gear oil pump (42 kw). 2) Dispatch A0 to place turbine on turning gear if desired.
b.	Verify main generator - DEPRESSURIZED	b. Perform the following: 1) Manually start the HP seal oil backup pump 2) Dispatch A0 to locally perform the following: o Verify proper operation of the seal oil system (Refer to T-34B, GENERATOR SEAL OIL SYSTEM NORMAL OPERATION). o Ensure bearing drain vapor extractor running. o Ensure main lube oil reservoir vapor extractor running.
c.	Check RCS temperature - LESS THAN 135°F	c. Perform the following: 1) Ensure one Rx compartment cooling fan running (23 kw). 2) Ensure one control rod shroud fan running (45 kw).
d.	Dispatch A0 to start waste gas compressor as necessary	

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 19 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
30 Restore Equipment Alignment:		
a.	Verify at least 1 CNMT recirc fan - RUNNING	a. Start CNMT recirc fans as necessary (240 kw each).
b.	Verify annunciator L-1, AUX BLDG VENT SYSTEM CONTROL PANEL - EXTINGUISHED	b. <u>IF</u> bus 11A or 11B energized, <u>THEN</u> dispatch AO to restore AUX BLDG ventilation (Refer to T-35A, AUX AND INTERMEDIATE BUILDING VENTILLATION STARTUP AND SHUTDOWN)
c.	Check radiation monitoring systems: <ul style="list-style-type: none"> o CNMT vent sample pump - RUNNING o Plant vent sample pump - RUNNING o All area and process monitors operating as required 	c. Perform the following: <ul style="list-style-type: none"> 1) Restore sample pumps and radiation monitors as necessary. 2) Restart CNMT purge or mini-purge if desired.
d.	Verify service air compressor - RUNNING	d. Dispatch AO to locally start service air compressor if desired.
e.	Verify motor fire pump breaker - CLOSED	e. Close motor fire pump breaker.
f.	Check control board annunciator panels - ALARM STATUS VALID FOR PLANT CONDITIONS	f. Perform alarm response procedures for unexpected alarms.
g.	Verify control board valve alignment - NORMAL (Refer to 0-6.13, DAILY SURVEILLANCE LOG)	g. Manually align valves as necessary.

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 20 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
31	Check Status Of DC System Loads:	
	a. Verify emergency DC lube oil pump - OFF	a. Manually stop emergency DC lube oil pump.
	b. Verify TDAFW pump DC oil pump - OFF	b. Perform the following: 1) Ensure TDAFW AC oil pump running. 2) Stop TDAFW pump DC oil pump.
	c. Verify both MFW pump DC oil pumps - OFF	c. Stop MFW pump DC oil pumps.
32	Verify Offsite Power - RESTORED	Continue attempts to restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER).
33	Notify Higher Supervision	
	<u>NOTE:</u> Refer to O-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.	
34	Return To Procedure Or Guidance In Effect	
	-END-	

EOP: AP-ELEC.3	TITLE: LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F)	REV: 3 PAGE 1 of 1
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AP-ELEC.3 APPENDIX LIST

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FIGURE MIN SUBCOOLING

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

