

EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 1 of 26
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

PORC REVIEW DATE 1-9-91

Joseph A. Widay
PLANT SUPERINTENDENT

1-9-91
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

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PDR ADOCK 05000244
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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 2 of 26
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A. PURPOSE - This procedure provides actions to verify proper response of the automatic protection systems following manual or automatic actuation of a reactor trip or safety injection and to assess plant conditions, and identify the appropriate recovery procedure.

B. ENTRY CONDITIONS/SYMPTOMS

1. The following are symptoms that require a reactor trip, if one has not occurred:

- o Any plant parameter reaches a reactor trip setpoint and logic as listed in procedure P-1, REACTOR CONTROL AND PROTECTION SYSTEM.
- o Operator discretion.

2. The following are symptoms of a reactor trip:

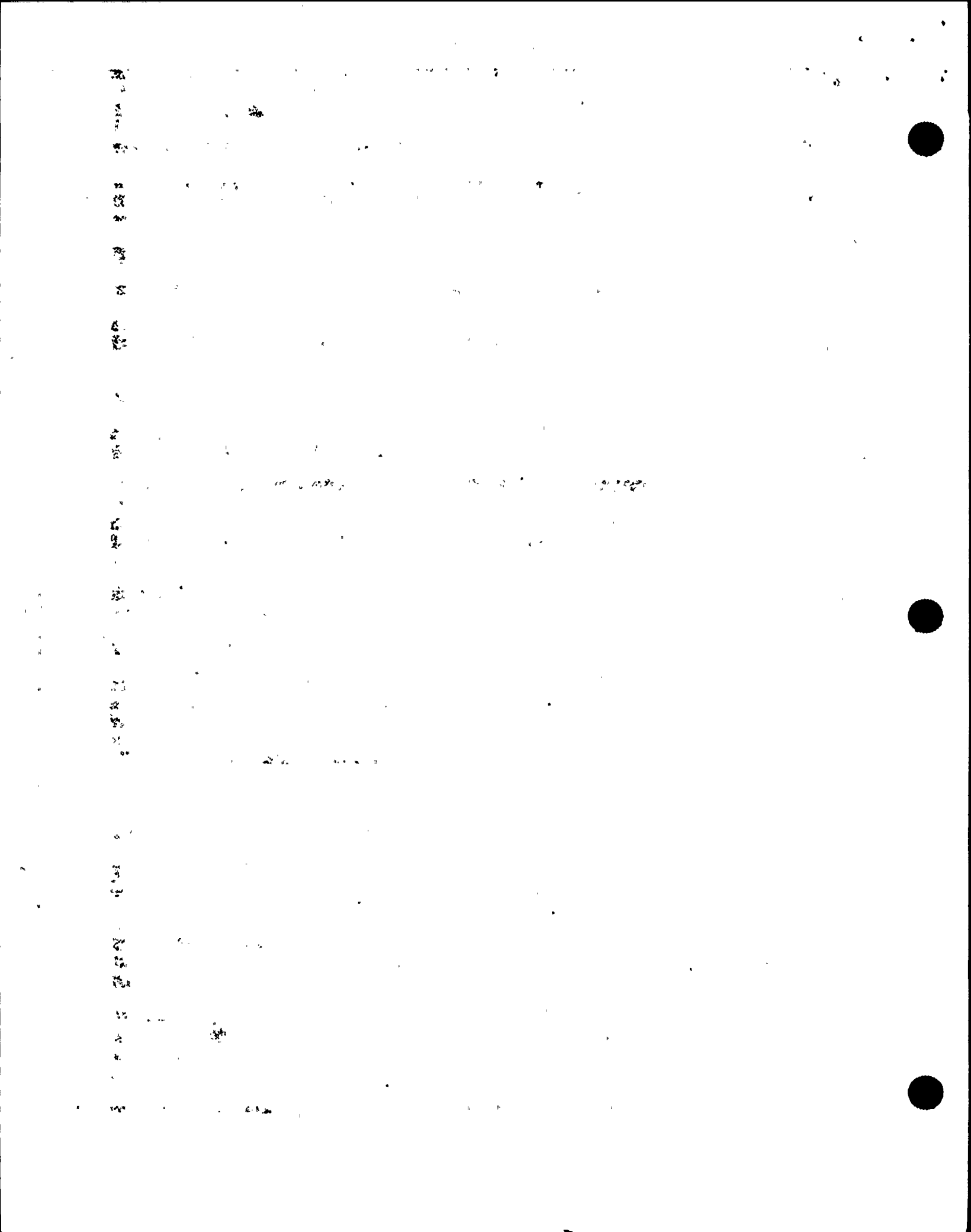
- o Any First Out reactor trip annunciator lit.
- o A rapid decrease in core neutron level as indicated by nuclear instrumentation.
- o MRPI Indicates all control and shutdown rods on bottom.
- o Reactor trip breakers indicate open.

3. The following are symptoms that require a reactor trip and safety injection, if one has not occurred:

- o Any plant parameter reaches the Safety Injection setpoint and logic as listed in procedure P-1, REACTOR CONTROL AND PROTECTION SYSTEM.
- o Operator discretion.

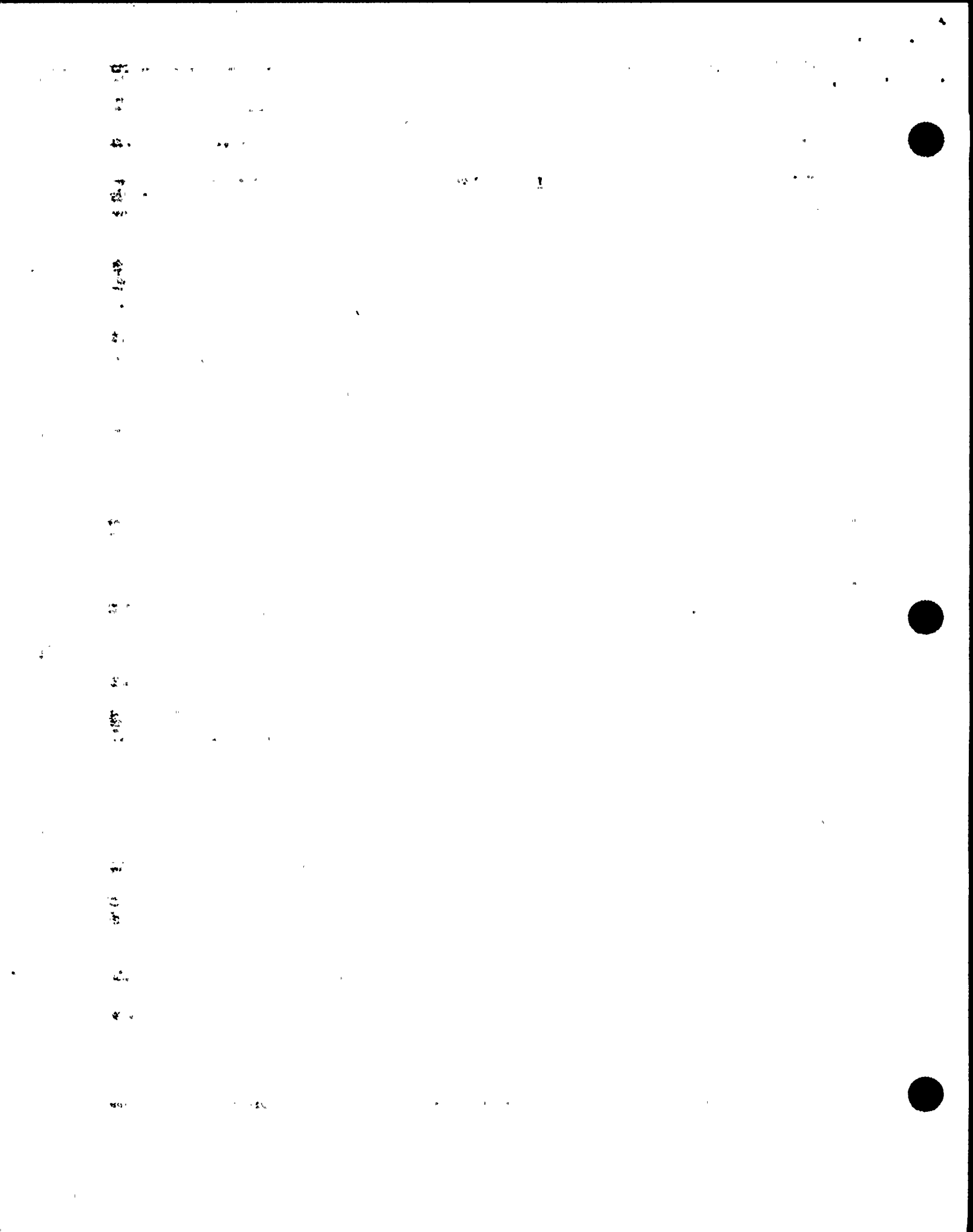
4. The following are symptoms of a reactor trip and safety injection:

- o Any SI annunciator lit.
- o Safeguards sequencing started.



EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 3 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u></p> <ul style="list-style-type: none"> o Steps 1 through 12 are IMMEDIATE ACTION steps. o FOLDOUT page should be open and monitored periodically. o Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10^{-05} R/hr. 		
<p>1</p>	<p>Verify Reactor Trip:</p> <ul style="list-style-type: none"> o At least one train of reactor trip breakers - OPEN o Neutron flux - DECREASING o MRPI indicates - ALL CONTROL AND SHUTDOWN RODS ON BOTTOM 	<p>Manually trip reactor.</p> <p><u>IF</u> reactor trip breakers <u>NOT</u> open, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Open Bus 13 and Bus 15 normal feed breakers. b. Verify rod drive MG sets tripped. c. Close Bus 13 and Bus 15 normal feed breakers. d. Reset lighting breakers. <p><u>IF</u> any power range channel greater than 5% <u>OR</u> MRPI indicates more than one control rod not fully inserted, <u>THEN</u> go to FR-S.1, RESPONSE TO REACTOR RESTART/ATWS, Step 1</p>
<p>2</p>	<p>Verify Turbine Stop Valves - CLOSED</p>	<p>Manually trip turbine.</p> <p><u>IF</u> turbine trip can <u>NOT</u> be verified, <u>THEN</u> close both MSIVs.</p>
<p>3</p>	<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>Attempt to start any failed emergency D/G to restore power to all AC emergency busses.</p> <p><u>IF</u> power can <u>NOT</u> be restored to at least one train, <u>THEN</u> go to ECA-0.0, LOSS OF ALL AC POWER, Step 1.</p>



EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 4 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4	Check If Any SI Annuciator - LIT	<p><u>IF</u> any of the following conditions are met, <u>THEN</u> manually actuate SI and CI:</p> <ul style="list-style-type: none"> o PRZR pressure less than 1750 psig -OR- o Steamline pressure less than 514 psig -OR- o CNMT pressure greater than 4 psig -OR- o Safeguards sequencing started -OR- o Operator determines SI required <p><u>IF</u> SI is <u>NOT</u> required, <u>THEN</u> go to ES-0.1, REACTOR TRIP RESPONSE, Step 1.</p>
5	<p>Verify SI and RHR Pumps Running:</p> <ul style="list-style-type: none"> a. All SI pumps - RUNNING b. Both RHR pumps - RUNNING 	<ul style="list-style-type: none"> a. Perform the following: <ul style="list-style-type: none"> 1) Ensure SI pump suction supply open from BASTs or RWST. 2) Manually start pumps. b. Manually start pumps.

THE UNIVERSITY OF CHICAGO

52

EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 5 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	<p>Verify CNMT RECIRC Fans Running:</p> <ul style="list-style-type: none"> a. All fans - RUNNING b. Charcoal filter dampers green status lights - EXTINGUISHED 	<ul style="list-style-type: none"> a. Manually start fans. b. Dispatch personnel to relay room with relay rack key to locally open dampers by pushing in trip relay plungers. <ul style="list-style-type: none"> • AUX RELAY RACK RA-2 for fan A • AUX RELAY RACK RA-3 for fan C
7	<p>Verify CNMT Spray Not Required:</p> <ul style="list-style-type: none"> o Annunciator A-27, CNMT SPRAY - EXTINGUISHED o CNMT pressure - LESS THAN 28 PSIG 	<p>Verify CNMT spray initiated.</p> <p><u>IF</u> CNMT spray <u>NOT</u> initiated, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Depress manual CNMT spray pushbuttons (2 of 2). b. Ensure CNMT spray pumps running. c. Ensure CNMT spray pump discharge valves open. <ul style="list-style-type: none"> • MOV-860A • MOV-860B • MOV-860C • MOV-860D d. Ensure NaOH tank outlet valves open. <ul style="list-style-type: none"> • AOV-836A • AOV-836B

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SOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 6 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8	<p>Check If Main Steamlines Should Be Isolated:</p> <ul style="list-style-type: none"> a. Any MSIV - OPEN b. Check CNMT pressure - LESS THAN 18 PSIG c. Check if ANY main steamlines should be isolated: <ul style="list-style-type: none"> o Low Tav_g (545°F) AND high steam flow (0.4×10^6 lb/hr) from either S/G -OR- o High-High steam flow (3.6×10^6 lb/hr) from either S/G d. Verify MSIV closed on the affected S/G(s) 	<ul style="list-style-type: none"> a. Go to Step 9. b. Ensure BOTH MSIVs closed and go to Step 9. c. Go to Step 9. d. Manually close valves.
9	<p>Verify MFW Isolation:</p> <ul style="list-style-type: none"> a. MFW pumps - TRIPPED b. MFW flow control valves - CLOSED <ul style="list-style-type: none"> • MFW regulating valves • MFW bypass valves c. S/G blowdown and sample valves - CLOSED 	<ul style="list-style-type: none"> a. Manually close MFW pump discharge valves and trip MFW pumps. b. Place A and B S/G MFW regulating valve and bypass valve controllers in MANUAL at 0% demand. c. Place S/G blowdown and sample valve isolation switch to CLOSE.

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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 7 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	Verify AFW Pumps Running: a. MDAFW pumps - RUNNING b. TDAFW pump - RUNNING IF NECESSARY	a. Manually start MDAFW pumps. b. Manually open steam supply valves. • MOV-3505A • MOV-3504A
11	Verify At Least Two SW Pumps - RUNNING	Perform the following: a. Ensure one SW pump running on each energized screenhouse AC emergency bus: • Bus 17 • Bus 18 b. <u>IF</u> offsite power <u>NOT</u> available, <u>THEN</u> ensure SW isolation.
12	Verify CI And CVI: a. CI and CVI annunciators - LIT • Annunciator A-26, CNMT ISOLATION • Annunciator A-25, CNMT VENTILATION ISOLATION b. Verify CI and CVI valve status lights - BRIGHT c. CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT • FCV-4561 • FCV-4562	a. Depress manual CI pushbutton. b. Manually close CI and CVI valves. <u>IF</u> valves can <u>NOT</u> be closed, <u>THEN</u> dispatch AO to locally close valves (Refer to Attachment CI/CVI). c. Dispatch AO to locally fail open valves.

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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 8 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>RCP TRIP CRITERIA LISTED ON FOLDOUT PAGE SHOULD BE MONITORED PERIODICALLY.</p> <p>*****</p>		
13	Check CCW System Status:	
	a. Verify CCW pump - AT LEAST ONE RUNNING	a. <u>IF</u> offsite power available, <u>THEN</u> manually start one CCW pump.
	b. Verify CCW from excess letdown (AOV-745) - CLOSED	b. Manually close valve.
14	Verify SI And RHR Pump Flow:	
	a. SI flow indicators - CHECK FOR FLOW	a. <u>IF</u> RCS pressure less than 1400 psig, <u>THEN</u> manually start pumps and align valves. <u>IF NOT</u> , <u>THEN</u> go to Step 15.
	b. RHR flow indicator - CHECK FOR FLOW	b. <u>IF</u> RCS pressure less than 140 psig, <u>THEN</u> manually start pumps and align valves. <u>IF NOT</u> , <u>THEN</u> go to Step 15.
15	Verify Total AFW Flow - GREATER THAN 200 GPM	<p><u>IF</u> S/G narrow range level greater than 5% [25% adverse CNMT] in any S/G, <u>THEN</u> control AFW flow to maintain narrow range level.</p> <p><u>IF</u> narrow range level less than 5% [25% adverse CNMT] in all S/Gs, <u>THEN</u> manually start pumps and align valves as necessary. <u>IF</u> AFW flow greater than 200 gpm can <u>NOT</u> be established, <u>THEN</u> go to FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, Step 1.</p>

EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 9 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	Verify AFW Valve Alignment: a. AFW flow - INDICATED TO BOTH S/G(s) b. AFW flow from each MDAFW pump - LESS THAN 230 GPM	Manually align valves as necessary.
17	Verify SI Pump Suction Alignment: a. Check BAST level: o Level - GREATER THAN 10% o Annunciator B-23, BORIC ACID TANK LO LO LEVEL - EXTINGUISHED b. Verify SI pump suction valves from BAST - OPEN o MOV-826A o MOV-826B o MOV-826C o MOV-826D c. Verify SI pump suction from RWST - CLOSED o MOV-825A o MOV-825B	a. Perform the following: 1) Ensure at least one SI pump suction valve from RWST open. o MOV-825A o MOV-825B 2) Ensure at least one valve in each SI pump suction line from BAST closed. o MOV-826A or MOV-826B o MOV-826C or MOV-826D 3) Go to Step 18. b. Ensure both valves in either flow path open. o MOV-826A and MOV-826B -OR- o MOV-826C and MOV-826D c. Manually align valves as necessary.

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E-0

TITLE:

REACTOR TRIP OR SAFETY INJECTION

REV: 15

PAGE 10 of 26

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

18 Verify SI Pump And RHR Pump
Emergency Alignment:

a. RHR pump discharge to Rx vessel
deluge - OPEN

- MOV-852A
- MOV-852B

b. Verify SI pump C - RUNNING

c. Verify SI pump A - RUNNING

d. Verify SI pump B - RUNNING

e. Verify SI pump C discharge
valves - OPEN

- MOV-871A
- MOV-871B

a. Ensure at least one valve open.

b. Manually start pump on
available bus.

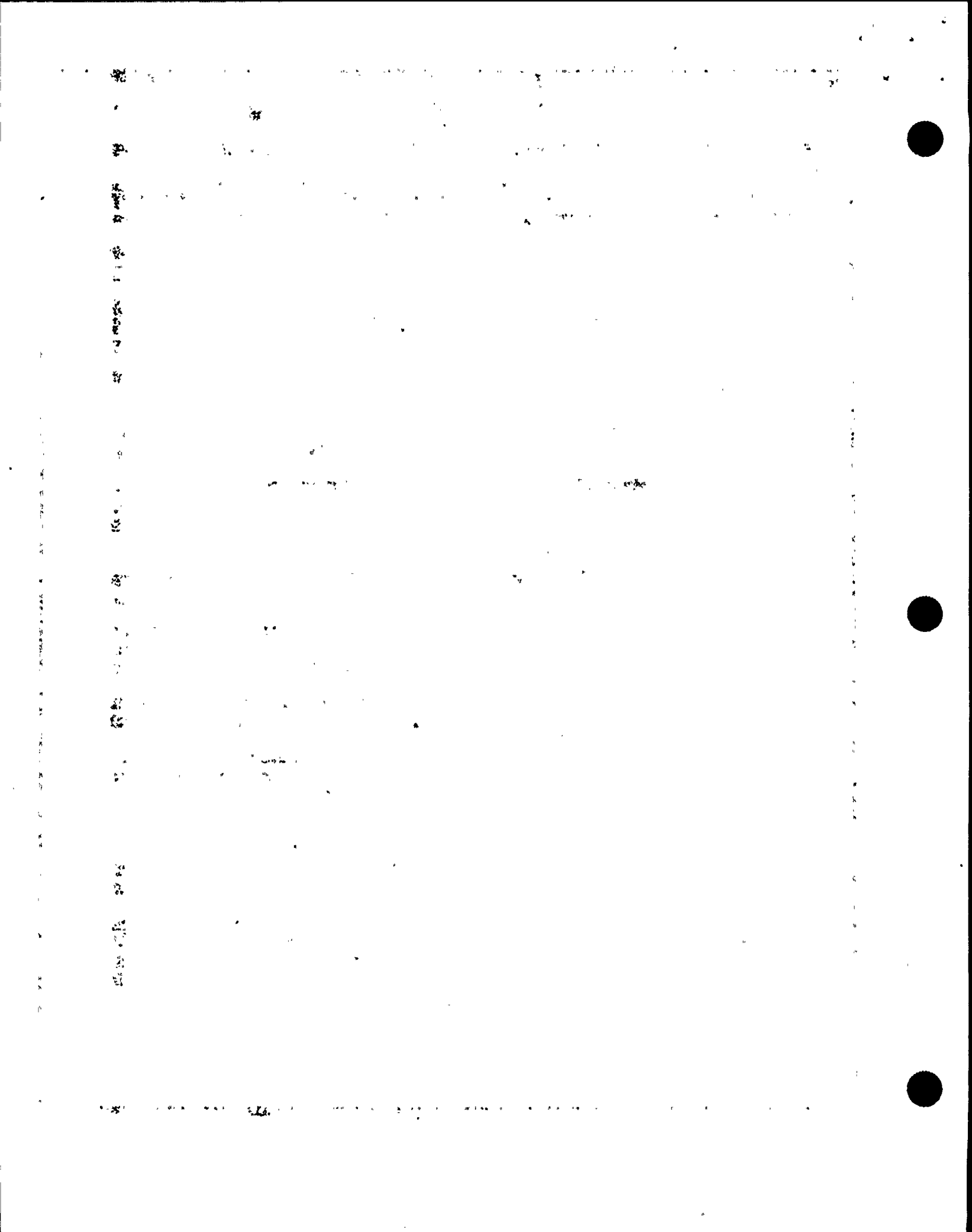
c. Perform the following:

- 1) Ensure SI pumps B and C
running.
- 2) Ensure SI pump C aligned to
discharge line A:
 - o MOV-871A open
 - o MOV-871B closed
- 3) Go to Step 19.

d. Perform the following:

- 1) Ensure SI pumps A and C
running.
- 2) Ensure SI pump C aligned to
discharge line B:
 - o MOV-871B open
 - o MOV-871A closed
- 3) Go to Step 19.

e. Manually open valves as
necessary.



EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 11 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
***** <u>CAUTION</u> IF OFFSITE POWER IS LOST AFTER SI RESET, SELECTED SW PUMPS AND ONE CCW PUMP WILL AUTO START ON EMERGENCY D/G. MANUAL ACTION WILL BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. *****		
19	Check CCW Flow to RCP Thermal Barriers:	<u>IF</u> CCW to a RCP is lost, <u>THEN</u> perform the following:
	o Annunciator A-7, RCP 1A CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED	a. Stop affected RCPs.
	o Annunciator A-15, RCP 1B CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED	b. Reset SI.
		c. Verify adequate power available to run one charging pump (75 kw).
		d. Start one charging pump at minimum speed for seal injection.
		e. Adjust HCV-142 to establish either of the following:
		o Labyrinth seal D/P to each RCP greater than 15 inches of water.
		-OR-
		o RCP seal injection flow to each RCP greater than 6 gpm.
		f. <u>IF</u> large imbalance in seal injection flow exists, <u>THEN</u> consider local adjustment of V-300A and V-300B.

ROP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 12 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20	Check If TDAFW Pump Can Be Stopped: a. Both MDAFW pumps - RUNNING b. PULL STOP TDAFW pump steam supply valves • MOV-3504A • MOV-3505A	a. Go to Step 21.
21	Check RCS Tavg - STABLE AT OR TRENDING TO 547°F	<p><u>IF</u> temperature less than 547°F and decreasing, <u>THEN</u> perform the following:</p> <p>a. Stop dumping steam.</p> <p>b. <u>IF</u> cooldown continues, <u>THEN</u> control total feed flow greater than 200 gpm until narrow range level greater than 5% [25% adverse CNMT] in at least one S/G.</p> <p>c. <u>WHEN</u> S/G level greater than 5% [25% adverse CNMT] in one S/G, <u>THEN</u> limit feed flow to that required to maintain level in at least one S/G.</p> <p>d. <u>IF</u> cooldown continues, <u>THEN</u> close both MSIVs.</p> <p><u>IF</u> temperature greater than 547°F and increasing, <u>THEN</u> perform the following:</p> <p>o Dump steam to condenser.</p> <p style="text-align: center;">-OR-</p> <p>o Control RCS temperature manually using S/G ARVs.</p>

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EQP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 13 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	Check PRZR PORVs And Spray Valves:	
a.	PORVs - CLOSED	<p>a. <u>IF</u> PRZR pressure less than 2335 psig, <u>THEN</u> manually close PORVs.</p> <p><u>IF</u> any valve can <u>NOT</u> be closed, <u>THEN</u> manually close its block valve.</p> <ul style="list-style-type: none"> • MOV-516 for PCV-430 • MOV-515 for PCV-431C <p><u>IF</u> block valve can <u>NOT</u> be closed, <u>THEN</u> go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.</p>
b.	Auxiliary spray valve (AOV-296) - CLOSED	<p>b. Manually close auxiliary spray valve. <u>IF</u> valve can <u>NOT</u> be closed, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) Decrease charging pump flow to minimum. 2) Ensure charging valve to loop B cold leg open (AOV-294).
c.	Check PRZR pressure - LESS THAN 2260 PSIG	<p>c. Continue with Step 23. <u>WHEN</u> pressure less than 2260 psig, <u>THEN</u> do Steps 22d.</p>
d.	Verify normal PRZR spray valve controllers - DEMAND AT 0%	<p>d. Place controllers in MANUAL at 0% demand. <u>IF</u> valves can <u>NOT</u> be closed, <u>THEN</u> stop associated RCP(s).</p>

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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 14 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23	Check If RCPs Should Be Stopped: a. RCP status - ANY RCP RUNNING b. SI pumps - AT LEAST TWO RUNNING c. RCS pressure minus maximum S/G pressure - LESS THAN 175 psig [400 psig adverse CNMT] d. Stop both RCPs	a. Go to Step 24. b. Go to Step 24. c. Go to Step 24.
24	Check If S/G Secondary Side Is Intact: o Pressure in both S/Gs - STABLE OR INCREASING o Pressure in both S/Gs - GREATER THAN 100 PSIG	<u>IF</u> any S/G pressure decreasing in an uncontrolled manner <u>OR</u> completely depressurized, <u>THEN</u> go to E-2, FAULTED STEAM GENERATOR ISOLATION, Step 1.
25	Check If S/G Tubes Are Intact: o Air ejector radiation monitors (R-15 or R-15A) - NORMAL o S/G blowdown radiation monitor (R-19) - NORMAL o Steamline radiation monitors (R-31 and R-32) - NORMAL	Go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.

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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 15 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
26	<p>Check If RCS Is Intact:</p> <p>a. CNMT area radiation monitors - NORMAL</p> <ul style="list-style-type: none"> • R-2 • R-7 • R-29 • R-30 <p>b. CNMT pressure - LESS THAN .5 PSIG</p> <p>c. CNMT sump B level - LESS THAN 10 FEET</p> <p>d. CNMT sump A level</p> <ul style="list-style-type: none"> o Level - STABLE o Annunciator C-19, CONTAINMENT SUMP A HI LEVEL - EXTINGUISHED <p><u>NOTE:</u> The following is an attempt to determine whether a PRZR spray valve has failed.</p>	<p>Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.</p>
27	<p>Check RCS Pressure - STABLE OR INCREASING</p>	<p><u>IF</u> RCS pressure decreasing with PRZR level stable or increasing, <u>THEN</u> stop both RCPs.</p>

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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 16 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
28	Check If SI Should Be Terminated:	
	<ul style="list-style-type: none"> a. RCS pressure: <ul style="list-style-type: none"> o Pressure - GREATER THAN 1625 PSIG o Pressure - STABLE OR INCREASING b. RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIGURE MIN SUBCOOLING c. Secondary heat sink: <ul style="list-style-type: none"> o Total feed flow to S/Gs - GREATER THAN 200 GPM 	<ul style="list-style-type: none"> a. Do <u>NOT</u> stop SI pumps. Go to Step 30. b. Do <u>NOT</u> stop SI pumps. Go to Step 30. c. <u>IF</u> neither condition met, <u>THEN</u> do <u>NOT</u> stop SI pumps. Go to Step 30.
	-OR-	
	<ul style="list-style-type: none"> o Narrow range level in at least one S/G - GREATER THAN 5% d. PRZR level - GREATER THAN 5% 	<ul style="list-style-type: none"> d. Do <u>NOT</u> stop SI pumps. Perform the following: <ul style="list-style-type: none"> 1) <u>IF</u> normal PRZR spray available, <u>THEN</u> try to stabilize RCS pressure with PRZR spray. 2) Go to Step 30.
29	Go To ES-1.1, SI TERMINATION, Step 1	

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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 17 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u> o Conditions should be evaluated for Site Contingency Reporting (Refer to SC-100, GINNA STATION EVENT EVALUATION AND CLASSIFICATION).</p> <p> o The Critical Safety Function Red Path Summary is available in APPENDIX 1.</p>		
30	Initiate Monitoring of Critical Safety Function Status Trees	
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF CST LEVEL DECREASES TO LESS THAN 5 FEET, THEN ALTERNATE WATER SOURCES FOR AFW PUMPS WILL BE NECESSARY (REFER TO ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).</p> <p>*****</p>		
31	Check S/G Levels:	
	<p>a. Narrow range level - GREATER THAN 5%</p> <p>b. Control feed flow to maintain narrow range level between 17% and 50%</p>	<p>a. Maintain total feed flow greater than 200 gpm until narrow range level greater than 5% in at least one S/G.</p> <p>b. <u>IF</u> narrow range level in any S/G continues to increase in an uncontrolled manner, <u>THEN</u> go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.</p>

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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 18 of 26
-------------	--------------------------------------------	--------------------------

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
32	<p>Check Secondary Radiation Levels - NORMAL</p> <ul style="list-style-type: none"> o Steamline radiation monitor (R-31 and R-32) o Dispatch A0 to locally check steamline radiation o Request HP sample S/Gs for activity 	<p>Go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.</p>
<p>***** <u>CAUTION</u> IF OFFSITE POWER IS LOST AFTER SI RESET, SELECTED SW PUMPS AND ONE CCW PUMP WILL AUTO START ON EMERGENCY D/G. MANUAL ACTION WILL BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. *****</p>		
33	Reset SI	
34	Reset CI:	
	<p>a. Operate CI reset key switch</p> <p>b. Verify annunciator A-26, CNMT ISOLATION - EXTINGUISHED</p>	<p>b. Perform the following:</p> <ol style="list-style-type: none"> 1) Reset SI. 2) Operate CI reset key switch.

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EOP:

E-0

TITLE:

REACTOR TRIP OR SAFETY INJECTION

REV: 15

PAGE 19 of 26

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

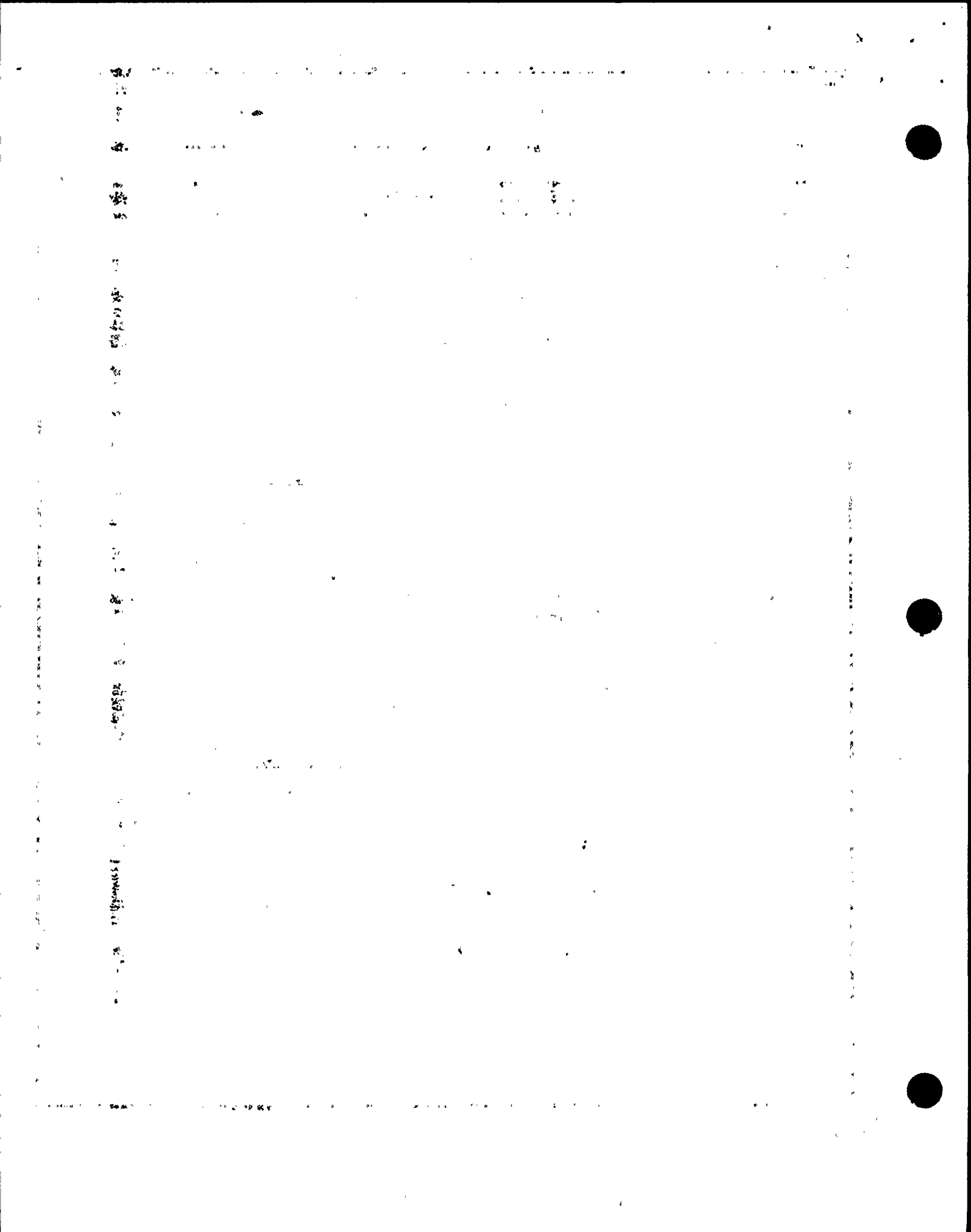
35 Verify Adequate SW Flow:

a. At least three SW pumps -
RUNNING

a. Manually start SW pumps as
power supply permits (258 kw
each).

IF less than three pumps
running, THEN ensure SW
isolation.

b. Dispatch A0 to establish normal
shutdown alignment (Refer to
Attachment SD-1)



EDP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 20 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
36	Establish IA to CNMT:	
	<p>a. Verify non-safeguards busses energized from offsite power</p> <ul style="list-style-type: none"> o Bus 13 normal feed - CLOSED -OR- o Bus 15 normal feed - CLOSED <p>b. Verify SW isolation valves to turbine building - OPEN</p> <ul style="list-style-type: none"> • MOV-4613 and MOV-4670 • MOV-4614 and MOV-4664 <p>c. Verify at least two air compressors - RUNNING</p> <p>d. Check IA supply:</p> <ul style="list-style-type: none"> o Pressure - GREATER THAN 60 PSIG o Pressure - STABLE OR INCREASING <p>e. Reset both trains of XY relays for IA to CNMT AOV-5392</p> <p>f. Verify IA to CNMT AOV-5392 - OPEN</p>	<p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) Close non-safeguards bus tie breakers: <ul style="list-style-type: none"> • Bus 13 to Bus 14 tie • Bus 15 to Bus 16 tie 2) Verify adequate emergency D/G capacity to run air compressors (75 kw each). <u>IF NOT</u>, <u>THEN</u> evaluate if CNMT RECIRC fans should be stopped (Refer to Attachment CNMT RECIRC FANS). 3) <u>WHEN</u> bus 15 restored, <u>THEN</u> reset control room lighting. <p>b. Manually align valves.</p> <p>c. Manually start air compressors as power supply permits (75 kw each). <u>IF</u> air compressors can <u>NOT</u> be started, <u>THEN</u> dispatch AO to locally reset compressors as necessary.</p> <p>d. Perform the following:</p> <ol style="list-style-type: none"> 1) Continue attempts to restore IA (Refer to AP-IA.1, LOSS OF INSTRUMENT AIR). 2) Continue with Step 37. <u>WHEN</u> IA restored, <u>THEN</u> do Steps 36e and f.

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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 21 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
37	<p>Check Auxiliary Building Radiation - NORMAL</p> <ul style="list-style-type: none"> • Plant vent iodine (R-10B) • Plant vent particulate (R-13) • Plant vent gas (R-14) • CCW liquid monitor (R-17) • LTD line monitor (R-9) • CHG pump room (R-4) 	<p>Evaluate cause of abnormal conditions.</p> <p><u>IF</u> the cause is a loss of RCS inventory outside CNMT, <u>THEN</u> go to ECA-1.2, LOCA OUTSIDE CONTAINMENT, Step 1.</p>
38	<p>Check PRT Conditions</p> <ul style="list-style-type: none"> o PRT level (LI-442) - LESS THAN 84% o PRT temperature (TI-439) - LESS THAN 120°F o PRT pressure (PI-440A) - LESS THAN 3 PSIG 	<p>Evaluate the following flowpaths for cause of abnormal conditions:</p> <ul style="list-style-type: none"> • RCP seal return relief • PRZR PORVs • PRZR safeties • Letdown line relief <p><u>IF</u> excess letdown previously in service, <u>THEN</u> close AOV-310, excess letdown isolation valve from loop A cold.</p>

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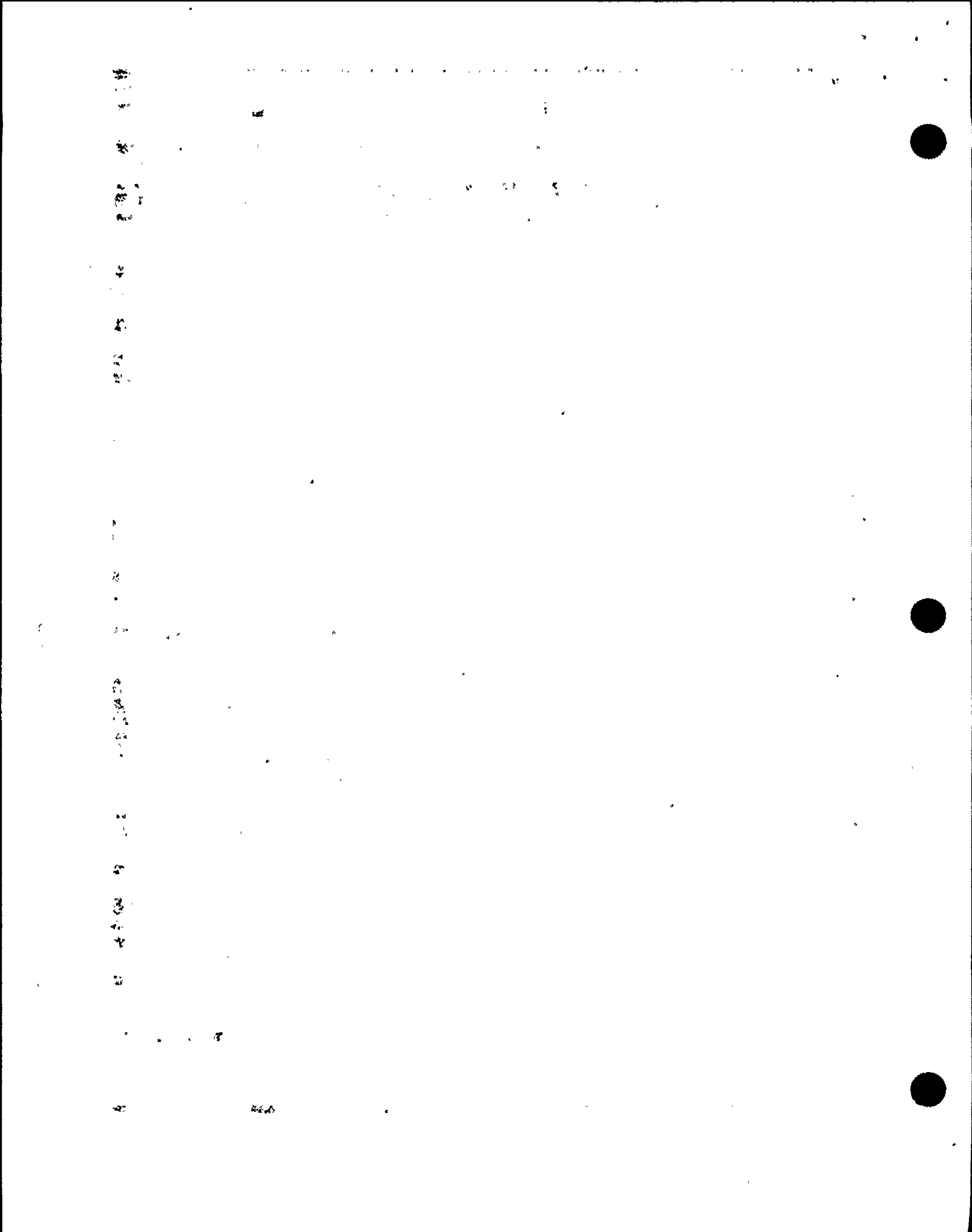
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ECP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 22 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>***** <u>CAUTION</u> RCS PRESSURE SHOULD BE MONITORED. IF RCS PRESSURE DECREASES TO LESS THAN 250 PSIG, THE RHR PUMPS MUST BE MANUALLY RESTARTED TO SUPPLY WATER TO THE RCS. *****</p>		
39	<p>Check If RHR Pumps Should Be Stopped:</p> <p>a. Check RCS pressure:</p> <p>1) Pressure - GREATER THAN 250 PSIG</p> <p>2) Pressure - STABLE OR INCREASING</p> <p>b. Stop both RHR pumps and place in AUTO</p>	<p>1) Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.</p> <p>2) Go to Step 40.</p>
40	<p>Check Normal Power Available To Charging Pumps:</p> <p>o Bus 14 normal feed breaker - CLOSED</p> <p>o Bus 16 normal feed breaker - CLOSED</p>	<p>Verify adequate emergency D/G capacity to run charging pumps (75 kw each).</p> <p><u>IF NOT, THEN</u> evaluate if CNMT RECIRC fans can be stopped (Refer to Attachment CNMT RECIRC FANS).</p>



EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 23 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
41	Check If Charging Flow Has Been Established:	
	a. Charging pumps - ANY RUNNING	<p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) <u>IF</u> CCW flow is lost to any RCP thermal barrier <u>OR</u> any RCP #1 seal outlet temperature offscale high, <u>THEN</u> dispatch AO with key to RWST gate to close seal injection needle valve(s) to affected RCP: <ul style="list-style-type: none"> • V-300A for RCP A • V-300B for RCP B 2) Ensure HCV-142 open, demand at 0%.
	b. Charging pump suction aligned to RWST:	<p>b. Manually align valves as necessary.</p> <p><u>IF</u> LCV-112B can <u>NOT</u> be opened, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) Verify charging pump A <u>NOT</u> running and place in PULL STOP. 2) Dispatch AO to locally open manual charging pump suction from RWST (V-358 located in charging pump room). 3) <u>WHEN</u> V-358 open, <u>THEN</u> direct AO to close V-268 to isolate charging pumps B and C from VCT (V-268 located in charging pump room).
	o LCV-112B - OPEN	
	o LCV-112C - CLOSED	
	c. Start charging pumps as necessary and adjust charging flow to restore PRZR level	

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EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 24 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
42	Maintain PRZR Pressure Between 1800 PSIG And 2235 PSIG o Reset PRZR heaters o Use normal PRZR spray	

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EQP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 25 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
43	<p>Check If Emergency D/Gs Should Be Stopped:</p> <p>a. Verify AC emergency busses energized by offsite power:</p> <ul style="list-style-type: none"> o Emergency D/G output breakers - OPEN o AC emergency bus voltage - GREATER THAN 420 VOLTS o AC emergency bus normal feed breakers - CLOSED <p>b. Stop any unloaded emergency D/G and place in standby (Refer to Attachment D/G STOP)</p>	<p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) Verify non-safeguards bus tie breakers closed: <ul style="list-style-type: none"> • Bus 13 to Bus 14 tie • Bus 15 to Bus 16 tie 2) Place the following pumps in PULL STOP: <ul style="list-style-type: none"> • EH pumps • Turning gear oil pump • HP seal oil backup pump 3) Ensure condenser steam dump mode control in MANUAL. 4) Restore power to MCCs: <ul style="list-style-type: none"> • A from Bus 13 • B from Bus 15 • E from Bus 15 • F from Bus 15 5) Refer to Attachment SI/UV for other equipment lost with loss of offsite power. 6) Try to restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER).

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EXP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 26 of 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
44	Return to Step 21	
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E-0 APPENDIX LIST

	<u>TITLE</u>	<u>PAGES</u>
1)	RED PATH SUMMARY	1
2)	FIGURE MIN SUBCOOLING	1
3)	ATTACHMENT CI/CVI	2
4)	ATTACHMENT SD-1	1
5)	ATTACHMENT CNMT RECIRC FANS	1
6)	ATTACHMENT D/G STOP	1
7)	ATTACHMENT SI/UV	1
8)	FOLDOUT	1

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EO: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 15 PAGE 1 of 1
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RED PATH SUMMARY

- a. SUBCRITICALITY - Nuclear power greater than 5%
- b. CORE COOLING - Core exit T/Cs greater than 1200°F
-OR-
Core exit T/Cs greater than 700°F AND
RVLIS level (no RCPs) less than 43% [46%
adverse CNMT]
- c. HEAT SINK - Narrow range level in all S/Gs less than 5%
[25% adverse CNMT] AND total feedwater flow
less than 200 gpm
- d. INTEGRITY - Cold leg temperatures decrease greater than
100°F in last 60 minutes AND RCS cold leg
temperature less than 285°F
- e. CONTAINMENT - CNMT pressure greater than 60 psig

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