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JOSEPH A. WIDAY
VICE PRESIDENT & PLANT MANAGER
GINNA STATION

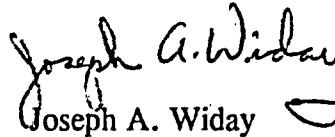
February 17, 2004

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

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

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):

ATT Index	ATT-14.7, Rev 0
E Index	E-0, Rev 36
ATT-3.0, Rev 7	E-1, Rev 29
ATT-3.1, Rev 5	

A002

NPSP0200
WRIGHTJ

GINNA Nuclear Power Plant
PROCEDURE INDEX

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INPUT PARAMETERS: TYPE: PRATT

STATUS VALUE(S): EF, QU

5 YEARS ONLY:

PRATT EOP ATTACHMENTS

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
ATT-1.0	ATTACHMENT AT POWER CCW ALIGNMENT	003	02/12/2003	02/12/2003	02/12/2008	EF
ATT-1.1	ATTACHMENT NORMAL CCW FLOW	000	05/18/2000	05/18/2000	05/18/2005	EF
ATT-2.1	ATTACHMENT MIN SW	005	02/01/2001	02/03/2003	02/03/2008	EF
ATT-2.2	ATTACHMENT SW ISOLATION	008	03/06/2002	03/27/2003	03/27/2008	EF
ATT-2.3	ATTACHMENT SW LOADS IN CNMT	004	03/06/2002	12/31/1999	12/31/2004	EF
ATT-2.4	ATTACHMENT NO SW PUMPS	002	05/30/2003	10/31/2001	10/31/2006	EF
ATT-2.5	ATTACHMENT SPLIT SW HEADERS	000	06/26/2002	06/26/2002	06/26/2007	EF
ATT-3.0	ATTACHMENT C/CVI	007	02/17/2004	02/17/2004	02/17/2009	EF
ATT-3.1	ATTACHMENT CNMT CLOSURE	005	02/17/2004	02/17/2004	02/17/2009	EF
ATT-4.0	ATTACHMENT CNMT RECIRC FANS	003	07/26/1994	03/27/2003	03/27/2008	EF
ATT-5.0	ATTACHMENT COND TO S/G	006	10/10/2003	12/31/1999	12/31/2004	EF
ATT-5.1	ATTACHMENT SAFW	008	05/30/2002	12/31/1999	12/31/2004	EF
ATT-5.2	ATTACHMENT FIRE WATER COOLING TO TDAFW PUMP	003	01/14/1999	01/28/2004	01/28/2009	EF
ATT-6.0	ATTACHMENT COND VACUUM	003	12/18/1996	02/03/2003	02/03/2008	EF
ATT-7.0	ATTACHMENT CR EVAC	006	03/06/2002	02/03/2003	02/03/2008	EF
ATT-8.0	ATTACHMENT DC LOADS	007	02/04/2004	02/04/2004	02/04/2009	EF
ATT-8.1	ATTACHMENT D/G STOP	005	03/06/2002	02/03/2003	02/03/2008	EF
ATT-8.2	ATTACHMENT GEN DEGAS	008	06/20/2002	08/17/1999	08/17/2004	EF
ATT-8.3	ATTACHMENT NONVITAL	004	03/06/2002	02/03/2003	02/03/2008	EF
ATT-8.4	ATTACHMENT S/U/V	005	03/06/2002	02/03/2003	02/03/2008	EF
ATT-8.5	ATTACHMENT LOSS OF OFFSITE POWER	001	08/26/2003	05/02/2002	05/02/2007	EF
ATT-9.0	ATTACHMENT LETDOWN	009	01/07/2004	03/06/2002	03/06/2007	EF
ATT-9.1	ATTACHMENT EXCESS L/D	005	03/06/2002	10/31/2001	10/31/2006	EF
ATT-10.0	ATTACHMENT FAULTED S/G	006	03/06/2002	03/27/2003	03/27/2008	EF
ATT-11.0	ATTACHMENT IA CONCERNS	003	06/26/2003	03/27/2003	03/27/2008	EF
ATT-11.1	ATTACHMENT IA SUPPLY	003	03/06/2002	03/27/2003	03/27/2008	EF
ATT-11.2	ATTACHMENT DIESEL AIR COMPRESSOR	004	11/18/2002	03/10/2003	03/10/2008	EF
ATT-12.0	ATTACHMENT N2 PORVS	005	02/12/2003	02/12/2003	02/12/2008	EF
ATT-13.0	ATTACHMENT NC	003	02/12/2003	02/12/2003	02/12/2008	EF
ATT-14.0	ATTACHMENT NORMAL RHR COOLING	003	03/06/2002	09/23/1999	09/23/2004	EF

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INPUT PARAMETERS: TYPE: PRATT
PRATT EOP ATTACHMENTS

STATUS VALUE(S): EF, QU

5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
ATT-14.1	ATTACHMENT RHR COOL	006	04/30/2003	01/08/2002	01/08/2007	EF
ATT-14.2	ATTACHMENT RHR ISOL	003	02/12/2003	02/12/2003	02/12/2008	EF
ATT-14.3	ATTACHMENT RHR NPSH	003	03/06/2002	01/28/2004	01/28/2009	EF
ATT-14.5	ATTACHMENT RHR SYSTEM	003	03/20/2003	02/03/2003	02/03/2008	EF
ATT-14.6	ATTACHMENT RHR PRESS REDUCTION	002	03/06/2002	01/28/2004	01/28/2009	EF
ATT-14.7	ATTACHMENT ADJUST RHR FLOW	000	02/17/2004	02/17/2004	02/17/2009	EF
ATT-15.0	ATTACHMENT RCP START	009	03/06/2002	03/17/2000	03/17/2005	EF
ATT-15.1	ATTACHMENT RCP DIAGNOSTICS	003	04/24/1997	02/03/2003	02/03/2008	EF
ATT-15.2	ATTACHMENT SEAL COOLING	005	03/06/2002	02/03/2003	02/03/2008	EF
ATT-16.0	ATTACHMENT RUPTURED S/G	011	07/18/2001	01/11/2000	01/11/2005	EF
ATT-16.1	ATTACHMENT SGTL	002	03/06/2002	09/08/2000	09/08/2005	EF
ATT-16.2	ATTACHMENT RCS BORON FOR SGTL	003	11/26/2003	09/08/2000	09/08/2005	EF
ATT-17.0	ATTACHMENT SD-1	016	10/10/2003	02/29/2000	02/28/2005	EF
ATT-17.1	ATTACHMENT SD-2	006	03/06/2002	01/30/2001	01/30/2006	EF
ATT-18.0	ATTACHMENT SFP - RWST	005	03/06/2002	02/03/2003	02/03/2008	EF
ATT-20.0	ATTACHMENT VENT TIME	003	07/26/1994	02/03/2003	02/03/2008	EF
ATT-21.0	ATTACHMENT RCS ISOLATION	002	03/06/2002	02/03/2003	02/03/2008	EF
ATT-22.0	ATTACHMENT RESTORING FEED FLOW	003	05/02/2002	01/22/2002	01/22/2007	EF
ATT-23.0	ATTACHMENT TRANSFER 4160V LOADS	000	02/26/1999	01/28/2004	01/28/2009	EF
ATT-24.0	ATTACHMENT TRANSFER BATTERY TO TSC	000	09/08/2000	09/08/2000	09/08/2005	EF
ATT-26.0	ATTACHMENT RETURN TO NORMAL OPERATIONS	000	10/31/2001	10/31/2001	10/31/2006	EF

PRATT TOTAL: 51

GRAND TOTAL: 51

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WRIGHTJ

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INPUT PARAMETERS: TYPE: PRE

STATUS VALUE(S): EF, QU

5 YEARS ONLY:

PRE EMERGENCY PROCEDURE

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
E-0	REACTOR TRIP OR SAFETY INJECTION	036	02/17/2004	03/24/2003	03/24/2008	EF
E-1	LOSS OF REACTOR OR SECONDARY COOLANT	029	02/17/2004	03/24/2003	03/24/2008	EF
E-2	FAULTED STEAM GENERATOR ISOLATION	011	05/30/2003	03/24/2003	03/24/2008	EF
E-3	STEAM GENERATOR TUBE RUPTURE	036	01/07/2004	03/24/2003	03/24/2008	EF

PRE TOTAL: 4

GRAND TOTAL: 4

EOP: ATT-3.0	TITLE: ATTACHMENT CI/CVI	REV: 7 PAGE 1 of 4
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Responsible Manager Richard J. [Signature]Date 2-17-2004NOTE: Locked valve key may be required for local operations.

1. For each of the following AUTO ISOL VALVES that will not close, take the action directed in the ALTERNATE ISOLATION column.

AUTO ISOL VALVEALTERNATE ISOL

AOV-200A(L/D)

Close the following valves: (MCB)

- AOV-371
- HCV-133

AOV-200B(L/D)

Close the following valves: (MCB)

- AOV-371
- HCV-133

AOV-202(L/D)

Close the following valves: (MCB)

- AOV-371
- HCV-133

AOV-5392(IA)

Close the following valves: (IB BASEMENT CLEAN SIDE)

- V-5397
- V-5410

AOV-371(L/D)

Close the following valves: (NRHX ROOM)

- V-204A
- V-820

MOV-313(RCP Seal)

Close the following valves: (SWRF ROOM
[reach rods])

- V-315A
- V-315C

AOV-9227(Fire Sys)

(Normally closed, and does NOT receive CI signal)

- Close V-9225 (IB BASEMENT CLEAN SIDE)

AOV-508(RMW)

Close the following valves: (MCB)

- AOV-548
- AOV-550A
- AOV-550B

EOP: ATT-3.0	TITLE: ATTACHMENT CI/CVI	REV: 7 PAGE 2 of 4
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AUTO ISOL VALVE

ALTERNATE ISOL

AOV-5738 (S/G B/D)	Close V-5701	(IB BASEMENT CLEAN SIDE)
AOV-5737 (S/G B/D)	Close V-5702	(IB BASEMENT CLEAN SIDE)
AOV-5735 (S/G Samp)	Close V-5733	(SAMPLE HOOD)
AOV-5736 (S/G Samp)	Close V-5734	(SAMPLE HOOD)
SOV-921 (H2 Mon)	Close V-928A	(INSIDE A H2 MON PNL, AFW PUMP AREA, key 59 required)
SOV-922 (H2 Mon)	Close V-928B	(INSIDE A H2 MON PNL, AFW PUMP AREA, key 59 required)
SOV-923 (H2 Mon)	Close V-929A	(INSIDE B H2 MON PNL, AFW PUMP AREA, key 59 required)
SOV-924 (H2 Mon)	Close V-929B	(INSIDE B H2 MON PNL, AFW PUMP AREA, key 59 required)
AOV-539 (PRT gas)	Close V-546	(BY SFP HX A)
AOV-1789 (RCDT to gas anal)	Close V-1655	(BY SFP HX A)
AOV-1786 (RCDT/VH)	Close AOV-1787	(MCB)
AOV-1787 (RCDT/VH)	Close AOV-1786	(MCB)
AOV-1721 (RCDT Pumps) Close the following valves:		
	• AOV-1003A	(WASTE PANEL)
	• AOV-1003B	(WASTE PANEL)
	• V-1722	(AB SUB-BASEMENT, NORMALLY LOCKED CLOSED)
AOV-1003A (RCDT Pump A)	Close AOV-1721	(WASTE PANEL)
AOV-1003B (RCDT Pump B)	Close AOV-1721	(WASTE PANEL)
AOV-1597 (CNMT rad)	Close V-1596	(IB BASEMENT CLEAN SIDE)
AOV-1598 (CNMT rad)	Close AOV-1599	(MCB)
AOV-1599 (CNMT rad)	Close AOV-1598	(MCB)

EOP: ATT-3.0	TITLE: ATTACHMENT CI/CVI	REV: 7 PAGE 3 of 4
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AUTO ISOL VALVE

ALTERNATE ISOL

MOV-813 (CCW)

Perform the following:

- 1) Direct AO with locked valve key to unlock and close breaker for MOV-817 (MCC D POS 10C)
- 2) Stop both RCPs
- 3) Manually close MOV-817 (MCB). IF MOV-817 will not close, THEN direct AO to locally close MOV-817 (AB INT LEVEL).

MOV-814 (CCW)

Close V-815A (AB INT LEVEL)

AOV-1723 (CNMT sump)

Perform the following:

- 1) Place BOTH CNMT Sump Pumps in PULL-STOP (MCB REAR)
- 2) Close AOV-1728 (WASTE PANEL)

AOV-1728 (CNMT sump)

Perform the following:

- 1) Place BOTH CNMT Sump Pumps in PULL-STOP (MCB REAR)
- 2) Close AOV-1723 (WASTE PANEL)

AOV-951 (PRZR STM samp)

Close AOV-966A (MCB)

AOV-953 (PRZR Liq samp)

Close AOV-966B (MCB)

AOV-955 (Hot Leg samp)

Close AOV-966C (MCB)

AOV-959 (RHR samp)

(fuses normally pulled)

Close V-957 (PRIMARY SAMPLE ROOM, normally closed)

AOV-966A (PRZR STM samp) Close V-956F (SAMPLE HOOD)

AOV-966B (PRZR Liq samp) Close V-956E (SAMPLE HOOD)

AOV-966C (Hot Leg samp) Close V-956D (SAMPLE HOOD)

AOV-846 (Accum N2)

Close the following valves:
(BY SFP HX A)

- V-8629
- V-944A

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AUTO ISOL VALVE

ALTERNATE ISOL

AOV-8418 (DI Water)	Close V-5021 (IB BASEMENT CLEAN SIDE)	
AOV-7971 (Mini-purge)	Close AOV-7970 (MCB REAR)	
AOV-7970 (Mini-purge)	Close AOV-7971 (MCB REAR)	
AOV-7445 (Mini-purge)	Close AOV-7478 (MCB REAR)	
AOV-7478 (Mini-purge)	Close AOV-7445 (MCB REAR)	
AOV-5879 (CNMT purge)	N/A FLANGED	
AOV-5869 (CNMT purge)	N/A FLANGED	
SOV-1B (10214S1) (H2 recomb) (normally de-energized)	Close V-1080A	(SAMPLE HOOD, NORMALLY LOCKED CLOSED)
SOV-2B (10214S) (H2 recomb) (normally de-energized)	Close V-1080A	(SAMPLE HOOD, NORMALLY LOCKED CLOSED)
SOV-3B (10211S1) (H2 recomb) (normally de-energized)	Close V-1076B	(SAMPLE HOOD, NORMALLY LOCKED CLOSED)
SOV-5B (10213S1) (H2 recomb) (normally de-energized)	Close V-1084B	(SAMPLE HOOD, NORMALLY LOCKED CLOSED)
SOV-1A (10215S1) (H2 recomb) (normally de-energized)	Close V-1080A	(SAMPLE HOOD, NORMALLY LOCKED CLOSED)
SOV-2A (10215S) (H2 recomb) (normally de-energized)	Close V-1080A	(SAMPLE HOOD, NORMALLY LOCKED CLOSED)
SOV-3A (10205S1) (H2 recomb) (normally de-energized)	Close V-1076A	(IB BASEMENT CLEAN SIDE, NORMALLY LOCKED CLOSED)
SOV-5A (10209S1) (H2 recomb) (normally de-energized)	Close V-1084A	(IB BASEMENT CLEAN SIDE, NORMALLY LOCKED CLOSED)

EOP: ATT-3.1	TITLE: ATTACHMENT CNMT CLOSURE	REV: 5 PAGE 1 of 3
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Responsible Manager

Robert DelmonicoDate 2-17-2004

- A) Ensure at least one door closed in EACH CNMT airlock:
- o Equipment airlock
 - o Personnel airlock
- B) Verify valves in column 1 closed. IF any valve NOT closed, THEN evaluate penetration and isolate if penetration has direct access to outside atmosphere (Refer to column 2).

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

COLUMN 1
AUTO ISOL VALVE

COLUMN 2
ALTERNATE ISOL

- | | |
|--------------------------------|---|
| AOV-5392 (IA) | Close the following valves: (IB BSMT CLEAN SIDE) |
| | <ul style="list-style-type: none"> • V-5397 • V-5410 |
| AOV-371 (L/D) | Close the following valves: (NRHX ROOM) |
| | <ul style="list-style-type: none"> • V-204A • V-820 |
| MOV-313 (RCP Seal) | Close the following valves: (SWRF ROOM
[reach rods]) |
| | <ul style="list-style-type: none"> • V-315A • V-315C |
| AOV-9227 (Fire Sys) | Close V-9225 (IB BSMT CLEAN SIDE) |
| AOV-508 (RMW) | Close the following valves: (MCB) |
| | <ul style="list-style-type: none"> • AOV-548 • AOV-550A • AOV-550B |
| AOV-5738 (S/G B/D) | Close V-5701 (IB BSMT CLEAN SIDE) |
| AOV-5737 (S/G B/D) | Close V-5702 (IB BSMT CLEAN SIDE) |
| AOV-5735 (S/G samp) | Close V-5733 (SAMPLE HOOD) |
| AOV-5736 (S/G samp) | Close V-5734 (SAMPLE HOOD) |
| AOV-539 (PRT gas) | Close V-546 (BY SFP HX A) |
| AOV-1789 (RCDT to
gas anal) | Close V-1655 (BY SFP HX A) |

EOP: ATT-3.1	TITLE: ATTACHMENT CNMT CLOSURE	REV: 5 PAGE 2 of 3
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COLUMN 1
AUTO ISOL VALVE

COLUMN 2
ALTERNATE ISOL

AOV-1786 (RCDT/VH) Close the following valves:

- AOV-1787 (MCB)
- V-1716A (BY SFP HX A)

AOV-1721 (RCDT pumps) Close the following valves:

- AOV-1003A (WASTE PANEL)
- AOV-1003B (WASTE PANEL)
- V-1722 (AB SUB-BASEMENT,
NORMALLY LOCKED CLOSED)

AOV-1597 (CNMT rad) Close V-1596 (IB BSMT CLEAN SIDE)

AOV-1598 (CNMT rad) Close AOV-1599 (MCB)

MOV-813 (CCW) Ensure CCW SYSTEM INTACT (AUX BLDG INT,
BY RWST)

MOV-814 (CCW) Ensure CCW SYSTEM INTACT (AUX BLDG INT,
BY RWST)

AOV-1723 (CNMT sump) Perform the following:

- 1) Place BOTH CNMT Sump Pumps in
PULL-STOP (MCB REAR)
- 2) Close AOV-1728 (WASTE PANEL)

AOV-846 (ACCUM N2) Close the following valves: (BY SFP HX A)

- V-8629
- V-944A

AOV-8418 (DI water) Close V-5021 (IB BSMT CLEAN SIDE)

AOV-7970 (Mini purge) Close AOV-7971 (MCB REAR)

AOV-7445 (Mini purge) Close AOV-7478 (MCB REAR)

AOV-5879 (Purge) Stop the Purge Exhaust Fan (MCB REAR)

AOV-5869 (Purge) Stop the Purge Supply Fan (MCB REAR)

EOP: ATT-3.1	TITLE: ATTACHMENT CNMT CLOSURE	REV: 5 PAGE 3 of 3
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- C) Verify both S/Gs intact in CNMT OR steam and feed headers isolated outside CNMT (Refer to O-15.2, REQUIRED VALVE LINEUP FOR REACTOR HEAD REMOVAL, for specific guidance).
- D) Evaluate and isolate any other known openings from CNMT to the outside atmosphere. Contact Outage Scheduling or Maintenance Manager and refer to O-2.3.1A, CONTAINMENT CLOSURE CAPABILITY IN TWO HOURS DURING REDUCED RCS INVENTORY OPERATION, for additional guidance.
- E) Verify fuel transfer flange installed or gate valve, V-650J, closed.
- F) Contact Outage Scheduling to ensure that S/G maintenance penetration (Pen 2) is isolated (no openings to outside).

EOP: ATT-14.7	TITLE: ATTACHMENT ADJUST RHR FLOW	REV: 0 PAGE 1 of 1
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Responsible Manager

Billings

Date

2-17-2004

This attachment provides instructions for locally throttling HCV-624 and HCV-625 following a LOCA to ensure RHR pump NPSH requirements are met for sump recirculation.

NOTE: Locked valve key required.

1. Perform the following to locally throttle HCV-624 handwheel:

- a) Unlock and remove chain from HCV-624 handwheel.
- b) Turn handwheel in the closed direction to take up handwheel play until resistance is felt (~ 3/4 handwheel turn) and reference marks attached to the handwheel and air operator bonnet are aligned. At this point, further handwheel actuation will initiate valve travel in the closed direction.
- c) With reference marks attached to the handwheel and air operator bonnet aligned, rotate handwheel 17 complete turns in the closed direction.
- d) Upon attaining 17 complete turns closed, turn handwheel in the open direction 2 complete turns.
- e) Lock HCV-624 handwheel to maintain current throttled setting of HCV-624.

2. Perform the following to locally throttle HCV-625 handwheel:

- a) Unlock and remove chain from HCV-625 handwheel.
- b) Turn handwheel in the closed direction to take up handwheel play until resistance is felt (~ 2 1/2 handwheel turns) and reference marks attached to the handwheel and air operator bonnet are aligned. At this point, further handwheel actuation will initiate valve travel in the closed direction.
- c) With reference marks attached to the handwheel and air operator bonnet aligned, rotate handwheel 18 complete turns in the closed direction.
- d) Upon attaining 18 complete turns closed, turn handwheel in the open direction 1 complete turn.
- e) Lock HCV-625 handwheel to maintain current throttled setting of HCV-625.

EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 36 PAGE 1 of 29
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

Reside Amin
RESPONSIBLE MANAGER

2-17-2004
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 36 PAGE 2 of 29
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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 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: 36 PAGE 3 of 29
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	<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> the reactor will <u>NOT</u> trip <u>OR IF</u> power range NIS indicates greater than 5%, <u>THEN</u> go to FR-S.1. RESPONSE TO REACTOR RESTART/ATWS. Step 1</p>
2	<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>
3	<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> Bus 14 <u>AND</u> Bus 16 are deenergized, <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: 36 PAGE 4 of 29
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

4 Check if SI is Actuated:

a. Any SI Annunciator - LIT

a. IF any of the following conditions are met, THEN manually actuate SI and CI:

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 SI sequencing started

-OR-

o Operator determines SI required

IF SI is NOT required, THEN go to ES-0.1, REACTOR TRIP RESPONSE, Step 1.

b. SI sequencing - BOTH TRAINS STARTED.

b. Manually actuate SI and CI.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE: 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.

5 Verify SI and RHR Pumps Running:

a. All SI pumps - RUNNING

a. Perform the following:

1) Ensure SI pump suction supply open from RWST.

2) Manually start pumps.

b. Both RHR pumps - RUNNING

b. Manually start pumps.

6 Verify CNMT RECIRC Fans Running:

a. All fans - RUNNING

a. Manually start fans.

b. Charcoal filter dampers green status lights - EXTINGUISHED

b. Dispatch personnel to relay room with relay rack key to locally open dampers by pushing in trip relay plungers.

- AUX RELAY RACK RA-2 for fan A
- AUX RELAY RACK RA-3 for fan C

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* 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. <u>IF</u> no CNMT spray pump available. <u>THEN</u> go to Step 8. c. Ensure CNMT spray pump discharge valves open for operating pump(s). <ul style="list-style-type: none"> o CNMT spray pump A: <ul style="list-style-type: none"> • MOV-860A • MOV-860B o CNMT spray pump B: <ul style="list-style-type: none"> • MOV-860C • MOV-860D d. Verify NaOH flow (FI-930) <p><u>IF</u> NaOH flow <u>NOT</u> indicated. <u>THEN</u> place switches for NaOH tank outlet valves to OPEN.</p> <ul style="list-style-type: none"> • AOV-836A • AOV-836B

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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 Tavg (545°F) AND high steam flow (0.4×10^6 lb/hr) from either S/G <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> 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. Depress MANUAL pushbuttons for A and B S/G MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand. c. S/G blowdown and sample valves - CLOSED 	<ul style="list-style-type: none"> a. Perform the following: <ul style="list-style-type: none"> 1) Manually close MFW pump discharge valves and trip MFW pumps. 2) Continue with Step 9c. <u>WHEN</u> both MFPs are tripped, <u>THEN</u> perform Step 9b. c. Place S/G blowdown and sample valve isolation switch to CLOSE.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10 Verify Both MDAFW Pumps Running		<p>Manually start both MDAFW pumps.</p> <p><u>IF</u> less than 2 MDAFW pumps are running, <u>THEN</u> manually open TDAFW pump steam supply valves.</p> <ul style="list-style-type: none"> • MOV-3505A • MOV-3504A
11 Verify At Least Two SW Pumps - RUNNING		<p>Perform the following:</p> <ol style="list-style-type: none"> Ensure one SW pump running on each energized screenhouse AC emergency bus: <ul style="list-style-type: none"> • Bus 17 • Bus 18 <u>IF</u> offsite power <u>NOT</u> available, <u>THEN</u> ensure SW isolation. <u>IF NO</u> SW pumps running, <u>THEN</u> perform the following: <ol style="list-style-type: none"> Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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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

d. Letdown orifice valves - CLOSED

- AOV-200A
- AOV-200B
- AOV-202

a. Depress manual CI pushbutton.

b. Manually close affected CI and CVI valve(s).

IF valve(s) can NOT be closed from the MCB, THEN dispatch AO to locally close affected valve(s)

IF valve(s) can NOT be locally closed, THEN close alternate isolation valve(s). (Refer to ATT-3.0. ATTACHMENT CI/CVI).

c. Dispatch AO to locally fail open valves.

d. Place affected valve switch to CLOSE. IF valves can NOT be verified closed by MCB indication, THEN close alternate isolations. (Refer to ATT-3.0. ATTACHMENT CI/CVI)

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

RCP TRIP CRITERIA LISTED ON FOLDOUT PAGE SHOULD BE MONITORED PERIODICALLY.

13 Check CCW System Status:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. Verify CCW pump - AT LEAST ONE RUNNING b. Place switch for excess letdown AOV-310 to CLOSE c. Place switch for CCW from excess letdown, AOV-745 to CLOSE | <ul style="list-style-type: none"> a. <u>IF</u> offsite power available, <u>THEN</u> manually start one CCW pump. |
|---|--|

14 Verify SI And RHR Pump Flow:

- | | |
|--|---|
| <ul style="list-style-type: none"> a. SI flow indicators - CHECK FOR FLOW b. RHR flow indicator - CHECK FOR FLOW | <ul style="list-style-type: none"> 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. <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 AFW Valve Alignment:

Manually align valves as necessary.

- a. AFW flow - INDICATED TO BOTH S/G(s)
- b. AFW flow from each MDAFW pump - LESS THAN 230 GPM

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
*16 Monitor Heat Sink:		
a.	Check S/G narrow range level - GREATER THAN 5% [25% adverse CNMT] in any S/G	a. Perform the following: 1) Verify total AFW flow - GREATER THAN 200 GPM IF total AFW is less than 200 gpm, THEN manually start pumps and align valves to establish greater than 200 gpm AFW flow. IF AFW flow greater than 200 gpm can NOT be established, THEN go to FR-H.1. RESPONSE TO LOSS OF SECONDARY HEAT SINK. Step 1. 2) Go to Step 17.
b.	Check S/G narrow range level - BOTH S/G LESS THAN 50%	b. Secure AFW flow to any S/G with level above 50%.
c.	Control feed flow to maintain S/G narrow range level between 5% [25% adverse CNMT] and 50%.	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	Verify SI Pump And RHR Pump Emergency Alignment:	
	a. RHR pump discharge to Rx vessel deluge - OPEN	a. Ensure at least one valve open.
	• MOV-852A • MOV-852B	
	b. Verify SI pump C - RUNNING	b. Manually start pump on available bus.
	c. Verify SI pump A - RUNNING	c. Perform the following:
		1) Ensure SI pumps B and C running. IF either pump NOT running, THEN go to Step 17e.
		2) Ensure SI pump C aligned to discharge line A:
		o MOV-871A open
		o MOV-871B closed
		3) Go to Step 18.
	d. Verify SI pump B - RUNNING	d. Perform the following:
		1) Ensure SI pumps A and C running. IF either pump NOT running, THEN go to Step 17e.
		2) Ensure SI pump C aligned to discharge line B:
		o MOV-871B open
		o MOV-871A closed
		3) Go to Step 18.
	e. Verify SI pump C discharge valves - OPEN	e. Manually open valves as necessary.
	• MOV-871A • MOV-871B	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF OFFSITE POWER IS LOST AFTER SI RESET. THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5. ATTACHMENT LOSS OF OFFSITE POWER)</p> <p>*****</p>		
18	<p>Check CCW Flow to RCP Thermal Barriers:</p> <ul style="list-style-type: none"> o Annunciator A-7. RCP 1A CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED o Annunciator A-15. RCP 1B CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED 	<p><u>IF</u> CCW to a RCP is lost. <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Stop affected RCPs. 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: <ul style="list-style-type: none"> o Labyrinth seal D/P to each RCP greater than 15 inches of water. <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> o RCP seal injection flow to each RCP greater than 6 gpm. <p>f. <u>IF</u> large imbalance in seal injection flow exists. <u>THEN</u> consider local adjustment of V-300A and V-300B.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19	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 20.
*20	Monitor RCS Tav _g - 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. Ensure reheater steam supply valves are closed.</p> <p>c. <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>d. <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>e. <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> dump steam to stabilize and slowly decrease temperature to 547°F.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21	Check PRZR PORVs And Spray Valves:	
a.	PORVs - CLOSED	<p><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>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>Continue with Step 22. <u>WHEN</u> pressure less than 2260 psig, <u>THEN</u> do Step 21d.</p>
d.	Normal PRZR spray valves - CLOSED	<p>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>
	<ul style="list-style-type: none"> • PCV-431A • PCV-431B 	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	Monitor RCP Trip Criteria:	
	a. RCP status - ANY RCP RUNNING	a. Go to Step 23.
	b. SI pumps - AT LEAST TWO RUNNING	b. Go to Step 23.
	c. RCS pressure minus maximum S/G pressure - LESS THAN 175 psig [400 psig adverse CNMT]	c. Go to Step 23.
	d. Stop both RCPs	
23	Check If S/G Secondary Side Is Intact:	<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.
	o Pressure in both S/Gs - STABLE OR INCREASING	
	o Pressure in both S/Gs - GREATER THAN 110 PSIG	
24	Check If S/G Tubes Are Intact:	Go to E-3. STEAM GENERATOR TUBE RUPTURE. Step 1.
	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	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25	<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 0.5 PSIG</p> <p>c. CNMT sump B level - LESS THAN 8 INCHES</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 	Go to E-1. LOSS OF REACTOR OR SECONDARY COOLANT. Step 1.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
26	Check If SI Should Be Terminated:	
a.	RCS pressure:	a. Do <u>NOT</u> stop SI pumps. Go to Step 27.
	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 FIG-1.0, FIGURE MIN SUBCOOLING	b. Do <u>NOT</u> stop SI pumps. Go to Step 27.
c.	Secondary heat sink:	c. <u>IF</u> neither condition met, <u>THEN</u> do <u>NOT</u> stop SI pumps. Go to Step 27.
	o Total feed flow to S/Gs - GREATER THAN 200 GPM	
	-OR-	
	o Narrow range level in at least one S/G - GREATER THAN 5%	
d.	PRZR level - GREATER THAN 5%	d. Do <u>NOT</u> stop SI pumps. Perform the following:
		1) <u>IF</u> normal PRZR spray available, <u>THEN</u> try to stabilize RCS pressure with PRZR spray.
		2) Go to Step 27.
e.	Go to ES-1.1, SI TERMINATION. Step 1.	

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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 EPIP-1.0, GINNA STATION EVENT EVALUATION AND CLASSIFICATION).</p> <p> o The Critical Safety Function Red Path Summary is available in APPENDIX 1.</p>	
27	Initiate Monitoring of Critical Safety Function Status Trees	
*28	Monitor 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>
29	Check Secondary Radiation Levels - NORMAL	Go to E-3. STEAM GENERATOR TUBE RUPTURE, Step 1.
	<p>o Steamline radiation monitor (R-31 and R-32)</p> <p>o Dispatch A0 to locally check steamline radiation</p> <p>o Request RP sample S/Gs for activity</p>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)</p> <p>*****</p>		
30	Reset SI	
31	Reset CI:	
	<p>a. Depress CI reset pushbutton</p> <p>b. Verify annunciator A-26, CNMT ISOLATION - EXTINGUISHED</p>	<p>b. Perform the following:</p> <p>1) Reset SI.</p> <p>2) Depress CI reset pushbutton.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
32	Verify Adequate SW Flow:	
a.	At least three SW pumps - RUNNING	<p>a. Manually start SW pumps as power supply permits (257 kw each).</p> <p><u>IF</u> less than three pumps running. <u>THEN</u> ensure SW isolation.</p> <p><u>IF NO</u> SW pumps running. <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton. 2) Refer to ATT-2.4. ATTACHMENT NO SW PUMPS. <p><u>IF</u> only one SW pump running. <u>THEN</u> refer to AP-SW.2. LOSS OF SERVICE WATER.</p>
b.	Dispatch AO to establish normal shutdown alignment (Refer to ATT-17.0. ATTACHMENT SD-1)	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
33	<p>Establish IA to CNMT:</p> <p>a. Verify non-safeguards busses energized from offsite power</p> <ul style="list-style-type: none"> o Bus 13 normal feed - CLOSED <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> o Bus 15 normal feed - CLOSED <p>b. Check SW Pumps - AT LEAST TWO PUMPS RUNNING</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 compressor(s) (75 kw each). <u>IF NOT. THEN</u> perform the following: <ul style="list-style-type: none"> o Start diesel air compressor (refer to ATT-11.2. ATTACHMENT DIESEL AIR COMPRESSOR) <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> o Evaluate if CNMT RECIRC fans should be stopped. (Refer to ATT-4.0. ATTACHMENT CNMT RECIRC FANS) 3) <u>WHEN</u> bus 15 is restored. <u>THEN</u> reset control room lighting. <p>b. Perform the following:</p> <ol style="list-style-type: none"> 1) Restore IA using service air compressor <u>OR</u> diesel air compressor (refer to ATT-11.2. ATTACHMENT DIESEL AIR COMPRESSOR) 2) Go to step 33d.

This Step continued on the next page.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 33 continued from previous page)	
	c. Verify SW isolation valves to turbine building - OPEN <ul style="list-style-type: none"> • MOV-4613 and MOV-4670 • MOV-4614 and MOV-4664 	c. Perform the following: <ol style="list-style-type: none"> 1) Manually align valves. 2) Dispatch AO to locally reset compressors as necessary.
	d. Verify adequate air compressor(s) - RUNNING	d. Manually start electric air compressor(s) as power supply permits (75 kw each). <p><u>IF</u> electric air compressor can <u>NOT</u> be started, <u>THEN</u> start diesel air compressor. (Refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR)</p>
	e. Check IA supply: <ul style="list-style-type: none"> o Pressure - GREATER THAN 60 PSIG o Pressure - STABLE OR INCREASING 	e. Perform the following: <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 34. <u>WHEN</u> IA restored, <u>THEN</u> do Steps 33f and g.
	f. Reset both trains of XY relays for IA to CNMT AOV-5392	
	g. Verify IA to CNMT AOV-5392 - OPEN	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
34	<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>
35	<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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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>RCS PRESSURE SHOULD BE MONITORED. IF RCS PRESSURE DECREASES IN AN UNCONTROLLED MANNER TO LESS THAN 250 PSIG, THEN THE RHR PUMPS MUST BE MANUALLY RESTARTED TO SUPPLY WATER TO THE RCS.</p> <p>*****</p>		
*36	Monitor If RHR Pumps Should Be Stopped:	
	a. Check RCS pressure:	
	1) Pressure - GREATER THAN 250 PSIG	1) Go to E-1. LOSS OF REACTOR OR SECONDARY COOLANT. Step 1.
	2) Pressure - STABLE OR INCREASING	2) Go to Step 37.
	b. Stop both RHR pumps and place in AUTO	
37	Check Normal Power Available To Charging Pumps:	Verify adequate emergency D/G capacity to run charging pumps (75 kw each).
	o Bus 14 normal feed breaker - CLOSED	<u>IF NOT. THEN</u> evaluate if CNMT RECIRC fans can be stopped (Refer to ATT-4.0. ATTACHMENT CNMT RECIRC FANS).
	o Bus 16 normal feed breaker - CLOSED	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
38	<p>Check If Charging Flow Has Been Established:</p> <p>a. Charging pumps - ANY RUNNING</p> <p>b. Charging pump suction aligned to RWST:</p> <ul style="list-style-type: none"> o LCV-112B - OPEN o LCV-112C - CLOSED <p>c. Start charging pumps as necessary and adjust charging flow to restore PRZR level</p>	<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 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%. <p>b. Manually align valves.</p> <p><u>IF</u> LCV-112B can <u>NOT</u> be opened. <u>THEN</u> dispatch AO to locally open V-358. manual charging pump suction from RWST (charging pump room).</p> <p><u>IF</u> LCV-112C can <u>NOT</u> be closed. <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) Direct AO to locally open V-358. manual charging pump suction from RWST (Charging Pump Room). 2) Verify charging pump A <u>NOT</u> running and place in PULL STOP. 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 (charging pump room).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
39	Maintain PRZR Pressure Between 1800 PSIG And 2235 PSIG <ul style="list-style-type: none">o Reset PRZR heaterso Use normal PRZR spray	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
40	<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 ATT-8.1, 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) Start HP seal oil backup pump. 6) Ensure D/G load within limits. 7) Refer to ATT-8.4, ATTACHMENT SI/UV for other equipment lost with loss of offsite power. 8) Try to restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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41 Return to Step 20

-END-

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E-0 APPENDIX LIST

TITLE

- 1) RED PATH SUMMARY
- 2) FIGURE MIN SUBCOOLING (FIG-1.0)
- 3) ATTACHMENT CI/CVI (ATT-3.0)
- 4) ATTACHMENT SD-1 (ATT-17.0)
- 5) ATTACHMENT CNMT RECIRC FANS (ATT-4.0)
- 6) ATTACHMENT D/G STOP (ATT-8.1)
- 7) ATTACHMENT SI/UV (ATT-8.4)
- 8) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 9) ATTACHMENT LOSS OF OFFSITE POWER (ATT-8.5)
- 10) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2)
- 11) FOLDOUT

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FOLDOUT PAGE

1. RCP TRIP CRITERIA

IF BOTH conditions listed below occur, THEN trip both RCPs:

- a. SI pumps - AT LEAST TWO RUNNING
- b. RCS pressure minus maximum S/G pressure - LESS THAN 175 PSIG
[400 psig adverse CNMT]

2. LOSS OF SW CRITERIA

IF no SW pumps are available, THEN perform the following:

- a. Pull stop any D/G that is NOT supplied by alternate cooling
AND immediately depress associated VOLTAGE SHUTDOWN
pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

3. AFW SUPPLY SWITCHOVER CRITERION

IF CST level decreases to less than 5 feet, THEN switch to
alternate AFW water supply (Refer to ER-AFW.1, ALTERNATE WATER
SUPPLY TO AFW PUMPS).

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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

Residman
RESPONSIBLE MANAGER

2-17-2004
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: E-1	TITLE: LOSS OF REACTOR OR SECONDARY COOLANT	REV: 29 PAGE 2 of 23
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A. PURPOSE - This procedure provides actions to recover from a loss of reactor or secondary coolant.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. E-0, REACTOR TRIP OR SAFETY INJECTION, and FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, when a PRZR PORV is stuck open and its block valve can not be closed.
- b. E-0, REACTOR TRIP OR SAFETY INJECTION, with any of the following symptoms: high containment radiation, high containment pressure, or high containment recirculation sump level.
- c. E-0, REACTOR TRIP OR SAFETY INJECTION, ECA-2.1, UNCONTROLLED DEPRESSURIZATION OF BOTH STEAM GENERATORS, and FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, when RCS pressure is less than the shutoff head pressure of the RHR pumps or is decreasing.
- d. ES-1.1, SI TERMINATION, and FR-I.2, RESPONSE TO LOW PRESSURIZER LEVEL, if SI has to be reinitiated.
- e. E-2, FAULTED STEAM GENERATOR ISOLATION, after identification and isolation of a faulted S/G.
- f. ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, after normal injection mode conditions are established.
- g. ECA-1.2, LOCA OUTSIDE CONTAINMENT, when a LOCA outside containment is isolated.
- h. FR-C.1, RESPONSE TO INADEQUATE CORE COOLING, and FR-C.2, RESPONSE TO DEGRADED CORE COOLING, after core cooling has been reestablished.
- i. FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, after secondary heat sink has been reestablished and all PRZR PORVs are closed.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

IF RWST LEVEL DECREASES TO LESS THAN 28%, THEN THE SI SYSTEM SHOULD BE ALIGNED FOR COLD LEG RECIRCULATION USING ES-1.3. TRANSFER TO COLD LEG RECIRCULATION, STEP 1.

.....

- NOTE:
- o FOLDOUT page should be open AND monitored periodically.
 - o Critical Safety Function Status Trees should be monitored. (Refer to Appendix 1 for Red Path Summary.)
 - o Conditions should be evaluated for Site Contingency Reporting (Refer to EPIP-1.0, GINNA STATION EVENT EVALUATION AND CLASSIFICATION).
 - 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.

1 Monitor RCP Trip Criteria:

- | | |
|---|------------------|
| a. RCP status - ANY RCP RUNNING | a. Go to Step 2. |
| b. SI pumps - AT LEAST TWO RUNNING | b. Go to Step 2. |
| c. RCS pressure minus maximum S/G pressure - LESS THAN 175 psig [400 psig adverse CNMT] | c. Go to Step 2. |
| d. Stop both RCPs | |

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p>2 Check If S/G Secondary Side Is Intact:</p> <ul style="list-style-type: none"> o Pressure in both S/Gs - STABLE OR INCREASING o Pressure in both S/Gs - GREATER THAN 110 PSIG 	<p><u>IF</u> any S/G pressure decreasing in an uncontrolled manner <u>OR</u> completely depressurized, <u>THEN</u> verify faulted S/G isolated unless needed for RCS cooldown:</p> <ul style="list-style-type: none"> • Steamlines • Feedlines <p><u>IF NOT</u>, <u>THEN</u> go to E-2, FAULTED STEAM GENERATOR ISOLATION, Step 1.</p>
	<p><u>NOTE</u>: TDAFW pump flow control AOVs may drift open on loss of IA.</p>	
	<p>* 3 Monitor Intact S/G Levels:</p> <ul style="list-style-type: none"> a. Narrow range level - GREATER THAN 5% [25% adverse CNMT] b. Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50% 	<ul style="list-style-type: none"> a. Maintain total feed flow greater than 200 gpm until narrow range level greater than 5% [25% adverse CNMT] in at least one S/G. 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>* 4 Monitor If Secondary Radiation Levels Are Normal</p> <ul style="list-style-type: none"> o Steamline radiation monitor (R-31 and R-32) o Request RP sample S/Gs for activity 	<p><u>IF</u> steamline radiation monitors <u>NOT</u> available, <u>THEN</u> dispatch AO to locally check steamline radiation.</p> <p><u>IF</u> abnormal radiation levels detected in any S/G, <u>THEN</u> go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.</p>

EOP: E-1	TITLE: LOSS OF REACTOR OR SECONDARY COOLANT	REV: 29 PAGE 5 of 23
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF ANY PRZR PORV OPENS BECAUSE OF HIGH PRZR PRESSURE, IT SHOULD BE CLOSED AFTER PRESSURE DECREASES TO LESS THAN 2335 PSIG (REFER TO STEP 5B).</p> <p>*****</p>		
* 5	Monitor PRZR PORV Status:	
	a. Power to PORV block valves - AVAILABLE	a. Restore power to block valves unless block valve was closed to isolate an open PORV: <ul style="list-style-type: none"> • MOV-515, MCC D position 6C • MOV-516, MCC C position 6C
	b. PORVs - CLOSED	b. <u>IF</u> PRZR pressure less than 2335 psig, <u>THEN</u> manually close PORVs. <p><u>IF</u> any PORV can <u>NOT</u> be closed, <u>THEN</u> manually close its block valve. <u>IF</u> block valve can <u>NOT</u> be closed, <u>THEN</u> dispatch A0 to locally check breaker.</p> <ul style="list-style-type: none"> • MOV-515, MCC D position 6C • MOV-516, MCC C position 6C
	c. Block valves - AT LEAST ONE OPEN	c. Open one block valve unless it was closed to isolate an open PORV.

EOP: E-1	TITLE: LOSS OF REACTOR OR SECONDARY COOLANT	REV: 29 PAGE 6 of 23
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)</p> <p>*****</p>		
6	Reset SI	
7	Reset CI:	
	<p>a. Depress CI reset pushbutton</p> <p>b. Verify annunciator A-26. CNMT ISOLATION - EXTINGUISHED</p>	<p>b. Perform the following:</p> <p>1) Reset SI.</p> <p>2) Depress CI reset pushbutton.</p>

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

8 Verify Adequate SW Flow:

- a. Check at least two SW pumps -
RUNNING

- a. Manually start SW pumps as power
supply permits (257 kw each).

IF less than two SW pumps
running, THEN perform the
following:

1) Ensure SW isolation.

2) IF NO SW pumps running, THEN
perform the following:

a) Pull stop any D/G that is
NOT supplied by alternate
cooling. AND immediately
depress associated VOLTAGE
SHUTDOWN pushbutton.

b) Refer to ATT-2.4.
ATTACHMENT NO SW PUMPS.

3) IF only one SW pump running.
THEN refer to AP-SW.2, LOSS
OF SERVICE WATER.

- b. Dispatch AO to establish normal
shutdown alignment (Refer to
ATT-17.0, ATTACHMENT SD-1)

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

9 Establish IA to CNMT:

- a. Verify non-safeguards busses energized from offsite power

o Bus 13 normal feed - CLOSED

-OR-

o Bus 15 normal feed - CLOSED

- b. Check SW pumps - AT LEAST TWO PUMPS RUNNING

- a. Perform the following:

- 1) Close non-safeguards bus tie breakers:

- 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).

IF NOT, THEN perform the following:

- o Start diesel air compressor (refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR

-OR-

- o Evaluate if CNMT RECIRC fans should be stopped (Refer to ATT-4.0, ATTACHMENT CNMT RECIRC FANS).

- 3) WHEN bus 15 restored, THEN reset control room lighting.

- b. Perform the following:

- 1) Restore IA using service air compressor OR diesel air compressor (refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR)

- 2) Go to step 9d.

This Step continued on the next page.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

(Step 9 continued from previous page)

c. Verify turbine building SW isolation valves - OPEN

- MOV-4613 and MOV-4670
- MOV-4614 and MOV-4664

d. Verify adequate air compressors - RUNNING

e. Check IA supply:

- o Pressure - GREATER THAN 60 PSIG
- o Pressure - STABLE OR INCREASING

f. Reset both trains of XY relays for IA to CNMT AOV-5392

g. Verify IA to CNMT AOV-5392 - OPEN

c. Perform the following:

- 1) Manually align valves.
- 2) Dispatch A0 to locally reset compressors as necessary.

d. Manually start electric air compressors as power supply permits (75 kw each). IF electric air compressors can NOT be started, THEN start diesel air compressor (refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR).

e. Perform the following:

- 1) Continue attempts to restore IA (Refer to AP-IA.1, LOSS OF INSTRUMENT AIR).
- 2) Continue with Step 10. WHEN IA restored, THEN do Steps 9f and g.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	<p>Check Normal Power Available To Charging Pumps:</p> <ul style="list-style-type: none"> o Bus 14 normal feed breaker - CLOSED o Bus 16 normal feed breaker - CLOSED 	<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 ATT-4.0. ATTACHMENT CNMT RECIRC FANS).</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	Check If Charging Flow Has Been Established:	
	a. Charging pumps - ANY RUNNING	a. Perform the following: <ul 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 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: <ul style="list-style-type: none"> o LCV-112B - OPEN o LCV-112C - CLOSED 	b. Manually align valves as necessary. <p><u>IF</u> LCV-112B can <u>NOT</u> be opened, <u>THEN</u> dispatch AO to locally open V-358, manual charging pump suction from RWST (charging pump room).</p> <p><u>IF</u> LCV-112C can <u>NOT</u> be closed, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> 1) Direct AO to locally open V-358, manual charging pump suction from RWST (charging pump room). 2) Verify charging pump A <u>NOT</u> running and place in PULL STOP. 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 (charging pump room).
	c. Start charging pumps as necessary and adjust charging flow to restore PRZR level	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12	Check If SI Should Be Terminated:	
a.	RCS pressure:	a. Do <u>NOT</u> stop SI pumps. Go to Step 13.
	o Pressure - GREATER THAN 1625 psig [1825 psig adverse CNMT]	
	o Pressure - STABLE OR INCREASING	
b.	RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIG-1.0. FIGURE MIN SUBCOOLING	b. Do <u>NOT</u> stop SI pumps. Go to Step 13.
c.	Secondary heat sink:	c. <u>IF</u> neither condition satisfied. <u>THEN</u> do <u>NOT</u> stop SI pumps. Go to Step 13.
	o Total feed flow to intact S/Gs - GREATER THAN 200 GPM	
	-OR-	
	o Narrow range level in at least one intact S/G - GREATER THAN 5% [25% adverse CNMT]	
d.	PRZR level - GREATER THAN 5% [30% adverse CNMT]	d. Do <u>NOT</u> stop SI pumps. Perform the following:
		1) <u>IF</u> normal PRZR spray available. <u>THEN</u> try to stabilize RCS pressure with PRZR spray.
		2) Go to Step 13.
e.	Go to ES-1.1. SI TERMINATION. Step 1.	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
*13	Monitor If CNMT Spray Should Be Stopped:	
a.	CNMT spray pumps - RUNNING	a. Go to Step 14.
b.	Check the following:	b. Continue with Step 14. <u>WHEN</u> BOTH conditions satisfied. <u>THEN</u> do Steps 13c through f.
	o CNMT pressure - LESS THAN 4 PSIG	
	o Sodium hydroxide tank level - LESS THAN 55%	
c.	Reset CNMT spray	
d.	Check NaOH flow (FI-930) - NO FLOW	d. Place NaOH tank outlet valve switches to CLOSE.
		• AOV-836A • AOV-836B
e.	Stop CNMT spray pumps and place in AUTO	
f.	Close CNMT spray pump discharge valves	
	• MOV-860A • MOV-860B • MOV-860C • MOV-860D	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>o IF OFFSITE POWER IS LOST AFTER SI RESET. THEN MANUAL ACTION MAY BE REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LOSS OF OFFSITE POWER)</p> <p>o RCS PRESSURE SHOULD BE MONITORED. IF RCS PRESSURE DECREASES IN AN UNCONTROLLED MANNER TO LESS THAN 250 PSIG [465 PSIG ADVERSE CNMT]. THEN THE RHR PUMPS MUST BE MANUALLY RESTARTED TO SUPPLY WATER TO THE RCS.</p> <p>*****</p>		
*14	Monitor If RHR Pumps Should Be Stopped:	
	a. RHR pumps - ANY RUNNING IN INJECTION MODE	a. Go to Step 15.
	b. Check RCS pressure:	
	1) Pressure - GREATER THAN 250 psig [465 psig adverse CNMT]	1) Go to Step 16.
	2) RCS pressure - STABLE OR INCREASING	2) Go to Step 15.
	c. Stop RHR pumps and place in AUTO	
15	Check RCS And S/G Pressures	
	a. Check pressures in both S/Gs - STABLE OR INCREASING	a. Return to Step 1.
	b. Check pressures in both S/Gs - GREATER THAN 110 PSIG	b. Monitor RCS pressure. <u>IF</u> RCS pressure does <u>NOT</u> increase after faulted S/G dryout. <u>THEN</u> go to Step 16.
	c. Check RCS pressure - STABLE OR DECREASING	c. Return to Step 1.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	<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 ATT-8.1. ATTACHMENT D/G STOP)</p>	<p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) Close non-safeguards bus tie breakers as necessary: <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) Start HP seal oil backup pump. 6) Ensure D/G load within limits. 7) <u>WHEN</u> bus 15 restored, <u>THEN</u> reset control room lighting breaker. 8) Refer to ATT-8.4. ATTACHMENT SI/UV for other equipment lost with loss of offsite power. 9) Try to restore offsite power (Refer to ER-ELEC.1. RESTORATION OF OFFSITE POWER).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	Check If RHR Should Be Throttled:	
a.	Check RWST level - LESS THAN 70%	a. Continue with Step 18. <u>WHEN</u> RWST level less than 70%. <u>THEN</u> perform step 17b.
b.	Perform ATT-14.7. ATTACHMENT ADJUST RHR FLOW to locally adjust HCV-624 and HCV-625.	b. Manually adjust RHR Hx outlet valves equally to reduce flow to less than 1500 gpm per operating pump <ul style="list-style-type: none"> • RHR Hx A, HCV-625 • RHR Hx B, HCV-624

EOP: E-1	TITLE: LOSS OF REACTOR OR SECONDARY COOLANT	REV: 29 PAGE 17 of 23
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

18 Verify CNMT Sump
Recirculation Capability:

a. Check RHR and CCW systems:

- 1) At least one recirculation flowpath, including required power supplies, from Sump B and back to RCS available per ATT-14.5, ATTACHMENT RHR SYSTEM
- 2) At least one CCW pump available.
- 3) At least one CCW Hx available.

b. Check SW pumps - AT LEAST 2 PUMPS AVAILABLE

c. Dispatch AO to check AUX BLDG sub-basement for RHR system leakage (AUX BLDG sub-basement key may be required)

a. IF at least one flowpath of cold leg recirculation capability can NOT be verified, THEN go to ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION. Step 1.

b. Attempt to restore at least 2 SW pumps to operable.

IF only 1 SW pump available, THEN refer to ATT-2.1, ATTACHMENT MIN SW for additional guidance.

IF no SW pumps are available, THEN perform the following:

- 1) Pull stop any D/G that is NOT supplied by alternate cooling. AND immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- 2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.
- 3) Go to ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION.

c. IF any RHR pump seal leakage indicated, THEN leakage should be evaluated and isolated if necessary.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19 Evaluate Plant Status:		
a. Check auxiliary building radiation - NORMAL	<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) • LTDN line monitor (R-9) • CHG pump room (R-4) 	<p>a. Notify RP and refer to appropriate AR-RMS procedure.</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>
b. Direct RP to obtain following samples:	<ul style="list-style-type: none"> • RCS boron • RCS activity • CNMT hydrogen • CNMT sump boron • CNMT Sump pH 	
c. 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) Perform the following: <ul style="list-style-type: none"> o Dispatch A0 to reset UV relays at MCC C and MCC D. o Manually start one fan as power supply permits (23 kw)

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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20 Check If RCS Cooldown And
Depressurization Is Required:

a. RCS pressure - GREATER THAN
250 psig [465 psig adverse CNMT]

a. IF RHR pump flow greater than
475 gpm. THEN go to Step 21.

b. Go to ES-1.2, POST LOCA COOLDOWN
AND DEPRESSURIZATION, Step 1

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: IF D/Gs supplying emergency AC busses. THEN non-essential loads may be shed as necessary to allow start of additional SW pumps.

21 Establish Adequate SW Flow:

a. Verify at least two SW pumps -
RUNNING

a. Start additional SW pumps as power supply permits (257 kw each). IF only 1 SW pump operable. THEN perform the following:

1) Ensure ATT-2.1. ATTACHMENT MIN SW is in progress.

2) Go to Step 22.

IF no SW pumps are available, THEN perform the following:

1) Pull stop any D/G that is NOT supplied by alternate cooling. AND immediately depress associated VOLTAGE SHUTDOWN pushbutton.

2) Refer to ATT-2.4. ATTACHMENT NO SW PUMPS.

3) Go to ECA-1.1. LOSS OF EMERGENCY COOLANT RECIRCULATION.

b. Verify AUX BLDG SW isolation valves - OPEN

- MOV-4615 and MOV-4734
- MOV-4616 and MOV-4735

b. Manually align valves.

c. Dispatch AO to check BOTH CCW Hx - IN SERVICE

c. Locally place BOTH CCW Hxs in service

This Step continued on the next page.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

(Step 21 continued from previous page)

- d. Determine required SW flow to CCW HXs per table:

SW DISCHARGE ALIGNMENT	CCW HXs IN SERVICE	REQUIRED SW FLOW
Normal	2	Total of 5000 - 6000 gpm equally divided to both HXs
Normal	1	5000 - 6000 gpm to in-service HX
Alternate	2	30-33" d/p across each HX
Alternate	1	95-100" d/p across in-service HX

- e. Direct A0 to adjust SW flow to required value

- o IF on normal SW discharge:

- V-4619. CCW HX A
- V-4620. CCW HX B

-OR-

- o IF on alternate SW discharge:

- V-4619C. CCW HX A
- V-4620B. CCW HX B

- e. IF the required SW flow can NOT be obtained. THEN perform the following:

- 1) Isolate SW to screenhouse and air conditioning headers.

- MOV-4609/MOV-4780 - AT LEAST ONE CLOSED
- MOV-4663/MOV-4733 - AT LEAST ONE CLOSED

- 2) Direct A0 to locally adjust SW flow to required value.

- 3) Direct A0 to locally isolate SW return from SFP Hxs:

- SFP Hx A (V-4622) (for alternate SW discharge use V-4622A)
- SFP Hx B (V-8689)

- 4) Verify SW portions of ATT-17.0. ATTACHMENT SD-1 are complete.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

22 Establish CCW flow to RHR Hxs:

a. Check both CCW pumps - RUNNING

a. Perform the following:

- 1) Start CCW pumps as power supply permits (122 kw each)
- 2) IF both CCW pumps are running. THEN go to step 22b.
- 3) IF only one CCW pump is running. THEN perform the following:

a) Direct AO to isolate CCW to boric acid evaporator

o Close V-760A

b) Manually open CCW MOV to only one operable RHR Loop

o Open MOV-738A

-OR-

o Open MOV-738B

c) Go to step 23.

b. Manually open CCW valves to RHR Hxs

b. Dispatch AO to locally open valves.

- MOV-738A
- MOV-738B

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

23 Check If Transfer To Cold Leg
Recirculation Is Required:

a. RWST level - LESS THAN 28%

a. Return to Step 17.

b. Go to ES-1.3, TRANSFER TO COLD
LEG RECIRCULATION, Step 1

-END-

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E-1 APPENDIX LIST

TITLE

- 1) RED PATH SUMMARY
- 2) FIGURE MIN SUBCOOLING (FIG-1.0)
- 3) ATTACHMENT CNMT RECIRC FANS (ATT-4.0)
- 4) ATTACHMENT D/G STOP (ATT-8.1)
- 5) ATTACHMENT SD-1 (ATT-17.0)
- 6) ATTACHMENT SI/UV (ATT-8.4)
- 7) ATTACHMENT MIN SW (ATT-2.1)
- 8) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 9) ATTACHMENT LOSS OF OFFSITE POWER (ATT-8.5)
- 10) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2)
- 11) ATTACHMENT RHR SYSTEM (ATT-14.5)
- 12) ATTACHMENT ADJUST RHR FLOW (ATT-14.7)
- 13) FOLDOUT

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FOLDOUT PAGE

1. RCP TRIP CRITERIA

IF BOTH conditions listed below occur, THEN trip both RCPs:

- a. SI pumps - AT LEAST TWO RUNNING
- b. RCS pressure minus maximum S/G pressure - LESS THAN 175 PSIG [400 psig adverse CNMT]

2. LOSS OF SW CRITERIA

IF no SW pumps are available, THEN perform the following:

- a. Pull stop any D/G that is NOT supplied by alternate cooling, AND immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

3. SI REINITIATION CRITERIA

IF EITHER condition listed below occurs, THEN manually start SI pumps as necessary:

- o RCS subcooling based on core exit T/Cs - LESS THAN 0° F USING FIGURE MIN SUBCOOLING
- OR -
- o PRZR level - CHARGING CAN NOT CONTROL LEVEL GREATER THAN 5% [30% adverse CNMT]

4. SI TERMINATION CRITERIA

IF ALL conditions listed below occur, THEN go to ES-1.1, SI TERMINATION, Step 1:

- a. RCS subcooling based on core exit T/Cs - GREATER THAN 0° F USING FIGURE MIN SUBCOOLING
- b. Total feed flow to intact S/Gs - GREATER THAN 200 GPM
- OR -
Narrow range level in at least one intact S/G - GREATER THAN 5% [25% adverse CNMT]
- c. RCS pressure:
 - o GREATER THAN 1625 PSIG [1825 psig adverse CNMT]
 - o STABLE OR INCREASING
- d. PRZR level - GREATER THAN 5% [30% adverse CNMT]

5. SECONDARY INTEGRITY CRITERIA

IF any S/G pressure is decreasing in an uncontrolled manner or is completely depressurized AND has not been isolated, THEN go to E-2, FAULTED S/G ISOLATION, Step 1.

6. E-3 TRANSITION CRITERIA

IF any S/G level increased in an uncontrolled manner or any S/G has abnormal radiation, THEN manually start SI pumps as necessary AND go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.

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7. COLD LEG RECIRCULATION SWITCHOVER CRITERION

IF RWST level decreases to less than 28%, THEN go to ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 1.

8. AFW SUPPLY SWITCHOVER CRITERION

IF CST level decreases to less than 5 feet, THEN switch to alternate AFW water supply (Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).