

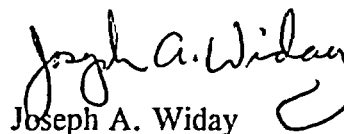
October 10, 2003

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-5.0, Rev 6	ES-0.1, Rev 22
E Index	ATT-17.0, Rev 16	FR-H.1, Rev 30
ECA Index	FIG-2.0, Rev 4	FR-H.2, Rev 6
ES Index	FIG-14.0, Rev 2	FR-H.3, Rev 7
FIG Index	E-0, Rev 35	FR-S.1, Rev 16
FR Index	ECA-0.0, Rev 27	FR-Z.1, Rev 8

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Ginna Nuclear Power Plant
PROCEDURE INDEX

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INPUT PARAMETERS: TYPE: PRE

STATUS VALUE(S): EF

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	035	10/10/2003	03/24/2003	03/24/2008	EF
E-1	LOSS OF REACTOR OR SECONDARY COOLANT	028	05/30/2003	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	034	05/30/2003	03/24/2003	03/24/2008	EF

PRE TOTAL: 4

GRAND TOTAL: 4

23

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INPUT PARAMETERS: TYPE: PRECA

STATUS VALUE(S): EF

5 YEARS ONLY:

PRECA EMERGENCY CONTINGENCY ACTIONS PROC

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
ECA-0.0	LOSS OF ALL AC POWER	027	10/10/2003	03/24/2003	03/24/2008	EF
ECA-0.1	LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED	022	05/30/2003	03/24/2003	03/24/2008	EF
ECA-0.2	LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED	015	05/30/2003	03/24/2003	03/24/2008	EF
ECA-1.1	LOSS OF EMERGENCY COOLANT RECIRCULATION	022	05/30/2003	03/24/2003	03/24/2008	EF
ECA-1.2	LOCA OUTSIDE CONTAINMENT	006	05/30/2003	03/24/2003	03/24/2008	EF
ECA-2.1	UNCONTROLLED DEPRESSURIZATION OF BOTH STEAM GENERATORS	026	05/30/2003	03/24/2003	03/24/2008	EF
ECA-3.1	SGTR WITH LOSS OF REACTOR COOLANT SUBCOOLED RECOVERY DESIRED	026	05/30/2003	03/24/2003	03/24/2008	EF
ECA-3.2	SGTR WITH LOSS OF REACTOR COOLANT SATURATED RECOVERY DESIRED	027	05/30/2003	03/24/2003	03/24/2008	EF
ECA-3.3	SGTR WITHOUT PRESSURIZER PRESSURE CONTROL	029	05/30/2003	03/24/2003	03/24/2008	EF

PRECA TOTAL: 9

GRAND TOTAL: 9

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INPUT PARAMETERS: TYPE: PRES

STATUS VALUE(S): EF

5 YEARS ONLY:

PRES EQUIPMENT SUB-PROCEDURE

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
ES-0.0	REDIAGNOSIS	010	05/01/1998	03/24/2003	03/24/2008	EF
ES-0.1	REACTOR TRIP RESPONSE	022	10/10/2003	03/24/2003	03/24/2008	EF
ES-0.2	NATURAL CIRCULATION COOLDOWN	013	05/30/2003	03/24/2003	03/24/2008	EF
ES-0.3	NATURAL CIRCULATION COOLDOWN WITH STEAM VOID IN VESSEL	009	05/30/2003	03/24/2003	03/24/2008	EF
ES-1.1	SI TERMINATION	025	05/30/2003	03/24/2003	03/24/2008	EF
ES-1.2	POST LOCA COOLDOWN AND DEPRESSURIZATION	026	05/30/2003	03/24/2003	03/24/2008	EF
ES-1.3	TRANSFER TO COLD LEG RECIRCULATION	036	05/30/2003	03/24/2003	03/24/2008	EF
ES-3.1	POST-SGTR COOLDOWN USING BACKFILL	015	05/30/2003	03/24/2003	03/24/2008	EF
ES-3.2	POST-SGTR COOLDOWN USING BLOWDOWN	016	05/30/2003	03/24/2003	03/24/2008	EF
ES-3.3	POST-SGTR COOLDOWN USING STEAM DUMP	016	05/30/2003	03/24/2003	03/24/2008	EF

PRES TOTAL: 10

GRAND TOTAL: 10

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INPUT PARAMETERS: TYPE: PRFR

STATUS VALUE(S): EF, QU

5 YEARS ONLY:

PRFR FUNCTIONAL RESTORATION GUIDELINE PROC

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
FR-C.1	RESPONSE TO INADEQUATE CORE COOLING	020	05/30/2003	03/24/2003	03/24/2008	EF
FR-C.2	RESPONSE TO DEGRADED CORE COOLING	017	05/30/2003	03/24/2003	03/24/2008	EF
FR-C.3	RESPONSE TO SATURATED CORE COOLING	009	05/30/2003	03/24/2003	03/24/2008	EF
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	030	10/10/2003	03/24/2003	03/24/2008	EF
FR-H.2	RESPONSE TO STEAM GENERATOR OVERPRESSURE	006	10/10/2003	03/24/2003	03/24/2008	EF
FR-H.3	RESPONSE TO STEAM GENERATOR HIGH LEVEL	007	10/10/2003	03/24/2003	03/24/2008	EF
FR-H.4	RESPONSE TO LOSS OF NORMAL STEAM RELEASE CAPABILITIES	005	05/30/2003	03/24/2003	03/24/2008	EF
FR-H.5	RESPONSE TO STEAM GENERATOR LOW LEVEL	009	05/30/2003	03/24/2003	03/24/2008	EF
FR-I.1	RESPONSE TO HIGH PRESSURIZER LEVEL	016	05/30/2003	03/24/2003	03/24/2008	EF
FR-I.2	RESPONSE TO LOW PRESSURIZER LEVEL	011	05/30/2003	03/24/2003	03/24/2008	EF
FR-I.3	RESPONSE TO VOIDS IN REACTOR VESSEL	018	05/30/2003	03/24/2003	03/24/2008	EF
FR-P.1	RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION	026	05/30/2003	03/24/2003	03/24/2008	EF
FR-P.2	RESPONSE TO ANTICIPATED PRESSURIZED THERMAL SHOCK CONDITION	008	05/30/2003	03/24/2003	03/24/2008	EF
FR-S.1	RESPONSE TO REACTOR RESTART/ATWS	016	10/10/2003	03/24/2003	03/24/2008	EF
FR-S.2	RESPONSE TO LOSS OF CORE SHUTDOWN	009	05/30/2003	03/24/2003	03/24/2008	EF
FR-Z.1	RESPONSE TO HIGH CONTAINMENT PRESSURE	008	10/10/2003	03/24/2003	03/24/2008	EF
FR-Z.2	RESPONSE TO CONTAINMENT FLOODING	005	05/30/2003	03/24/2003	03/24/2008	EF
FR-Z.3	RESPONSE TO HIGH CONTAINMENT RADIATION LEVEL	005	05/30/2003	03/24/2003	03/24/2008	EF

PRFR TOTAL: 18

GRAND TOTAL: 18

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INPUT PARAMETERS: TYPE: PRFIG

STATUS VALUE(S): EF, QU

5 YEARS ONLY:

PRFIG EOP FIGURE PROCEDURES

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
FIG-1.0	FIGURE MIN SUBCOOLING	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-2.0	FIGURE SDM	004	10/10/2003	03/27/2003	03/27/2008	EF
FIG-3.0	FIGURE NAT CIRC C/D WITH SHROUD FANS	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-3.1	FIGURE NAT CIRC C/D WITHOUT SHROUD FANS	001	02/08/2001	03/27/2003	03/27/2008	EF
FIG-3.2	FIGURE NC C/D WITH VOID IN UPPER HEAD	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-4.0	FIGURE RCP SEAL LEAKOFF	002	02/28/2001	03/27/2003	03/27/2008	EF
FIG-5.0	FIGURE RHR INJECTION	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-6.0	FIGURE MIN RCS INJECTION	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-7.0	FIGURE INTACT S/G PRESSURE	001	05/18/1998	03/27/2003	03/27/2008	EF
FIG-8.0	FIGURE TSAT	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-9.0	FIGURE TECH SPEC C/D	001	02/15/2001	03/27/2003	03/27/2008	EF
FIG-9.1	FIGURE C/D LIMITS	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-10.0	FIGURE LIMIT A	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-11.0	FIGURE SOAK LIMITS	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-12.0	FIGURE CNMT HYDROGEN	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-13.0	FIGURE BACK PRESSURE	000	05/01/1998	03/27/2003	03/27/2008	EF
FIG-14.0	FIGURE IA ISOL	002	10/10/2003	03/27/2003	03/27/2008	EF

PRFIG TOTAL: 17

GRAND TOTAL: 17

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INPUT PARAMETERS: TYPE: PRATT
PRATT EOP ATTACHMENTS

STATUS VALUE(S): EF

5 YEARS ONLY:

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	006	03/06/2002	01/06/1999	01/06/2004	EF
ATT-3.1	ATTACHMENT CNMT CLOSURE	004	03/06/2002	01/25/1999	01/25/2004	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	01/14/1999	01/14/2004	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	006	03/22/1999	01/14/1999	01/14/2004	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 SIUV.	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	008	03/06/2002	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

STATUS VALUE(S): EF

5 YEARS ONLY:

PRATT EOP ATTACHMENTS

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	01/06/1999	01/06/2004	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	01/14/1999	01/14/2004	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	002	04/09/2002	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	02/26/1999	02/26/2004	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: 50

GRAND TOTAL: 50

EOP: ATT-5.0	TITLE: ATTACHMENT COND TO S/G	REV: 6 PAGE 1 of 1
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Responsible Manager B. S. Williams Date 10-10-2003

FLOW THROUGH MFW PUMP B

1. Depress MANUAL pushbuttons for BOTH MFW flow control valves and BOTH bypass valve controllers AND ensure demand at ZERO.
2. Dispatch AO to MCC B.
3. At main control board place MFW Pump B discharge valve switch to open (MOV-3976).
4. WHEN MFW pump B discharge valve indicates open, THEN direct AO to open breaker for S/G FWP DISCH VLV 1B, MCC B position 8G.
5. Ensure condensate trim valve controller demand at zero.
6. Ensure at least two condensate pumps running.

FLOW THROUGH MFW PUMP A

1. Depress MANUAL pushbuttons for BOTH MFW flow control valves and BOTH bypass valve controllers AND ensure demand at ZERO.
2. Dispatch AO to MCC A.
3. At main control board, place MFW Pump A discharge valve switch to OPEN (MOV-3977).
4. WHEN MFW pump A discharge valve indicates open, THEN direct AO to open breaker S/G FWP DISCH VLV 1A, MCC A position 9J.
5. Ensure condensate trim valve controller demand at zero.
6. Ensure at least two condensate pumps running.

EOP: ATT-17.0	TITLE: ATTACHMENT SD-1	REV: 16 PAGE 1 of 3
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Responsible Manager Reidlin Date 10-10-2003

Perform the following local actions to complete normal secondary system shutdown:

- o Close reheater 4th pass temperature control valves:
 - o V-2432 (SW corner 1A MSR)
 - o V-2433 (SW corner 1B MSR)
 - o V-2434 (SW corner 2A MSR)
 - o V-2435 (SW corner 2B MSR)
- o Close reheater steam chain valves:
 - o V-3550 (SW of 1B MSR)
 - o V-3551 (SW of 1B MSR)
 - o V-3552 (NW of 1A MSR)
 - o V-3553 (NW of 1A MSR)
- o Open Reheater steamline vents (SW corner of condenser, middle floor):
 - o V-8500
 - o V-8501
 - o V-8502
 - o V-8504
 - o V-8505
- o Open Reheater steamline vents (SW corner of condenser, above walkway):
 - o V-8506
 - o V-8507
 - o V-8508
 - o V-8509
- o Locally close flange heating isolation valves:
 - o MOV-3601A (TB Middle Lvl East of TURB Lube Oil Reservoir)
 - o MOV-3602A

NOTE: IF either S/G pressure is LESS THAN condensate header pressure, THEN manual isolation of the MFW regulating and bypass valves should be considered before aligning for cooldown recirculation.

- o Open the following valves to align for condensate feed system cooldown RECIRC:
 - o V-3982B (at #5 heater outlet header)
 - o V-3983B (at #5 heater outlet header)
 - o V-4363 (at #5 heater outlet header)
 - o V-4365 (by MFW regulating valves)
 - o V-4361 (southwest corner of condenser, middle floor)
 - o V-3976A MFP A discharge valve bypass valve
 - o V-3977A MFP B discharge valve bypass valve
- o Secure all 5 secondary chemical addition pumps on TURB BLDG middle floor by #5 heaters.

EOP: ATT-17.0	TITLE: ATTACHMENT SD-1	REV: 16 PAGE 2 of 3
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- o Secure all 3 ammonia pumps, TURB BLDG basement by MCC A.
- o Secure the Ethanolamine (ETA) injection pump, TURB BLDG basement by turbine lube oil purifier.
- o Isolate SW from the following coolers:
 - o MFW Pump Oil Coolers (MFW pump room)
 - o V-4703
 - o V-4704
 - o Exciter Air Cooler:
 - o V-4679B (chain valve next to condensate transfer pump)
 - o Bus Duct Air Cooler (TURB BLDG basement East of bus duct cooler)
 - o V-4674
 - o V-4674C (mini bypass around V-4674)
- o Throttle SW as necessary from following coolers:
 - o Generator Seal Oil Unit Coolers (H2 side and air side):
 - o V-4676A (mini bypass disch valve inside seal oil enclosure Bldg. NW corner)
 - o V-4677A (mini bypass disch valve inside seal oil enclosure Bldg. NW corner)
 - o Main Lube Oil Coolers (SW corner of Turb Oil Reservoir)
 - o V-4691
 - o V-4692
- o IF HDT Pump A seal injection primary filter (FGS01A) is in service, THEN perform the following to place the HDT Pump A seal injection bypass line (and filter FGS02A) in service and isolate the primary filter as follows (north side of HDT Pump A):
 1. Ensure closed HDT Pump A bypass filter outlet valve, V-3709C.
 2. Slowly open HDT Pump A bypass filter inlet isolation, V-3907F.
 3. Slowly throttle open HDT Pump A bypass filter outlet valve, V-3709C WHILE concurrently closing HDT Pump A primary filter outlet valve, V-3709B to maintain approximately 5 - 8 gpm seal injection flow (FAL-3799A).

EOP: ATT-17.0	TITLE: ATTACHMENT SD-1	REV: 16 PAGE 3 of 3
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- o IF HDT Pump B seal injection primary filter (FGS01B) is in service, THEN perform the following to place the HDT Pump B seal injection bypass line (and filter FGS02B) in service and isolate the primary filter as follows (south side of HDT Pump B):
 1. Ensure closed HDT Pump B bypass filter outlet valve, V-3710C.
 2. Slowly open HDT Pump B bypass filter inlet isolation, V-3910F.
 3. Slowly throttle open HDT Pump B bypass filter outlet valve, V-3710C WHILE concurrently closing HDT Pump B primary filter outlet valve, V-3710B to maintain approximately 5 - 8 gpm seal injection flow (FAL-3799B).
- o WHEN the turbine shaft stops, THEN notify Control Room. Control Room personnel will determine if adequate power (36 KW) available to start turning gear.
- o Transfer house heating steam to house heating boiler if necessary (refer to T-35H, NUCLEAR HOUSE HEATING STEAM TO BOILER STEAM SUPPLY CHANGE).
- o Align S/G blowdowns as follows:
 1. Secure blowdown to the condenser per T-14G, STEAM GENERATOR BLOWDOWN HEAT RECOVERY SYSTEM SHUTDOWN.
 2. Verify S/G releases are in effect. IF NOT, THEN ensure releases are in effect before performing the next step.
 3. Align Steam Generator Blowdown Flash Tank drains to the discharge canal per T-14F.1, SG BLOWDOWN ALIGNMENT TO DISCHARGE CANAL.
- o Restore MAKEUP to CSTs as directed by Control Room.

EOP: FIG-2.0	TITLE: FIGURE SDM	REV: 4 PAGE 1 of 1
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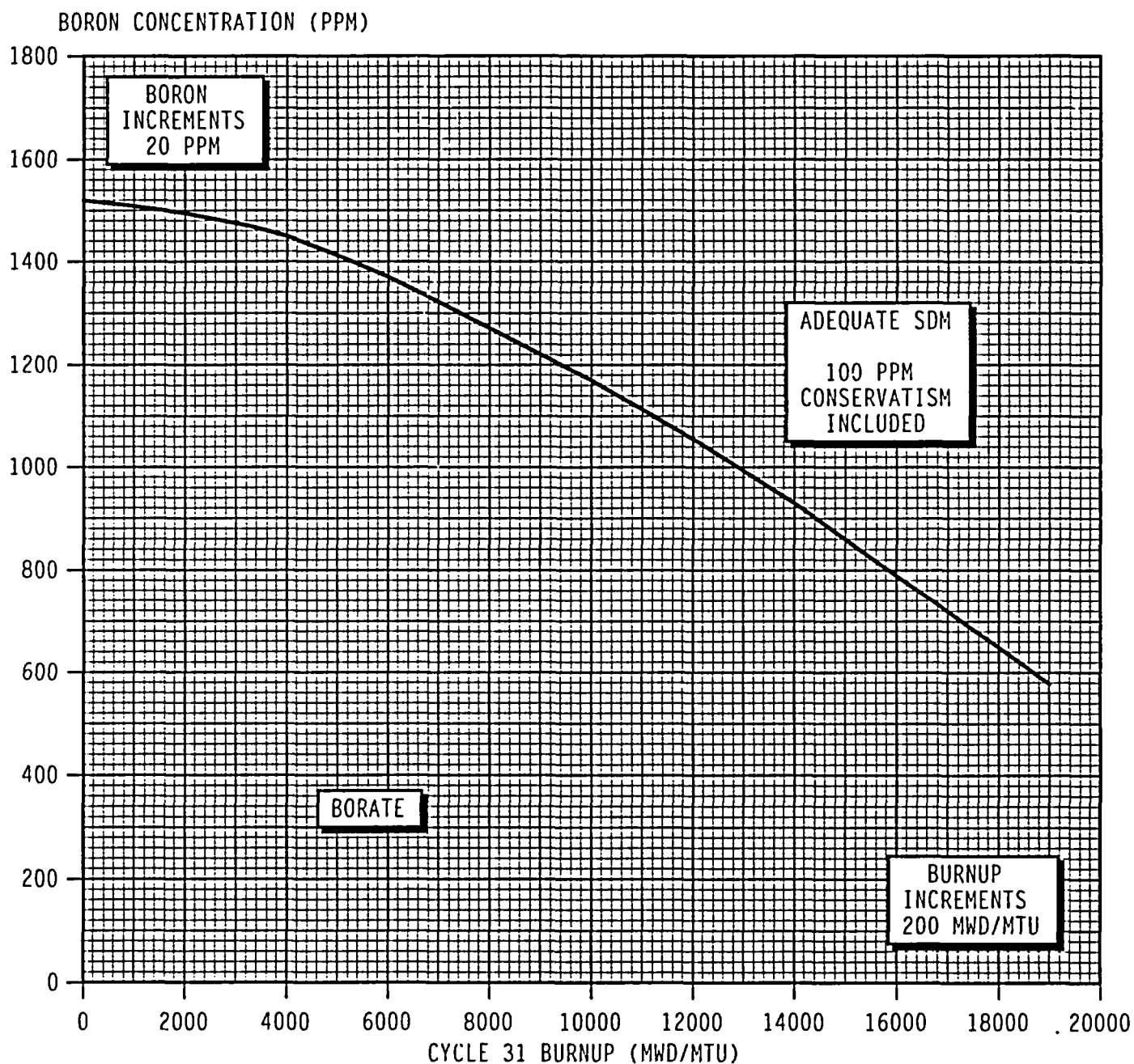
Responsible Manager

Residual

Date 10-10-2003

FIGURE SDM

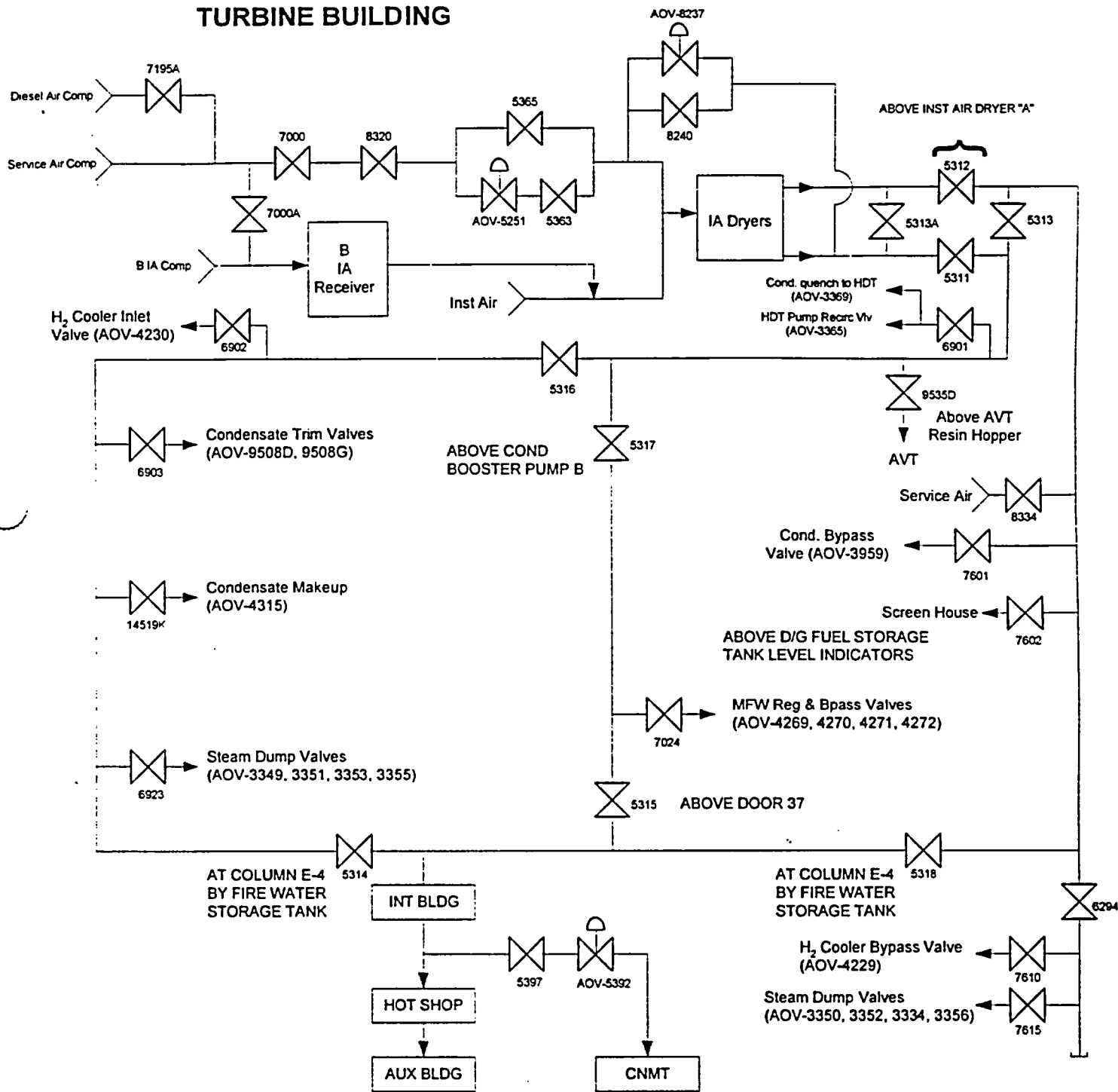
- NOTE:
- o Curve includes allowance for one stuck rod. Add 100 ppm for each additional stuck rod.
 - o To obtain core burnup, use PPCS point ID BURNUP.



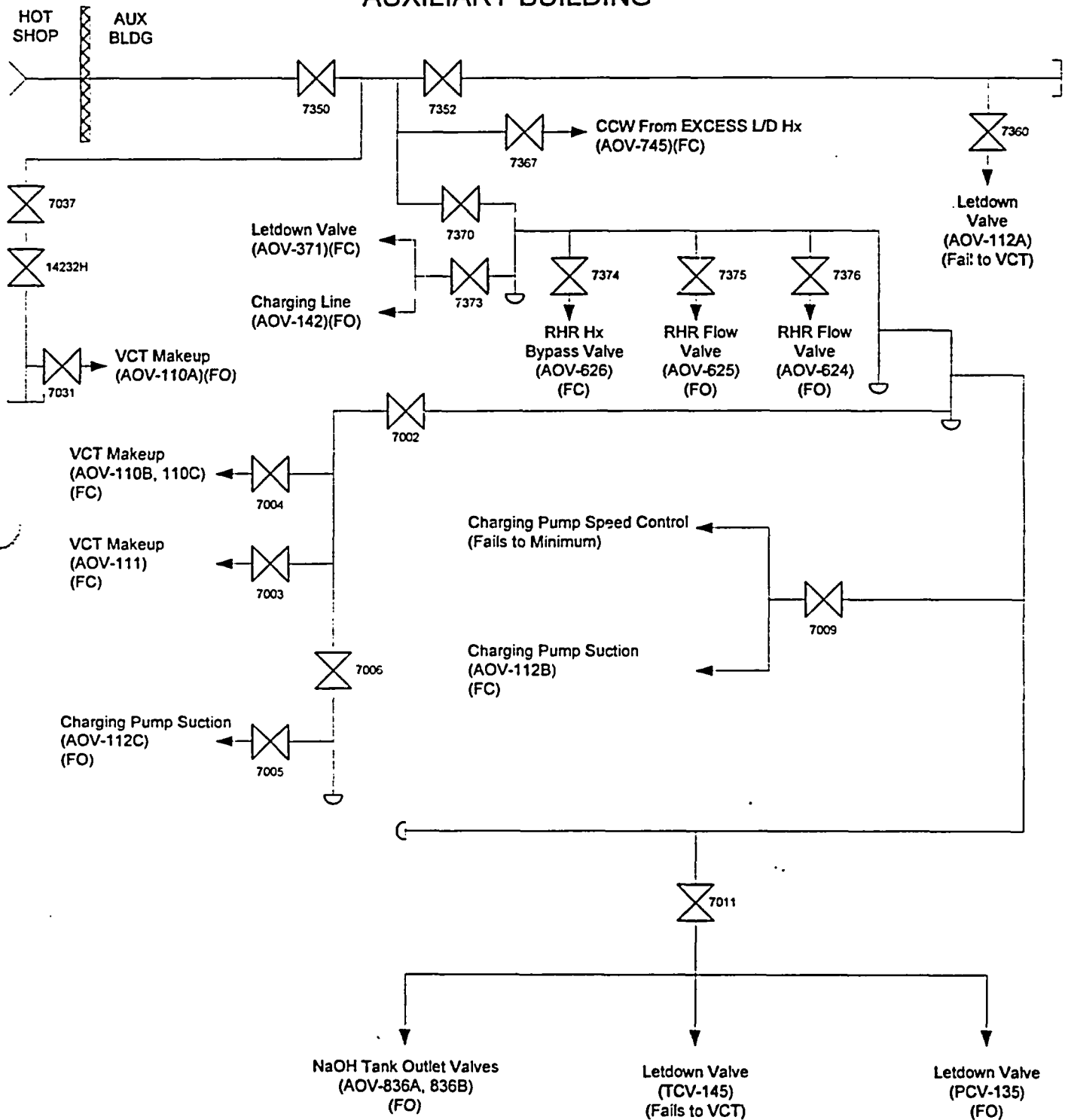
EOP: FIG-14.0	TITLE: FIGURE IA ISOL	REV: 2 PAGE 1 of 2
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Responsible Manager Richard M. [Signature] Date 10-10-2003

TURBINE BUILDING



AUXILIARY BUILDING




EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 35 PAGE 1 of 29
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23


RESPONSIBLE MANAGER

10-10-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: E-0	TITLE: REACTOR TRIP OR SAFETY INJECTION	REV: 35 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.

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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>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4	<p>Check if SI is Actuated:</p> <p>a. Any SI Annunciator - LIT</p>	<p>a. <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 SI 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> <p>b. SI sequencing - BOTH TRAINS STARTED.</p>
		<p>b. Manually actuate SI and CI.</p>

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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	Check If Main Steamlines Should Be Isolated:	
	a. Any MSIV - OPEN	a. Go to Step 9.
	b. Check CNMT pressure - LESS THAN 18 PSIG	b. Ensure BOTH MSIVs closed and go to Step 9.
	c. Check if ANY main steamlines should be isolated:	c. Go to Step 9.
	o Low Tavg (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)	d. Manually close valves.
9	Verify MFW Isolation:	
	a. MFW pumps - TRIPPED	a. Perform the following:.
		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.
	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	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
12	Verify CI And CVI:	
a.	CI and CVI annunciators - LIT <ul style="list-style-type: none"> Annunciator A-26, CNMT ISOLATION Annunciator A-25, CNMT VENTILATION ISOLATION 	a. Depress manual CI pushbutton.
b.	Verify CI and CVI valve status lights - BRIGHT	b. Manually close CI and CVI valves as required. <u>IF</u> valves can <u>NOT</u> be verified closed by MCB indication, <u>THEN</u> dispatch AO to locally close valves (Refer to ATT-3.0, ATTACHMENT CI/CVI for alternate isolation valves).
c.	CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT <ul style="list-style-type: none"> FCV-4561 FCV-4562 	c. Dispatch AO to locally fail open valves.
d.	Letdown orifice valves - CLOSED <ul style="list-style-type: none"> AOV-200A AOV-200B AOV-202 	d. Place affected valve switch to CLOSE. <u>IF</u> valves can <u>NOT</u> be verified closed by MCB indication, <u>THEN</u> close alternate isolations. (Refer to ATT-3.0, ATTACHMENT CI/CVI)

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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. Place switch for excess letdown AOV-310 to CLOSE	
	c. Place switch for CCW from excess letdown, AOV-745 to CLOSE	
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 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
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***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%
- c. Control feed flow to maintain
S/G narrow range level between
5% [25% adverse CNMT] and 50%.

- b. Secure AFW flow to any S/G with
level above 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 • MOV-852A • MOV-852B	a. Ensure at least one valve open.
	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. <u>IF</u> either pump <u>NOT</u> . running. <u>THEN</u> 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. <u>IF</u> either pump <u>NOT</u> . running. <u>THEN</u> 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 • MOV-871A • MOV-871B	e. Manually open valves as necessary.

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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	<p>Check If TDAFW Pump Can Be Stopped:</p> <ul style="list-style-type: none"> a. Both MDAFW pumps - RUNNING b. PULL STOP TDAFW pump steam supply valves <ul style="list-style-type: none"> • MOV-3504A • MOV-3505A 	<ul style="list-style-type: none"> a. Go to Step 20.
*20	<p>Monitor RCS Tavg - STABLE AT OR TRENDING TO 547°F</p>	<p><u>IF</u> temperature less than 547°F and decreasing, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Stop dumping steam. b. Ensure reheater steam supply valves are closed. 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. 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. e. <u>IF</u> cooldown continues, <u>THEN</u> close both MSIVs. <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>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 22. <u>WHEN</u> pressure less than 2260 psig. <u>THEN</u> do Step 21d.</p>
d.	Normal PRZR spray valves - CLOSED	<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>
	<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 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 23. b. Go to Step 23. c. Go to Step 23.
23	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 110 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.
24	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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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 	<p>Go to E-1. LOSS OF REACTOR OR SECONDARY COOLANT. Step 1.</p>

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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></p> <ul style="list-style-type: none"> o Conditions should be evaluated for Site Contingency Reporting (Refer to EPIP-1.0, GINNA STATION EVENT EVALUATION AND CLASSIFICATION). o The Critical Safety Function Red Path Summary is available in APPENDIX 1. 		
27	Initiate Monitoring of Critical Safety Function Status Trees	
*28	Monitor S/G Levels:	
	<ul style="list-style-type: none"> a. Narrow range level - GREATER THAN 5% b. Control feed flow to maintain narrow range level between 17% and 50% 	<ul style="list-style-type: none"> a. Maintain total feed flow greater than 200 gpm until narrow range level greater than 5% 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.
29	Check Secondary Radiation Levels - NORMAL	Go to E-3. STEAM GENERATOR TUBE RUPTURE, Step 1.
	<ul style="list-style-type: none"> o Steamline radiation monitor (R-31 and R-32) o Dispatch AO to locally check steamline radiation o Request RP sample S/Gs for activity 	

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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

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

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

IF NO SW pumps running. 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.

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

b. Dispatch A0 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	Establish IA to CNMT:	
a.	Verify non-safeguards busses energized from offsite power	a. Perform the following:
o	Bus 13 normal feed - CLOSED	1) Close non-safeguards bus tie breakers:
	-OR-	• Bus 13 to Bus 14 tie
o	Bus 15 normal feed - CLOSED	• 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:
		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) <u>WHEN</u> bus 15 is restored, <u>THEN</u> reset control room lighting.
b.	Check SW Pumps - AT LEAST TWO PUMPS RUNNING	b. Perform the following:
		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
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

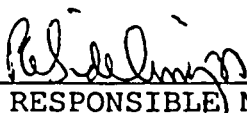
IF CST level decreases to less than 5 feet, THEN switch to
alternate AFW water supply (Refer to ER-AFW.1, ALTERNATE WATER
SUPPLY TO AFW PUMPS).

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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23


RESPONSIBLE MANAGER

10-10-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

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A. PURPOSE - This procedure provides actions to respond to a loss of all AC power.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure may be entered directly or from:
 - a. E-0, REACTOR TRIP OR SAFETY INJECTION, on the indication that both Bus 14 and Bus 16 are deenergized.
2. SYMPTOMS - Which indicate a loss of all AC power are:
 - a. Neither 480 volt AC emergency bus 14 nor 16 available.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>.....</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>DUE TO POTENTIALLY EXTREME ENVIRONMENTAL CONDITIONS, CAUTION SHOULD BE USED WHEN ENTERING THE INTERMEDIATE BLDG FOR LOCAL ACTIONS.</p> <p>.....</p> <p><u>NOTE:</u></p> <ul style="list-style-type: none"> o CSFSTs should be monitored for information only. FR procedures should not be implemented. o Local actions may require portable lighting and communication devices. 		
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.
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>

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: FOLDOUT page should be open and monitored periodically.

- * 3 Adjust S/G ARVs To Control
Tavg At Approximately 547°F

4 Stop Both RCPs

NOTE: 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 Check If RCS Is Isolated:

a. PRZR PORVs - CLOSED

a. IF PRZR pressure less than 2335 psig. THEN manually close PORVs.

b. Verify RCS isolation valves closed:

1) Place letdown orifice valve switches to CLOSE

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

2) Place letdown isolation valve switches to CLOSE

- AOV-371
- AOV-427

3) Place excess letdown isolation valve switch to CLOSE (AOV-310)

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Verify Adequate TDAFW Flow:	
a.	Verify TDAFW pump - RUNNING	<p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) Verify governor valve. V-3652. latched. <u>IF</u> governor valve tripped. <u>THEN</u> dispatch A0 to locally reset valve. 2) Manually or locally open at least one TDAFW pump steam supply valve. <ul style="list-style-type: none"> • MOV-3505A • MOV-3504A
b.	Verify TDAFW pump flow - GREATER THAN 200 GPM	<p>b. Verify proper TDAFW valve alignment:</p> <ol style="list-style-type: none"> 1) TDAFW pump discharge valve (MOV-3996) open. 2) Intact S/G TDAFW pump flow control valves open. <p><u>IF NOT.</u> <u>THEN</u> manually align valves as necessary.</p>

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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 A0 should increase surveillance of TDAFW pump until AC power is restored.</p>	
7	<p>Try To Restore Power to Any Train Of AC Emergency Busses:</p>	
	<p>a. Verify emergency D/G aligned for unit operation</p> <p> o Mode switch in UNIT</p> <p> o Voltage control selector in AUTO</p> <p>b. Check emergency D/Gs - BOTH D/G RUNNING</p>	<p>a. Manually align switches on rear of MCB.</p> <p>b. <u>WHEN</u> non-running D/G available for starting. <u>THEN</u> perform the following:</p> <p> 1) Depress D/G FIELD RESET pushbutton</p> <p> 2) Depress D/G RESET pushbutton</p> <p> 3) Start D/G</p> <p> 4) <u>IF</u> D/G starts. <u>THEN</u> go to Step 7c.</p> <p> 5) <u>IF</u> D/G will <u>NOT</u> start. <u>THEN</u> dispatch A0 to locally start emergency D/Gs.</p> <p> <u>IF</u> no emergency D/G available. <u>THEN</u> perform the following:</p> <p> a) Direct A0 to attempt to restore emergency D/G (Refer to ER-D/G.1. RESTORING D/G)</p> <p> b) Go to Step 8.</p>
This Step continued on the next page.		

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 7 continued from previous page)	
c.	Check D/G voltage and frequency	
	1) Voltage - APPROXIMATELY 480v	1) Adjust voltage control to restore voltage to approximately 480v
	2) Frequency - APPROXIMATELY 60 Hz	2) Adjust governor to restore frequency to approximately 60 Hz
d.	Verify adequate D/G cooling	d. Manually energize busses and start SW Pumps.
	o Bus 17 and/or Bus 18 - ENERGIZED	<u>IF</u> adequate cooling can <u>NOT</u> be supplied to a running D/G. <u>THEN</u> perform the following:
	o One SW Pump running for each running D/G	1) Pull stop the D/G <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
		2) Align alternate cooling (Refer to ER-D/G.2. ALTERNATE COOLING FOR EMERGENCY D/Gs).
e.	Verify at least one train of AC emergency busses - ENERGIZED	e. Manually energize AC emergency busses.
	• Bus 14 and Bus 18	<u>IF</u> Bus 14 <u>AND</u> Bus 16 are deenergized, <u>THEN</u> go to Step 8.
	• Bus 16 and Bus 17	
f.	Return to procedure and step in effect	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

- o WHEN POWER IS RESTORED TO BUS 14 AND/OR BUS 16. RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH STEP 27.
 - o IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS.
- *****

8 Establish The Following
Equipment Alignment:

a. Pull stop AC emergency bus loads

- RHR pumps
- CNMT RECIRC fans
- CNMT spray pumps
- SI pumps
- CCW pumps
- Charging pumps
- MDAFW pumps

b. Evaluate non-vital loads (Refer
to ATT-8.3. ATTACHMENT NONVITAL)

c. Place non-running SW pump
switches to STOP. then return
to AUTO

d. Place switch for MOV-313. RCP
seal return isolation valve. to
CLOSE

e. Momentarily place to CLOSE RCP
CCW return valves

- MOV-759A
- MOV-759B

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Temporary power may be provided to Bus 16 by performing procedure ER-ELEC.4 and to Bus 13 by performing procedure ER-ELEC.5 at the Shift Supervisor's discretion.

9 Try To Restore Offsite Power:

a. Consult Power Control to determine if either normal offsite power supply - AVAILABLE

- o 12B transformer via breaker 76702

-OR-

- o 12A transformer via breaker 75112

a. IF normal offsite power supply NOT readily available. THEN perform the following:

1) Restore IA system using the Diesel Air Compressor (Refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR).

2) Evaluate Main transformer backfeed for long term concerns (Refer to ER-ELEC.3, EMERGENCY OFFSITE BACKFEED VIA MAIN & UNIT TRANSFORMER).

3) Go to Step 10.

b. Reset SI, if necessary

c. Restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	<p>Initiate Local Actions To Isolate RCS And To Provide Cooling To Vital Areas And Equipment</p> <p>a. Open all Reactor Protection and Control System rack doors in the Control Room.</p> <p>b. Direct Security personnel to open the following vital area doors to increase cooling:</p> <ul style="list-style-type: none"> • Control Room Door S51 • Intermediate Bldg Door S37 (AFW pump area) • Intermediate Bldg Door F36 (Automatic fire door. Rod Drive MG set area) • Intermediate Bldg Door S44 (Steam Header area) <p>c. Dispatch AO To Locally Isolate RCP Seals and BASTs (Refer to ATT-21.0. ATTACHMENT RCS ISOLATION)</p> <p>d. Dispatch AO to align backup cooling water to TDAFW Pump (Refer to ATT-5.2. ATTACHMENT FIRE WATER COOLING TO TDAFW PUMP)</p>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	Isolate Makeup And Reject From Hotwell To CST By Placing Hotwell Level Controller (LC-107) In Manual AT 50%	<p><u>IF</u> valves can <u>NOT</u> be manually closed, <u>THEN</u> dispatch AO to locally isolate makeup and reject lines.</p> <ul style="list-style-type: none"> • Makeup isolation V-4058 • Reject isolation V-4055
12	Isolate S/G:	<u>IF</u> valves can <u>NOT</u> be manually closed, <u>THEN</u> dispatch AO to locally isolate the affected flow path.
	a. Manually close both MSIVs	
	b. Depress MANUAL pushbuttons <u>AND</u> manually close MFW flow control valves	
	<ul style="list-style-type: none"> • MFW regulating valves • MFW bypass valves 	
	c. Place MCB master switch for S/G blowdown and sample valves to CLOSE	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>A FAULTED OR RUPTURED S/G THAT IS ISOLATED SHOULD REMAIN ISOLATED. STEAM SUPPLY TO THE TDAFW PUMP MUST BE MAINTAINED FROM AT LEAST ONE S/G.</p> <p>*****</p>		
13	<p>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>Perform the following:</p> <ul style="list-style-type: none"> a. <u>IF</u> any S/G pressure decreasing in an uncontrolled manner <u>OR</u> completely depressurized, <u>THEN</u> isolate faulted S/G unless needed for RCS cooldown: <ul style="list-style-type: none"> 1) Close faulted S/G MDAFW pump discharge valve. <ul style="list-style-type: none"> • S/G A. MOV-4007 • S/G B. MOV-4008 2) Close faulted S/G TDAFW flow control valve. <ul style="list-style-type: none"> • S/G A. AOV-4297 • S/G B. AOV-4298 3) Verify faulted S/G ARV controller in MANUAL with output at 0%. <ul style="list-style-type: none"> • S/G A. AOV-3411 • S/G B. AOV-3410 4) Pull stop faulted S/G TDAFW pump steam supply valve. <ul style="list-style-type: none"> • S/G A. MOV-3505A • S/G B. MOV-3504A <p><u>IF</u> valve(s) can <u>NOT</u> be closed manually, <u>THEN</u> dispatch AO to locally close valve(s) to isolate flow.</p> b. Dispatch AO to complete faulted S/G isolation (Refer to ATT-10.0. ATTACHMENT FAULTED S/G).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14	<p>Check If S/G Tubes Are Intact:</p> <ul style="list-style-type: none"> o Dispatch RP tech or A0 to locally check steamline radiation - NORMAL 	<p>Try to identify ruptured S/G. Continue with Step 15. <u>WHEN</u> ruptured S/G identified. <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Isolate ruptured S/G unless needed for RCS cooldown: <ul style="list-style-type: none"> 1) Close ruptured S/G MDAFW pump discharge valve. <ul style="list-style-type: none"> • S/G A. MOV-4007 • S/G B. MOV-4008 2) Pull stop ruptured S/G MDAFW pump. 3) Close ruptured S/G TDAFW flow control valve. <ul style="list-style-type: none"> • S/G A. AOV-4297 • S/G B. AOV-4298 4) Adjust ruptured S/G ARV controller to 1050 psig in AUTO. <u>WHEN</u> S/G pressure less than 1050 psig. <u>THEN</u> ensure ruptured S/G ARV closed. <ul style="list-style-type: none"> • S/G A. AOV-3411 • S/G B. AOV-3410 5) Pull stop ruptured S/G TDAFW pump steam supply valve. <ul style="list-style-type: none"> • S/G A. MOV-3505A • S/G B. MOV-3504A <p><u>IF</u> valve(s) can <u>NOT</u> be closed manually. <u>THEN</u> dispatch A0 to locally close valve(s) to isolate flow.</p> <ul style="list-style-type: none"> b. Dispatch A0 to complete ruptured S/G isolation (Refer to ATT-16.0. ATTACHMENT RUPTURED S/G).

EOP: ECA-0.0	TITLE: LOSS OF ALL AC POWER	REV: 27 PAGE 14 of 25
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<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. USING FIRE OR CITY WATER. WILL BE NECESSARY (REFER TO ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).</p> <p>*****</p> <p><u>NOTE:</u> TDAFW pump AOV flow control AOVs may drift open on loss of IA.</p>		
<p>*15 Monitor Intact S/G Levels:</p>		
a.	Narrow range level - GREATER THAN 5% [25% adverse CNMT]	a. Maintain maximum AFW flow until narrow range level greater than 5% [25% adverse CNMT] in at least one S/G.
b.	Control AFW flow by throttling TDAFW flow control valves	b. Control AFW flow by throttling TDAFP discharge MOV-3996.
	<ul style="list-style-type: none"> • S/G A. AOV-4297 • S/G B. AOV-4298 	<p><u>IF</u> MOV-3996 can <u>NOT</u> be controlled. <u>THEN</u> dispatch AO to locally control AFW flow by throttling TDAFW flow control valves.</p> <ul style="list-style-type: none"> • S/G A. AOV-4297 • S/G B. AOV-4298 <p><u>IF</u> valves can <u>NOT</u> be throttled. <u>THEN</u> control AFW flow by starting and stopping TDAFW pump.</p>
c.	Control AFW flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%	c. <u>IF</u> narrow range level in any intact S/G continues to increase in an uncontrolled manner. <u>THEN</u> return to Step 14.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><u>NOTE:</u> IF the loss of power is expected to continue beyond 4 hours, THEN degassing of main generator should commence as soon as personnel become available (Refer to ATT-8.2, ATTACHMENT GEN DEGAS).</p>	
	<p>16 Check DC Bus Loads:</p>	
	<p>a. Place control switches for MFW pump AC oil pumps to OFF (allows timer to stop DC oil pumps)</p>	
	<p>b. Stop all large non-essential DC loads</p>	
	<p>1) Evaluate DC loads (Refer to ATT-8.0, ATTACHMENT DC LOADS).</p>	
	<p>2) WHEN turbine is stopped, THEN perform the following:</p>	
	<p>a) Locally close Turbine backup seal oil reg outlet valve V-5475J.</p>	
	<p>b) Stop Turbine DC lube oil pump (within 1 hour).</p>	
	<p>c. Check DC bus voltage - GREATER THAN 105 VOLTS DC</p> <ul style="list-style-type: none"> • Bus A • Bus B 	<p>c. <u>IF</u> either DC bus less than 105 volts DC, <u>THEN</u> refer to ER-ELEC.2, RECOVERY FROM LOSS OF A or B DC BUS.</p>
	<p>d. Direct electricians to locally monitor DC power supply</p>	

EOP: ECA-0.0	TITLE: LOSS OF ALL AC POWER	REV: 27 PAGE 16 of 25
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	<p>Verify Source Range Detector(s) - ENERGIZED</p> <ul style="list-style-type: none"> • N-31 • N-32 	<p>Dispatch personnel with relay rack key to turn off 125 VDC power switches in REACTOR PROTECTION racks RLTR-1 and RLTR-2 to deenergize source range block relays.</p>
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>WHEN POWER IS RESTORED TO BUS 14 AND/OR BUS 16. RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH STEP 27.</p> <p>*****</p>		
18	<p>Check CST Level - GREATER THAN 5 FEET</p>	<p>Initiate makeup to CSTs using fire or city water as a source. (Refer to ER-AFW.1. ALTERNATE WATER SUPPLY TO AFW PUMPS).</p>

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

- o S/G PRESSURES SHOULD BE MAINTAINED GREATER THAN 200 PSIG TO PREVENT INJECTION OF SI ACCUM NITROGEN INTO THE RCS.
 - o S/G NARROW RANGE LEVEL SHOULD BE MAINTAINED GREATER THAN 5% [25% ADVERSE CNMT] IN AT LEAST ONE INTACT S/G. IF LEVEL CANNOT BE MAINTAINED, S/G DEPRESSURIZATION SHOULD BE STOPPED UNTIL LEVEL IS RESTORED IN AT LEAST ONE S/G.
- *****

- NOTE:
- o The S/Gs should be depressurized at maximum rate to minimize RCS inventory loss.
 - o PRZR level may be lost and reactor vessel upper head voiding may occur due to depressurization of S/Gs. Depressurization should not be stopped to prevent these occurrences.
 - o S/G ARV nitrogen pressure should be monitored and nitrogen supply bottles changed as necessary.

19 Initiate Depressurization Of
Intact S/Gs To 300 PSIG:

- a. Check S/G narrow range levels -
GREATER THAN 17% [25% adverse
CNMT] IN AT LEAST ONE S/G

- a. Perform the following:

- 1) Maintain maximum AFW flow until narrow range level greater than 17% [25% adverse CNMT] in at least one S/G.
- 2) Continue with Step 20. WHEN narrow range level greater than 17% [25% adverse CNMT] in at least one S/G. THEN do Steps 19b and 20.

- b. Manually dump steam from intact S/Gs at maximum rate using S/G ARVs

- b. Locally dump steam from intact S/Gs at maximum rate using S/G ARV.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><u>NOTE:</u> o Adverse CNMT conditions or loss of forced air cooling may result in failure of NIS detectors.</p> <p> o <u>IF</u> Instrument Bus D deenergized, <u>THEN</u> NIS SUR meters will <u>NOT</u> be available.</p>	
*20	<p>Monitor Reactor For Subcriticality:</p>	
	<p>a. Verify Subcriticality using the following indications:</p> <ol style="list-style-type: none"> 1) Check source range(s). N-31 <u>AND</u> N-32 <ul style="list-style-type: none"> o Indicator - ON SCALE o Power - STABLE OR DECREASING 2) Check intermediate range. N-35 <ul style="list-style-type: none"> o Indicator - ON SCALE o Power - STABLE OR DECREASING 3) Check power range. N-41 and N-43 <ul style="list-style-type: none"> o Indicators - LESS THAN 5% o Power - STABLE OR DECREASING 	<p>a. <u>IF</u> unable to verify subcriticality using NIS, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> o Control S/G ARVs to stop S/G depressurization and allow RCS to heat up. o Direct RP to sample RCS and PRZR for boron concentration. o Request plant staff assistance in evaluating core reactivity status

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u> Depressurization of S/Gs will result in a SI actuation. SI should be reset to permit manual loading of equipment on emergency busses.</p>		
<p>21 Check SI Signal Status:</p>		
a.	Any SI annunciator - LIT	Go to Step 25. <u>WHEN</u> SI actuated, <u>THEN</u> do Steps 21b, 22, 23 and 24.
b.	Reset SI	
<p>22 Verify CI And CVI:</p>		
a.	CI and CVI annunciators - LIT <ul style="list-style-type: none"> Annunciator A-26. CNMT ISOLATION Annunciator A-25. CONTAINMENT VENTILATION ISOLATION 	Depress manual CI pushbutton.
b.	Verify CI and CVI valve status lights - BRIGHT	Manually close CI and CVI valves. <u>IF</u> valves can <u>NOT</u> be verified closed by MCB indication, <u>THEN</u> dispatch AO to locally close valves (Refer to ATT-3.0, ATTACHMENT CI/CVI).
c.	CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT <ul style="list-style-type: none"> AOV-4561 AOV-4562 	Dispatch AO to locally fail open valves.
d.	Verify RHR Pump Suction from CNMT Sump B valves - CLOSED <ul style="list-style-type: none"> MOV-850A MOV-850B 	<p><u>IF</u> sump recirculation <u>NOT</u> in progress, <u>THEN</u> manually close valves.</p> <p><u>IF</u> valves can <u>NOT</u> be verified closed by MCB indication, <u>THEN</u> dispatch AO to locally close valves.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23	<p>Check If S/G Depressurization Should Be Stopped:</p> <ul style="list-style-type: none"> a. Check RCS cold leg temperatures - GREATER THAN 315°F b. Check S/G pressures - LESS THAN 300 PSIG c. Check IA supply: <ul style="list-style-type: none"> o Pressure - GREATER THAN 60 PSIG o Pressure - STABLE OR INCREASING d. Control S/G ARVs to maintain S/G pressures at 300 psig IN AUTO 	<ul style="list-style-type: none"> a. Perform the following: <ul style="list-style-type: none"> 1) Control S/G ARVs to stop S/G depressurization. 2) Go to Step 24. b. Continue with Step 24. <u>WHEN</u> S/G pressure decreases to less than 300 psig. <u>THEN</u> do Step 23c and d. c. Control S/G ARVs in manual to maintain S/G pressures at 300 psig <u>IF</u> manual control is <u>NOT</u> available, <u>THEN</u> locally control S/G ARVs to maintain S/G pressures at 300 psig. d. Control S/G ARVs in manual to maintain S/G pressures at 300 psig <u>IF</u> manual control is <u>NOT</u> available, <u>THEN</u> locally control S/G ARVs to maintain S/G pressures at 300 psig.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24	<p>Check CNMT Pressure - HAS REMAINED LESS THAN 28 PSIG</p> <ul style="list-style-type: none"> o Annunciator A-27. CNMT SPRAY - EXTINGUISHED o CNMT pressure indicators - LESS THAN 28 PSIG 	<p><u>IF</u> CNMT pressure is less than 28 psi, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Reset CNMT spray. b. Place CNMT spray pump discharge valve switches to CLOSE to deenergize open contactor. <p><u>IF NOT</u>, <u>THEN</u> continue with step 25. <u>WHEN</u> CNMT pressure less than 28 psig, <u>THEN</u> reset CNMT spray and place CNMT spray pump discharge valve switches to CLOSE.</p>
25	<p>Check Core Exit T/Cs - LESS THAN 1200° F</p>	<p><u>IF</u> core exit temperatures greater than 1200°F and increasing, <u>THEN</u> go to SACRG-1, SEVERE ACCIDENT CONTROL ROOM GUIDELINE INITIAL RESPONSE, step 1.</p>
26	<p>Check If AC Emergency Power Is Restored - BUSES 14 AND/OR 16 ENERGIZED</p>	<p>Continue to control RCS conditions and monitor plant status:</p> <ul style="list-style-type: none"> a. Check status of desired actions: <ul style="list-style-type: none"> o AC power restoration o ARV nitrogen pressure o Diesel air compressor to IA system o RCP seal isolation o DC power supply b. Return to Step 13.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><u>NOTE:</u> SW isolation may occur when power is restored to AC emergency busses.</p>	
	<p>28 Verify SW System Operation:</p>	
	<p>a. Check Bus 17 and Bus 18 - AT LEAST ONE ENERGIZED</p>	<p>a. 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. 3) Go to Step 29.
	<p>b. Verify two SW pumps - RUNNING</p>	<p>b. <u>IF</u> normal power available. <u>THEN</u> establish two SW pumps running.</p> <p><u>IF</u> normal power <u>NOT</u> available. <u>THEN</u> establish one SW pump running for each operating D/G.</p> <p><u>IF</u> <u>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> perform the following:</p> <ol style="list-style-type: none"> 1) Manually perform SW isolation. 2) Refer to AP-SW.2. LOSS OF SERVICE WATER.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>.....</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>THE LOADS PLACED ON THE ENERGIZED AC EMERGENCY BUS SHOULD NOT EXCEED THE CAPACITY OF THE POWER SOURCE.</p> <p>.....</p>		
29	<p>Verify Following Equipment Loaded On Available AC Emergency Busses:</p> <ul style="list-style-type: none"> o 480 volt MCCs - ENERGIZED <ul style="list-style-type: none"> • MCC C from Bus 14 • MCC D from Bus 16 o Verify instrument busses - ENERGIZED <ul style="list-style-type: none"> • Bus A from MCC C (A battery) • Bus B from MCC C • Bus C from MCC D (B battery) o Dispatch personnel to verify proper operation of battery chargers 	<p>Manually load equipment as power supply permits.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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30 Select Recovery Procedure:

- | | |
|---|--|
| <p>a. Check RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIG-1.0. FIGURE MIN SUBCOOLING</p> <p>b. Check PRZR level - GREATER THAN 5% [30% adverse CNMT]</p> <p>c. Check SI and RHR Pumps - NONE RUNNING</p> <p>d. Go to ECA-0.1. LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED. Step 1</p> | <p>a. Go to ECA-0.2. LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED. Step 1.</p> <p>b. Go to ECA-0.2. LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED. Step 1.</p> <p>c. Go to ECA-0.2. LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED. Step 1.</p> |
|---|--|

-END-

EOP: ECA-0.0	TITLE: LOSS OF ALL AC POWER	REV: 27 PAGE 1 of 1
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ECA-0.0 APPENDIX LIST

TITLE

- 1) FIGURE MIN SUBCOOLING (FIG-1.0)
- 2) ATTACHMENT DC LOADS (ATT-8.0)
- 3) ATTACHMENT FAULTED S/G (ATT-10.0)
- 4) ATTACHMENT RUPTURED S/G (ATT-16.0)
- 5) ATTACHMENT CI/CVI (ATT-3.0)
- 6) ATTACHMENT NONVITAL (ATT-8.3)
- 7) ATTACHMENT GEN DEGAS (ATT-8.2)
- 8) ATTACHMENT RCS ISOLATION (ATT-21.0)
- 9) ATTACHMENT FIRE WATER COOLING TO TDAFW PUMP (ATT-5.2)
- 10) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2)
- 11) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 12) FOLDOUT

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FOLDOUT PAGE

1. 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.

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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

Robert L. Mign
RESPONSIBLE MANAGER

10-10-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 2 of 20
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A. PURPOSE - This procedure provides the necessary instructions to stabilize and control the plant following a reactor trip without a safety injection.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. E-0, REACTOR TRIP OR SAFETY INJECTION,
when SI is neither actuated nor required.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF SI ACTUATION OCCURS DURING THIS PROCEDURE, THEN E-0, REACTOR TRIP OR SAFETY INJECTION, SHOULD BE PERFORMED.</p> <p>*****</p> <p><u>NOTE:</u></p> <ul style="list-style-type: none"> 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 Refer to AP(s) that were in effect prior to the reactor trip. <p>* 1 Monitor RCS Tavg - STABLE AT OR TRENDING TO 547°F</p>		
		<p><u>IF</u> temperature less than 547°F and decreasing. <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Stop dumping steam. b. Ensure S/G blowdown and sample valves closed. c. Ensure reheater steam supply valves are closed. d. <u>IF</u> MDAFW pumps supplying greater than 200 gpm. <u>THEN</u> ensure TDAFW pump steam supply valves in PULL STOP. e. <u>IF</u> cooldown continues. <u>THEN</u> control total feed flow greater than 200 gpm until narrow range level greater than 5% in at least one S/G. <u>WHEN</u> S/G level greater than 5% in one S/G. <u>THEN</u> limit feed flow to that required to maintain S/G level. f. <u>IF</u> cooldown continues below 540°F. <u>THEN</u> close both MSIVs. <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>

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2	Check S/G Feed Flow Status:	
a.	Check RCS Tavg - LESS THAN 554°F	a. Continue with Step 3. <u>WHEN</u> temperature less than 554°F. <u>THEN</u> do Steps 2b through f.
b.	Verify MFW flow control valves - CLOSED <ul style="list-style-type: none">• MFW regulating valves• MFW bypass valves	b. Depress MANUAL pushbuttons for A and B MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand.
c.	Verify total AFW flow - GREATER THAN 200 GPM	c. Manually start both MDAFW pumps. <u>IF</u> total AFW flow greater than 200 gpm can <u>NOT</u> be established. <u>THEN</u> perform the following: <ul style="list-style-type: none">o Manually start TDAFW pump. <p>-OR-</p> <ul style="list-style-type: none">o Perform the following:<ul style="list-style-type: none">1) Establish MFW on bypass valves.2) Go to step 3.
d.	Close MFW pump discharge valves <ul style="list-style-type: none">• MOV-3977. A MFW pump• MOV-3976. B MFW pump	
e.	Stop MFW pumps and place in PULL STOP	
f.	<u>WHEN</u> both MFP pumps are stopped. <u>THEN</u> depress MANUAL pushbuttons for A and B MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand.	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* 3 Monitor S/G Levels:		
	a. Narrow range level - GREATER THAN 5%	a. Maintain total feed flow greater than 200 gpm until narrow range level greater than 5% in at least one S/G.
	b. Control feed flow to maintain narrow range level between 17% and 52%.	b. <u>IF</u> narrow range level in any S/G continues to increase. <u>THEN</u> stop feed to that S/G.
4	Verify MRPI Indicates - ALL CONTROL AND SHUTDOWN RODS ON BOTTOM	<u>IF</u> one or more control rods <u>NOT</u> fully inserted. <u>THEN</u> perform the following:
		a. Place RMW mode selector switch to BORATE.
		b. Adjust boric acid flow control valve, FCV-110A, for desired flowrate.
		c. Set boric acid integrator to desired amount (650 gallons for each control rod not fully inserted).
		d. Place RMW control to start and verify flow. <u>IF</u> flow can <u>NOT</u> be established. <u>THEN</u> refer to ER-CVCS.1, REACTOR MAKEUP CONTROL MALFUNCTION.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	<p>Verify All AC Busses - ENERGIZED BY OFFSITE POWER</p> <ul style="list-style-type: none"> o Normal feed breakers to all 480 volt busses - CLOSED o 480 volt bus voltage - GREATER THAN 420 VOLTS o Emergency D/G output breakers - OPEN 	<p>Perform the following:</p> <ul style="list-style-type: none"> a. <u>IF</u> any AC emergency bus normal feed breaker open, <u>THEN</u> ensure associated D/G breaker closed. b. Perform the following as necessary: <ul style="list-style-type: none"> 1) Ensure one CCW pump running. 2) Close non-safeguards bus tie breakers: <ul style="list-style-type: none"> • Bus 13 to Bus 14 tie • Bus 15 to Bus 16 tie 3) Reset Bus 13 and Bus 15 lighting breakers. 4) Dispatch AO to locally reset and start adequate air compressors. 5) Place the following pumps in PULL STOP: <ul style="list-style-type: none"> • EH pumps • Turning gear oil pump • HP seal oil backup pump 6) 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 7) Start HP seal oil backup pump 8) Establish 2 CNMT RECIRC fans in service (205 kw each). 9) Ensure D/G load within limits. c. Try to restore offsite power to all AC busses (Refer to ER-ELEC.1. RESTORATION OF OFFSITE POWER).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Verify At Least Two SW Pumps - RUNNING	<p>Manually start SW pumps as necessary.</p> <p><u>IF NO</u> SW pumps running. <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Pull stop D/G that is <u>NOT</u> supplied by alternate cooling <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton. b. 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>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	Verify IA Available: o Adequate air compressor(s) - RUNNING o IA pressure - GREATER THAN 60 PSIG	Dispatch AO to locally reset and start adequate air compressors. <u>IF</u> adequate electric air compressor(s) can <u>NOT</u> be operated, <u>THEN</u> use diesel air compressor. (Refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR) <u>IF</u> IA pressure can <u>NOT</u> be maintained. <u>THEN</u> perform the following: a. Refer to AP-IA.1, LOSS OF INSTRUMENT AIR. b. Verify charging pump A <u>NOT</u> running and place in PULL STOP. c. Dispatch AO to locally open V-358, manual charging pump suction from RWST (charging pump room). d. <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
8 Check PRZR Level Control:		
a. Verify charging pumps - ANY RUNNING		a. Perform the following: 1) Close letdown isolation. AOV-427. 2) Manually start one charging pump.
b. PRZR level - GREATER THAN 13%		b. Perform the following: 1) Place letdown isolation AOV-427 switch to close. 2) Verify excess letdown isolation valve AOV-310 closed. 3) Ensure PRZR heaters off. 4) Control charging to restore PRZR level greater than 13%. 5) Continue with Step 9. <u>WHEN</u> PRZR level greater than 13%, <u>THEN</u> do Steps 8c through e.
c. Verify letdown - IN SERVICE		c. Verify excess letdown in service. <u>IF NOT</u> , <u>THEN</u> manually place letdown in service (Refer to ATT-9.0, ATTACHMENT LETDOWN).
d. PRZR level - TRENDING TO 35%		d. Control charging and letdown to maintain PRZR level at 35%.
e. Check PRZR heaters - ENERGIZED o PRZR proportional heaters o PRZR heater backup group		e. Reset PRZR heaters and energize to restore PRZR pressure.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

9 Check PRZR Pressure Control:

a. PRZR pressure - GREATER THAN
1750 PSIG

b. PRZR pressure - GREATER THAN
2210 PSIG

a. Perform the following:

1) Verify SI actuation. IF NOT,
THEN manually actuate SI and
CI.

2) Go to E-0. REACTOR TRIP OR
SAFETY INJECTION. Step 1.

b. IF pressure less than 2210 PSIG
and decreasing. THEN perform the
following:

1) Ensure PRZR PORVs closed.

IF any valve can NOT be
closed. THEN manually close
its block valve.

- PCV-430, MOV-516
- PCV-431C, MOV-515

2) Ensure normal PRZR spray
valves closed.

- PCV-431A
- PCV-431B

IF valves can NOT be closed,
THEN stop associated RCP(s).

3) Ensure PRZR heaters energized.

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.	PRZR pressure - LESS THAN 2260 PSIG	<p>c. <u>IF</u> pressure greater than 2260 psig and increasing. <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) Verify demand on PRZR pressure controller 431K greater than 50%. <u>IF NOT</u>. <u>THEN</u> place controller in MANUAL and adjust to restore PRZR pressure to approximately 2235 psig. 2) Ensure PRZR heaters off. 3) Control pressure using normal PRZR spray. <p><u>IF</u> normal PRZR spray <u>NOT</u> available and letdown is in service. <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> a) Verify spray line fluid to PRZR ΔT less than 320°F. <u>IF NOT</u>. <u>THEN</u> use one PORV. b) Use auxiliary spray. <p><u>IF</u> PRZR spray <u>NOT</u> available. <u>THEN</u> use one PRZR PORV.</p>

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 12 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	Check If TDAFW Pump Can Be Stopped:	
	a. Both MDAFW pumps - RUNNING	a. Go to Step 11.
	b. PULL STOP TDAFW pump steam supply valves	
	• MOV-3504A	
	• MOV-3505A	
11	Establish Condenser Steam Dump Pressure Control:	
	a. Verify condenser available:	a. Perform the following:
	o Any MSIV - OPEN	1) Place S/G ARV controller in AUTO at 1005 psig and verify proper operation. <u>IF</u> S/G ARV <u>NOT</u> controlling in AUTO. <u>THEN</u> control S/G ARV manually.
	o Annunciator G-15. STEAM DUMP ARMED - LIT	2) Go to Step 11d.
	b. Adjust condenser steam dump controller HC-484 to 1005 psig in AUTO	
	c. Place steam dump mode selector switch to MANUAL	
	d. Verify RCS Tavg - STABLE AT OR TRENDING TO 547°F	d. Adjust steam dump to restore Tavg. <u>IF</u> steam dumps not available, <u>THEN</u> use ARVs.

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 13 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12 Check RCP Status - AT LEAST ONE RUNNING	<p>Perform the following:</p> <ul style="list-style-type: none"> a. Establish conditions for starting an RCP: <ul style="list-style-type: none"> o Ensure bus 11A or 11B energized. o Refer to ATT-15.0. ATTACHMENT RCP START. b. Start one RCP. <p><u>IF</u> an RCP can <u>NOT</u> be started, <u>THEN</u> verify natural circulation (Refer to ATT-13.0. ATTACHMENT NC).</p> <p><u>IF</u> natural circulation <u>NOT</u> verified, <u>THEN</u> increase dumping steam.</p>	

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 14 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u> Loss of forced air cooling may result in failure of NIS detectors.</p>		
<p>13 Check If Source Range Detectors Should Be Energized:</p>		
a.	Source range channels - DEENERGIZED	a. Go to Step 13e.
b.	Check intermediate range flux - EITHER CHANNEL LESS THAN 10 ⁻¹⁰ AMPS	<p>b. Perform the following:</p> <p>1) <u>IF</u> neither intermediate range channel is decreasing <u>THEN</u> initiate boration.</p> <p>2) Continue with Step 14. <u>WHEN</u> flux is less than 10⁻¹⁰ amps on any operable channel, <u>THEN</u> do Steps 13c, d and e.</p>
c.	Check the following: <ul style="list-style-type: none"> o Both intermediate range channels - LESS THAN 10⁻¹⁰ AMPS <p>-OR-</p> <ul style="list-style-type: none"> o Greater than 20 minutes since reactor trip 	c. Continue with Step 14. <u>When</u> either condition met, <u>THEN</u> do Steps 13d and e.
d.	Verify source range detectors - ENERGIZED	<p>d. Manually energize source range detectors by depressing P-6 permissive defeat pushbuttons (2 of 2).</p> <p><u>IF</u> source ranges can <u>NOT</u> be restored, <u>THEN</u> refer to ER-NIS.1, SR MALFUNCTION, and go to Step 14.</p>
e.	Transfer Rk-45 recorder to one source range and one intermediate range channel	

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 15 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14	<p>Establish Normal Shutdown Alignment:</p> <p>a. Check condenser - AVAILABLE</p> <p>b. Perform the following:</p> <ul style="list-style-type: none"> o Open generator disconnects <ul style="list-style-type: none"> • 1G13A71 • 9X13A73 o Place voltage regulator to OFF o Open turbine drain valves o Rotate reheater steam supply controller cam to close valves o Place reheater dump valve switches to HAND o Stop all but one condensate pump (Refer to T-5F. STARTING OR STOPPING THE CONDENSATE PUMPS) <p>c. Verify adequate Rx head cooling:</p> <ul style="list-style-type: none"> 1) Verify at least one control rod shroud fan - RUNNING 2) Verify one Rx compartment cooling fan - RUNNING <p>d. Dispatch AO to perform ATT-17.0, ATTACHMENT SD-1</p>	<p>a. Dispatch AO to perform ATT-17.1, ATTACHMENT SD-2.</p> <p>1) Manually start one fan as power supply permits (45 kw).</p> <p>2) Manually start one fan as power supply permits (23 kw).</p>

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 16 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15	Maintain Stable Plant Conditions:	
	a. PRZR pressure - BETWEEN 1800 PSIG AND 2260 PSIG	a. Control PRZR heaters and spray as necessary.
	b. PRZR level - BETWEEN 35% AND 40%	b. Control charging as necessary.
	c. S/G narrow range levels - BETWEEN 17% AND 52%	c. Control S/G feed flow as necessary.
	d. RCS Tav _g - GREATER THAN 540°F	d. Close both MSIVs.
16	Check VCT Makeup System:	
	a. Verify the following:	
	1) Adjust boric acid flow control valve to 9.5 gpm	
	2) Adjust RMW flow control valve to 40 gpm	
	3) RMW mode selector switch in AUTO	
	4) RMW control armed - RED LIGHT LIT	
	b. Check VCT level	b. Manually increase VCT makeup flow as follows:
	o Level - GREATER THAN 20%	1) Ensure BA transfer pumps and RMW pumps running.
	-OR-	
	o Level - STABLE OR INCREASING	2) Place RMW flow control valve HCV-111 in MANUAL and increase RMW flow.

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 17 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	<p>Check Charging Pump Suction Aligned To VCT:</p> <p>a. VCT level - GREATER THAN 20%</p> <p>b. Align charging pumps to VCT</p> <ul style="list-style-type: none"> o LCV-112C - OPEN o LCV-112B - CLOSED 	<p>a. <u>IF</u> VCT level can <u>NOT</u> be maintained greater than 5%, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) Ensure charging pump suction aligned to RWST <ul style="list-style-type: none"> o LCV-112B open o LCV-112C closed 2) Continue with Step 18. <u>WHEN</u> VCT level greater than 40%. <u>THEN</u> do Step 17b.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18	Verify TDAFW Pump Aligned For AUTO Start:	
a.	Any MDAFW pump - AVAILABLE	a. Verify TDAFW pump operating to maintain required S/G level and go to Step 20.
b.	Verify AMSAC TRIPPED status light - EXTINGUISHED	b. Reset AMSAC.
c.	Verify both S/G levels - GREATER THAN 17%	c. Continue with Step 20. <u>WHEN</u> S/G level greater than 17%. <u>THEN</u> do Steps 18d, e and 19.
d.	Verify Bus 11A and Bus 11B - AT LEAST ONE ENERGIZED	d. Perform the following: <ul style="list-style-type: none"> 1) <u>IF</u> TDAFW pump <u>NOT</u> required to maintain S/G level. <u>THEN</u> pull stop TDAFW pump steam supply valves: <ul style="list-style-type: none"> • MOV-3504A • MOV-3505A 2) Go to Step 19.
e.	Verify the following: <ul style="list-style-type: none"> 1) TDAFW pump - OFF 2) TDAFW pump steam supply valve switches in AUTO 3) Verify TDAFW flow control valves - OPEN, DEMAND AT 0 <ul style="list-style-type: none"> • AOV-4297 • AOV-4298 	<ul style="list-style-type: none"> 1) Perform the following: <ul style="list-style-type: none"> a) <u>IF</u> TDAFW pump required to maintain S/G level. <u>THEN</u> go to Step 20. b) Stop TDAFW pump. 2) Place TDAFW pump steam supply valve switches in AUTO. 3) Open TDAFW flow control valves.

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 19 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19	<p>Establish Normal AFW Pump Shutdown Alignment:</p> <p>a. Verify the following:</p> <ul style="list-style-type: none"> o Both S/G levels - GREATER THAN 17% AND STABLE OR INCREASING o Total AFW flow - LESS THAN 200 GPM <p>b. Close MDAFW pump discharge valves</p> <ul style="list-style-type: none"> • MOV-4007 • MOV-4008 <p>c. Place AFW bypass switches to DEF</p> <p>d. Stop all but one MDAFW pump</p> <p>e. Open AFW discharge crossover valves</p> <ul style="list-style-type: none"> • MOV-4000A • MOV-4000B <p>f. Adjust AFW bypass valves to control S/G levels</p> <ul style="list-style-type: none"> • AOV-4480 • AOV-4481 	<p>a. Continue with Step 20. <u>WHEN</u> conditions met, <u>THEN</u> do Steps 19b through f.</p>

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 20 of 20
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20	Determine If Cooldown Is Required:	
	a. Consult Plant Staff - COOLDOWN REQUIRED	a. Go to 0-3, HOT SHUTDOWN WITH XENON PRESENT.
	b. At least one RCP - RUNNING	b. Perform the following: 1) Ensure 2 control rod shroud fans running. 2) Go to ES-0.2, NATURAL CIRCULATION COOLDOWN, Step 1.
	c. Go to 0-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN	
	-END-	

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 1 of 1
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ES-O.1 APPENDIX LIST

TITLE

- 1) RED PATH SUMMARY
- 2) FIGURE MIN SUBCOOLING (FIG-1.0)
- 3) ATTACHMENT LETDOWN (ATT-9.0)
- 4) ATTACHMENT RCP START (ATT-15.0)
- 5) ATTACHMENT NC (ATT-13.0)
- 6) ATTACHMENT SD-1 (ATT-17.0)
- 7) ATTACHMENT SD-2 (ATT-17.1)
- 8) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 9) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2)
- 10) FOLDOUT

EOP: ES-0.1	TITLE: REACTOR TRIP RESPONSE	REV: 22 PAGE 1 of 1
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FOLDOUT PAGE

1. 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.

2. SI ACTUATION CRITERIA

IF ANY condition listed below occurs, THEN actuate SI and CI and go to E-0, REACTOR TRIP OR SAFETY INJECTION, Step 1:

- o RCS subcooling based on core exit T/Cs - LESS THAN 0°F USING FIG-1.0, FIGURE MIN SUBCOOLING

- OR -

- o PRZR level - LESS THAN 5% [30% adverse CNMT]
AND RCS subcooling based on core exit T/Cs - LESS THAN 20°F USING FIG-1.0, FIGURE MIN SUBCOOLING

- OR -

- o Any automatic SI setpoint is reached

3. AFW SUPPLY SWITCHOVER CRITERION

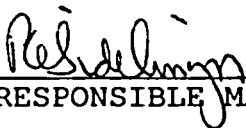
IF CST level decreases to less than 5 feet, THEN switch to alternate AFW water supply (Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 1 of 31
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23


RESPONSIBLE MANAGER

10-10-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 2 of 31

A. PURPOSE - This procedure provides actions for responding to a loss of secondary heat sink in both S/Gs.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. E-0, REACTOR TRIP OR SAFETY INJECTION, when minimum AFW flow is not verified AND normal range level in both S/Gs is less than 5% [25% adverse CNMT]
- b. F-0.3, HEAT SINK Critical Safety Function Status Tree on a RED condition.

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 3 of 31
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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 TOTAL FEED FLOW IS LESS THAN 200 GPM DUE TO OPERATOR ACTION, THIS PROCEDURE SHOULD NOT BE PERFORMED.</p> <p>o FEED FLOW SHOULD NOT BE REESTABLISHED TO A FAULTED S/G IF A NON-FAULTED S/G IS AVAILABLE.</p> <p>*****</p> <p><u>NOTE:</u> 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> <p>o Foldout Page should be open and monitored periodically.</p> <p>1 Check If Secondary Heat Sink Is Required:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>a. RCS pressure - GREATER THAN ANY NON-FAULTED S/G PRESSURE</p> </div> <div style="width: 45%;"> <p>a. <u>IF</u> RWST level greater than 28%, <u>THEN</u> return to procedure and step in effect.</p> <p><u>IF</u> RWST level less than 28%, <u>THEN</u> go to ES-1.3. TRANSFER TO COLD LEG RECIRCULATION, Step 1.</p> </div> </div>		
<p>This Step continued on the next page.</p>		

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

(Step 1 continued from previous page)

b. Check RCS cold leg temperature -
GREATER THAN 350°F

b. IF RCS pressure less than
400 psig [300 psig adverse
CNMT]. THEN try to place RHR
System in service while
continuing with this procedure:

- 1) Reset SI.
- 2) Place letdown pressure
controller in MANUAL CLOSED.
- 3) Open the following valves
(reset xy relays):
 - AOV-371, letdown isolation
valve
 - AOV-427, loop B cold leg to
REGEN Hx
 - At least one letdown
orifice valve (AOV-200A,
AOV-200B, or AOV-202)
- 4) IF pressure on PI-135 less
than 400 psig. THEN establish
RHR normal cooling (Refer to
ATT-14.1, ATTACHMENT RHR
COOL).
- 5) IF adequate cooling with RHR
system established. THEN
return to procedure and step
in effect.

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 5 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* 2	<p>Monitor Secondary Heat Sink:</p> <ul style="list-style-type: none"> o Verify either S/G level - WIDE RANGE GREATER THAN 50 inches [100 inches adverse CNMT] o Verify PRZR pressure - LESS THAN 2335 PSIG 	<p><u>IF</u> a loss of heat sink is indicated. <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Trip both RCPs. b. Go to Step 13 to initiate bleed and feed cooling.

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FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 6 of 31

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

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).

.....

3 Try to Establish AFW Flow To
At Least One S/G:

- | | |
|--|--|
| <p>a. Check S/G blowdown and samples valves - CLOSED</p> <p>b. Check MCB indications for cause of AFW failure:</p> <p>1) Verify CST level - GREATER THAN 5 FEET</p> <p>2) Verify busses supplying power to MDAFW pumps - ENERGIZED</p> <ul style="list-style-type: none"> • Bus 14 • Bus 16 <p>3) Determine AFW flow requirements per ATT-22.0. ATTACHMENT RESTORING FEED FLOW</p> <p>4) Check AFW valve alignment</p> <ul style="list-style-type: none"> o AFW pump discharge valves - OPEN • MOV-4007 • MOV-4008 • MOV-3996 o TDAFW pump flow control valves - OPEN • AOV-4297 • AOV-4298 | <p>a. Place S/G blowdown and sample valve isolation switch to CLOSE.</p> <p>1) Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS.</p> <p>2) Continue attempts to restore power to MDAFW pumps.</p> <p>4) Dispatch AO to locally align valves.</p> |
|--|--|

This Step continued on the next page.

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 7 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 3 continued from previous page)	
	c. Check AFW pumps - ALL RUNNING	c. Perform the following: 1) Manually start MDAFW pumps. 2) Check TDAFW pump steam supply valves OPEN. • MOV-3504A • MOV-3505A 3) If necessary dispatch AO to locally reset TDAFW pump governor valve. 4) <u>IF</u> NO AFW pumps operable. <u>THEN</u> go to Step 4.
	d. Control AFW flow per requirements of ATT-22.0. ATTACHMENT RESTORING FEED FLOW	
	e. Check total flow to S/Gs - GREATER THAN 200 GPM	e. Continue attempts to restore AFW flow and go to Step 4.
	f. Return to procedure and step in effect	
4	Stop Both RCPs	
.....		
	<u>CAUTION</u>	
	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)	
.....		
5	Reset SI If Actuated	

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 8 of 31

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Try To Establish MFW Flow To At Least One S/G:	
	a. Check any MFW pump - AVAILABLE	a. Go to Step 7.
	b. Check condensate system:	b. <u>IF</u> offsite power available, <u>THEN</u> try to place condensate system in service.
	o Condensate pump - ANY RUNNING	
	o MFW pump suction pressure - GREATER THAN 185 PSIG	<u>IF NOT</u> , <u>THEN</u> go to Step 7.
	c. Establish MFW flow:	c. <u>IF</u> MFW flow can <u>NOT</u> be established, <u>THEN</u> go to Step 7.
	1) Check MFW pump discharge valves - CLOSED	
	2) Verify MFW regulating or bypass valves - OPERABLE	
	3) Depress MANUAL pushbuttons for A and B MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand.	
	4) Dispatch AO to restore MFW pump SW cooling	
	5) Verify S/G blowdown key switches in NORMAL	
	6) Ensure Annunciator H-4.MAIN FEED PUMP OIL SYSTEM - EXTINGUISHED	
	7) Close Condensate Bypass valve, AOV-3959.	
	8) Ensure Annunciator H-11. FEED PUMP SEAL WATER LO DIFF PRESS 15 PSI - EXTINGUISHED	
	9) Ensure one MFW pump recirc valve - OPEN	
This Step continued on the next page.		

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 9 of 31
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

(Step 6 continued from previous page)

- 10) Start selected MFW pump
- 11) Open MFW pump discharge valve
- 12) Adjust MFW regulating or bypass valves to control MFW flow per requirements of ATT-22.0. ATTACHMENT RESTORING FEED FLOW

d. Go to Step 11

7 Establish SAFW Flow:

a. Perform the following:

- 1) Align SAFW system for operation (Refer to ATT-5.1. ATTACHMENT SAFW)
- 2) Determine SAFW flow requirements per ATT-22.0. ATTACHMENT RESTORING FEED FLOW
- 3) Start both SAFW pumps
- 4) Control SAFW flow per requirements of ATT-22.0. ATTACHMENT RESTORING FEED FLOW
- 5) Verify SAFW total flow - GREATER THAN 200 GPM

a. IF greater than 200 gpm total SAFW flow can NOT be established. THEN go to Step 8.

b. Go to Step 11

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 10 of 31

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>.....</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF WIDE RANGE LEVEL IN BOTH S/GS DECREASES TO LESS THAN 50 INCHES [100 INCHES ADVERSE CNMT] OR IF PRZR PRESSURE INCREASES TO GREATER THAN 2335 PSIG DUE TO LOSS OF HEAT SINK, THEN STEPS 13 THROUGH 15 SHOULD BE IMMEDIATELY INITIATED FOR BLEED AND FEED.</p> <p>.....</p>		
8	Establish Conditions to Feed S/G(s) From Condensate System:	
	<ul style="list-style-type: none"> a. Check condensate pumps - ANY RUNNING b. Establish condensate flowpath (Refer to ATT-5.0, ATTACHMENT COND TO S/G) c. De-energize PRZR heaters 	<ul style="list-style-type: none"> a. <u>IF</u> offsite power available, <u>THEN</u> manually start at least one condensate pump. <u>IF</u> a condensate pump can <u>NOT</u> be started, <u>THEN</u> go to Step 12.
9	Establish Condenser Steam Dump Pressure Control:	
	<ul style="list-style-type: none"> a. Verify condenser available: <ul style="list-style-type: none"> o Any MSIV - OPEN o Annunciator G-15, STEAM DUMP ARMED - LIT b. Adjust condenser steam dump controller HC-484 to highest S/G pressure c. Verify condenser steam dump controller HC-484 in AUTO d. Place steam dump mode selector switch to MANUAL 	<ul style="list-style-type: none"> a. Place S/G ARV controllers in AUTO at desired pressure and go to Step 10.

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 11 of 31

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

FOLLOWING BLOCK OF AUTOMATIC SI ACTUATION. MANUAL SI ACTUATION MAY BE REQUIRED IF CONDITIONS DEGRADE.

NOTE: If auxiliary spray is in use, spray flow may be increased by closing normal charging valve AOV-294 and normal PRZR spray valves.

10 Establish Condensate Flow to S/G:

a. Check RCS pressure - GREATER THAN 1950 PSIG

a. Go to Step 10c.

b. Depressurize RCS to less than 1950 psig:

1) Check letdown - IN SERVICE

1) Use one PRZR PORV. IF IA to CNMT, AOV-5392, NOT open. THEN refer to ATT-12.0, ATTACHMENT N2 PORVS.

a) IF PORV NOT available. THEN use auxiliary spray valve, AOV-296 and go to step 10c.

2) Depressurize using auxiliary spray valve (AOV-296)

2) Use one PRZR PORV. IF IA to CNMT, AOV-5392, NOT open. THEN refer to ATT-12.0, ATTACHMENT N2 PORVS.

c. WHEN PRZR pressure less than 1950 psig. THEN place SI block switches to BLOCK

- Train A
- Train B

d. Verify SAFETY INJECTION BLOCKED status light - LIT

This Step continued on the next page.

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 12 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 10 continued from previous page)	
	e. Stop depressurizing RCS and maintain RCS pressure less than 1950 psig	
	f. Depress MANUAL pushbuttons <u>AND</u> manually adjust MFW regulating or bypass valves to control feed flow per requirements of ATT-22.0, ATTACHMENT RESTORING FEED FLOW	
	g. Dump steam to condenser at maximum rate to depressurize at least one S/G to less than 380 psig	g. Manually or locally dump steam using intact S/G ARV at maximum rate to depressurize at least one S/G to less than 380 psig.
	h. Verify condensate flow to S/Gs	h. Go to Step 12.
11	Check S/G Levels:	
	a. Narrow range level in at least one S/G - GREATER THAN 5% [25% adverse CNMT]	a. <u>IF</u> feed flow verified and level increasing in at least one S/G, <u>THEN</u> maintain flow to restore narrow range level greater than 5% [25% adverse CNMT]. <u>IF NOT</u> verified, <u>THEN</u> go to Step 12.
	b. Return to procedure and step in effect	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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12 Verify Secondary Heat Sink:

- | | |
|---|--|
| <p>a. Check the following:</p> <ul style="list-style-type: none"> o Either S/G level - WIDE RANGE
GREATER THAN 50 inches
[100 inches adverse CNMT] o PRZR pressure - LESS THAN
2335 PSIG <p>b. Return to Step 1</p> | <p>a. <u>IF</u> loss of heat sink is indicated, <u>THEN</u> perform the following:</p> <p>1) Go to Step 13 to initiate bleed and feed cooling.</p> |
|---|--|

CAUTION

STEPS 13 THROUGH 15 MUST BE PERFORMED QUICKLY IN ORDER TO ESTABLISH RCS HEAT REMOVAL BY RCS BLEED AND FEED.

13 Actuate SI and CI

14 Verify RCS Feed Path:

- a. Check SI pumps - AT LEAST ONE
RUNNING
- b. Check valve alignment for
operating SI pumps - PROPER
EMERGENCY ALIGNMENT

Manually start pumps and align valves as necessary to establish RCS feed path.

IF a feed path can NOT be established, THEN continue attempts to establish feed flow. Return to Step 3.

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 15 of 31

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

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)

16 Check If SI Can Be Reset:

a. Check SI blocked status light -
EXTINGUISHED

a. Place SI block switches to
UNBLOCK

b. Check the following:

b. IF PRZR pressure stable or
increasing. THEN reset SI and go
to Step 17.

o PRZR pressure - LESS THAN
1750 PSIG

IF PRZR pressure decreasing.
THEN perform the following:

-OR-

o Either steamline pressure -
LESS THAN 514 PSIG

1) WHEN PRZR pressure less than
1750 psig. THEN reset SI.

2) Go to Step 17.

c. Reset SI

17 Reset CI:

a. Depress CI reset pushbutton

b. Perform the following:

b. Verify annunciator A-26.
CONTAINMENT ISOLATION -
EXTINGUISHED

1) Reset SI.

2) Depress CI reset pushbutton

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 16 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18	Verify Adequate SW Flow:	
a.	Verify at least two SW pumps - RUNNING	<p>a. Manually start pumps as power supply permits (257 kw each). <u>IF</u> less than two SW pumps can be operated. <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) <u>IF NO</u> SW pumps running. <u>THEN</u> perform the following: <ol style="list-style-type: none"> a) Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling. <u>AND</u> immediately depress associated. VOLTAGE SHUTDOWN pushbutton. b) Refer to ATT-2.4. ATTACHMENT NO SW PUMPS. 2) <u>IF</u> only one SW pump running. <u>THEN</u> refer to AP-SW.2. LOSS OF SERVICE WATER. 3) Go to Step 19.
b.	Verify AUX BLDG SW isolation valves - AT LEAST ONE SET OPEN	b. Manually align valves.
	<ul style="list-style-type: none"> • MOV-4615 and MOV-4734 • MOV-4616 and MOV-4735 	

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 17 of 31
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

19 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) Start HP seal oil backup pump.
 - 4) 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 19d.

This Step continued on the next page.

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 18 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 19 continued from previous page)	
	c. Verify turbine building SW isolation valves - 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 compressors as power supply permits (75 kw each). <u>IF</u> electric air compressors can <u>NOT</u> be started, <u>THEN</u> start diesel air compressor (refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR).
	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 21. <u>WHEN</u> IA restored, <u>THEN</u> do Steps 19f, g and 20.
	f. Reset both trains of XY relays for IA to CNMT AOV-5392	
	g. Verify IA to CNMT AOV-5392 - OPEN	g. Continue with Step 21. <u>WHEN</u> IA restored to CNMT, <u>THEN</u> do Step 20.

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 19 of 31

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u> PRZR PORVs may close temporarily until adequate IA pressure is restored in CNMT.</p> <p>20 Restore RCS Overpressure Protection System To Standby:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>a. Verify instrument bus D - ENERGIZED</p> <p>b. Place PORV PCV-430 and PCV-431C N₂ arming switches to BLOCK</p> <ul style="list-style-type: none"> • SOV-8619A • SOV-8619B <p>c. Close PORV PCV-430 and PCV-431C N₂ SURGE TK VLVs</p> <ul style="list-style-type: none"> • SOV-8616A • SOV-8616B </div> <div style="width: 45%;"> <p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) Ensure steam dump mode control in MANUAL. 2) Restore power to instrument bus D from MCC B or MCC A (maintenance supply). </div> </div>		

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 20 of 31

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21	<p>Verify Adequate RCS Bleed Path:</p> <ul style="list-style-type: none"> o Core exit T/Cs - STABLE OR DECREASING o RVLIS Level (no RCPs) - GREATER THAN 77% [82% adverse CNMT] 	<p>Perform the following:</p> <ul style="list-style-type: none"> a. Open Rx head vent valves. <ul style="list-style-type: none"> • SOV-590 • SOV-591 • SOV-592 • SOV-593 b. Align any available low pressure water source to intact S/Gs. <p><u>IF</u> no low pressure water source can be aligned. <u>THEN</u> go to Step 22.</p> c. Depressurize at least one intact S/G to atmospheric pressure using S/G ARV.
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>ACTIONS TAKEN TO INITIATE RCS BLEED AND FEED SHALL NOT BE REVERSED WHEN PERFORMING STEPS 1 THROUGH 12 OF E-0, REACTOR TRIP OR SAFETY INJECTION.</p> <p>*****</p>		
22	<p>Complete Steps 1 through 12 Of E-0, REACTOR TRIP OR SAFETY INJECTION, While Continuing With This Procedure</p>	

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 21 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

THE RCS BLEED PATH MUST BE MAINTAINED EVEN IF RCS PRESSURE REMAINS GREATER THAN SI PUMP SHUTOFF HEAD.

23 Maintain RCS Heat Removal:

- o Maintain SI flow
- o Maintain both PRZR PORVs and block valves - OPEN

24 Check Normal Power Available To Charging Pumps:

- o Bus 14 normal feed breaker - CLOSED
- o Bus 16 normal feed breaker - CLOSED

Verify adequate emergency D/G capacity to run charging pumps (75 kw each).

IF NOT, THEN evaluate if CNMT RECIRC fans can be stopped (Refer to ATT-4.0, ATTACHMENT CNMT RECIRC FANS).

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 22 of 31

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25	<p>Check If Charging Flow Has Been Established:</p> <p>a. Charging pumps - ANY RUNNING</p> <p>b. Align charging pump suction to RWST:</p> <ul style="list-style-type: none"> o LCV-112B - OPEN o LCV-112C - CLOSED <p>c. Start charging pumps as necessary to establish maximum charging flow</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 locally close seal injection needle valve(s) to affected RCP: <ul style="list-style-type: none"> • RCP A, V-300A • RCP B, V-300B 2) Ensure HCV-142 open, demand at 0%. <p>b. <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).

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 23 of 31
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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 RWST LEVEL DECREASES TO LESS THAN 28%. THEN THE SI SYSTEM SHOULD BE ALIGNED FOR COLD LEG RECIRCULATION USING STEPS 1 THROUGH 14 OF ES-1.3. TRANSFER TO COLD LEG RECIRCULATION.</p> <p>o IF CONTAINMENT PRESSURE INCREASES TO GREATER THAN 28 PSIG. CONTAINMENT SPRAY SHOULD BE VERIFIED.</p> <p>o RHR PUMPS SHOULD NOT BE RUN LONGER THAN 1 HOUR WITHOUT CCW TO THE RHR HEAT EXCHANGERS.</p> <p>*****</p>		
*26	Monitor If CNMT Spray Should Be Stopped:	
a.	CNMT spray pumps - RUNNING	a. Go to Step 27.
b.	Check the following:	b. Continue with Step 27. <u>WHEN</u> BOTH conditions satisfied, <u>THEN</u> do Steps 26c through 26f.
	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	

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 24 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27	<p>Continue Attempts To Establish Secondary Heat Sink In At Least One S/G:</p> <p>a. Attempt to restore one or more of the following:</p> <ul style="list-style-type: none"> • AFW flow • Main FW flow • Standby AFW flow • Condensate flow <p>b. <u>WHEN</u> a feed source is available., <u>THEN</u> control feed flow per requirements of ATT-22.0. ATTACHMENT RESTORING FEED FLOW</p>	
28	<p>Check For Adequate Secondary Heat Sink:</p> <p>a. Check narrow range level in at least one S/G - GREATER THAN 5% [25% adverse CNMT]</p> <p>b. Adjust S/G ARV controllers to existing S/G pressure</p>	<p>a. Return to Step 27.</p>
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF THE RCS IS WATER SOLID, THEN ANY INCREASE IN RCS TEMPERATURE MAY RESULT IN A SIGNIFICANT RCS PRESSURE INCREASE. RCS HEATUP SHOULD BE PREVENTED.</p> <p>*****</p>		
29	<p>Monitor RCS Temperatures:</p> <ul style="list-style-type: none"> o Core exit T/Cs - DECREASING o RCS hot leg temperatures - DECREASING 	<p>Perform the following:</p> <p>a. Control steam dump and feed flow to establish natural circulation and stabilize RCS temperature.</p> <p>b. Return to Step 27.</p>

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 25 of 31

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
30	Check CCW Pumps - ANY RUNNING	<p>Perform the following:</p> <p>a. <u>IF</u> any RCP #1 seal outlet temperature offscale high, <u>THEN</u> isolate CCW to thermal barrier of affected RCP(s).</p> <ul style="list-style-type: none"> • RCP A, MOV-749A and MOV-759A • RCP B, MOV-749B and MOV-759B <p>b. Manually start one CCW pump (122 kw).</p> <p>*****</p> <p><u>CAUTION</u></p> <p>IF RCS IS SOLID, CLOSURE OF HEAD VENTS MAY RESULT IN RAPID RCS PRESSURE INCREASE UNLESS RCS TEMPERATURE AND RCS INFLOW AND OUTFLOW ARE CAREFULLY CONTROLLED.</p> <p>*****</p>
31	Verify Reactor Head Vent Valves - CLOSED	<p>Manually close valves.</p> <ul style="list-style-type: none"> • SOV-590 • SOV-591 • SOV-592 • SOV-593

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 26 of 31

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>.....</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF RCS IS SOLID, THEN TERMINATION OF BLEED AND FEED MAY RESULT IN RAPID RCS PRESSURE INCREASE UNLESS RCS TEMPERATURE AND RCS INFLOW AND OUTFLOW ARE CAREFULLY CONTROLLED.</p> <p>.....</p>		
32	Check If One Of Three SI Pumps Should Be Stopped:	
	a. Three SI pumps - RUNNING	a. Go to Step 33.
	b. RCS subcooling based on core exit T/Cs - GREATER THAN 35°F [90°F adverse CNMT] USING FIG-1.0, FIGURE MIN SUBCOOLING	b. Check the following: <ul style="list-style-type: none"> o RCS pressure greater than 1625 psig [1825 psig adverse CNMT] o RCS subcooling based on core exit T/Cs greater than 0°F using FIG-1.0, FIGURE MIN SUBCOOLING <p style="text-align: center;"><u>IF NOT. THEN</u> go to Step 35.</p>
	c. Check PRZR level - GREATER THAN 13% [40% adverse CNMT]	c. Do <u>NOT</u> stop SI pump. Go to Step 35.
	d. Stop one SI pump	

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 27 of 31

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

33 Check If One Of Two SI Pumps
Should Be Stopped:

a. Two SI pumps - RUNNING

a. Go to Step 34.

b. Determine required RCS
subcooling from table:

Charging Pump Availability	RCS Subcooling Criteria
NONE	120°F [200°F adverse CNMT]
ONE	115°F [190°F adverse CNMT]
TWO	105°F [180°F adverse CNMT]
THREE	100°F [175°F adverse CNMT]

c. RCS subcooling based on core
exit T/Cs - GREATER THAN VALUE
FROM TABLE ABOVE USING FIG-1.0.
FIGURE MIN SUBCOOLING

c. Check the following:

- o RCS pressure greater than
1625 psig [1825 psig adverse
CNMT]
- o RCS subcooling based on core
exit T/Cs greater than 0°F
using FIG-1.0. FIGURE MIN
SUBCOOLING

IF NOT. THEN go to Step 35.

d. PRZR level - GREATER THAN 13%
[40% adverse CNMT]

d. Do NOT stop SI pump. Go to
Step 35.

e. Stop one SI pump

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 28 of 31

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

34 Check If Last SI Pump Should Be Stopped:

- a. One SI pump - RUNNING
- b. Check the following:
 - o RCS subcooling based on core exit T/Cs greater than 0°F using FIG-1.0. FIGURE MIN SUBCOOLING
 - o RCS pressure greater than 1625 psig [1825 psig adverse CNMT]
- c. PRZR level - GREATER THAN 13% [40% adverse CNMT]
- d. Stop running SI pump
- e. Go to Step 37

a. Go to Step 37.

b. Go to Step 35.

c. Do NOT stop SI pump. Go to Step 35.

NOTE: After closing a PORV, it may be necessary to wait for RCS pressure to increase to permit stopping SI pumps in SI reduction steps.

35 Check PRZR PORVs And Associated Block Valves - ANY BLEED PATH OPEN

Go to appropriate plant procedure:

- o IF RWST level greater than 28%. THEN go to E-1. LOSS OF REACTOR OR SECONDARY COOLANT.

-OR-

- o IF RWST level less than 28%. THEN go to ES-1.3. TRANSFER TO COLD LEG RECIRCULATION.

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 29 of 31

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

IF RCS IS SOLID, CLOSURE OF PORVS WILL RESULT IN RAPID RCS PRESSURE INCREASE
UNLESS RCS TEMPERATURE AND RCS INFLOW AND OUTFLOW ARE CAREFULLY CONTROLLED.

36 Isolate PRZR Bleed Paths:

a. PRZR PORVs - BOTH OPEN

a. Perform the following:

- 1) Stop all but one charging pump.
- 2) Control charging flow as necessary to maintain RCS pressure and PRZR level.
- 3) Establish excess letdown as follows:
 - a) Place AOV-312 to NORMAL.
 - b) Ensure CCW pump running.
 - c) Manually open CCW from excess letdown Hx open (AOV-745).
 - d) Ensure excess letdown flow control valve, HCV-123 is closed, demand at 0.
 - e) Reset both trains of XY relays for MOV-313.
 - f) Open MOV-313.
 - g) Open excess letdown isolation valve AOV-310.
 - h) Slowly open HCV-123.

This Step continued on the next page.

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 30 of 31

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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(Step 36 continued from previous page)

b. Close one open PRZR PORV

- b. Close PORV block valve. IF block valve can NOT be closed, THEN go to appropriate plant procedure:
- o IF RWST level greater than 28%, THEN go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT.

-OR-

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

c. Return to Step 32

37 Check PRZR PORVs - BOTH CLOSED

Close both PRZR PORVs. IF any PRZR PORV can NOT be closed, THEN manually close its block valve.

38 Check If RHR Pumps Should Be Stopped:

a. RHR pumps - ANY RUNNING IN INJECTION MODE

a. Go to Step 39.

b. Check RCS pressure:

b. Go to appropriate plant procedure:

- 1) Pressure - GREATER THAN 250 psig [465 psig adverse CNMT]
- 2) Pressure - STABLE OR INCREASING

- o IF RWST level greater than 28%, THEN go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.

-OR-

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

c. Stop RHR pumps and place in AUTO

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 31 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
39	Start Charging Pumps As Necessary And Control Charging Flow To Maintain PRZR Level	
40	Go To ES-1.1, SI TERMINATION, Step 8	
	-END-	

EOP:	TITLE:	REV: 30
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	PAGE 1 of 1

FR-H.1 APPENDIX LIST

TITLE

- 1) FIGURE MIN SUBCOOLING (FIG-1.0)
- 2) ATTACHMENT CNMT RECIRC FANS (ATT-4.0)
- 3) ATTACHMENT COND TO S/G (ATT-5.0)
- 4) ATTACHMENT N2 PORVS (ATT-12.0)
- 5) ATTACHMENT RHR COOL (ATT-14.1)
- 6) ATTACHMENT SAFW (ATT-5.1)
- 7) ATTACHMENT RESTORING FEED FLOW (ATT-22.0)
- 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

EOP: FR-H.1	TITLE: RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV: 30 PAGE 1 of 1
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FOLDOUT PAGE

NOTE: This Foldout Page applies to all FR-H series procedures.

1. LOSS OF SW CRITERIA

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

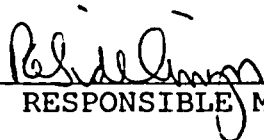
- a. Pull stop any D/G that is NOT supplied by alternate cooling, AND immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

EOP: FR-H.2	TITLE: RESPONSE TO STEAM GENERATOR OVERPRESSURE	REV: 6 PAGE 1 of 6
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23


RESPONSIBLE MANAGER

10-10-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: FR-H.2	TITLE: RESPONSE TO STEAM GENERATOR OVERPRESSURE	REV: 6 PAGE 2 of 6
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- A. PURPOSE - This procedure provides actions for an overpressure condition affecting any S/G where pressure has increased above the highest steamline safety valve setpoint.
- B. ENTRY CONDITIONS/SYMPTOMS
 - 1. ENTRY CONDITIONS - This procedure is entered from:
 - a. F-0.3, HEAT SINK Critical Safety Function Status Tree on a YELLOW condition.

EOP:	TITLE:	REV: 6
FR-H.2	RESPONSE TO STEAM GENERATOR OVERPRESSURE	PAGE 3 of 6

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u></p> <ul style="list-style-type: none"> o Throughout this procedure. "affected" refers to any S/G in which pressure is greater than 1140 psig. 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. o Foldout Page should be open and monitored periodically. 		
1	Identify Affected S/G(s):	
	a. Any S/G pressure - GREATER THAN 1140 PSIG	a. Return to procedure and step in effect.
2	Verify FW Isolation To Affected S/G(s):	
	a. MFW pumps - TRIPPED	a. Trip MFW pumps.
	b. MFW flow control valve(s) - CLOSED	b. Depress MANUAL pushbutton(s) <u>AND</u> manually close valves.
	<ul style="list-style-type: none"> • MFW regulating valve(s) • MFW bypass valve(s) 	
	c. MFW pump discharge valve(s) - CLOSED	c. Manually close valves.
3	Check Affected S/G(s) Narrow Range Level - LESS THAN 90% [80% adverse CNMT]	Go to FR-H.3. RESPONSE TO STEAM GENERATOR HIGH LEVEL. Step 1.

EOP: FR-H.2	TITLE: RESPONSE TO STEAM GENERATOR OVERPRESSURE	REV: 6 PAGE 4 of 6
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF AFFECTED S/G NARROW RANGE LEVEL INCREASES TO GREATER THAN 90% [80% ADVERSE CNMT]. THEN AN EVALUATION SHOULD BE MADE FOR S/G OVERFILL CONSIDERATIONS. STEAM SHOULD NOT BE RELEASED FROM ANY S/G WITH LEVEL GREATER THAN 90% [80% ADVERSE CNMT) PRIOR TO OVERFILL EVALUATION.</p> <p>*****</p>		
4	<p>Try To Dump Steam From The Affected S/G(s):</p> <ul style="list-style-type: none"> o Open S/G ARVs <li style="text-align: center;">-OR- o Open MSIV bypass valves <li style="text-align: center;">-OR- o Open steam supply valves to TDAFW pump 	Go to Step 6.
5	<p>Check Affected S/G(s) Pressure:</p> <ul style="list-style-type: none"> a. Pressure - DECREASING b. Pressure - LESS THAN 1140 PSIG c. Control steam release to maintain S/G pressure less than 1140 psig d. Return to procedure and step in effect 	<ul style="list-style-type: none"> a. Go to Step 6. b. Return to Step 3.

EOP: FR-H.2	TITLE: RESPONSE TO STEAM GENERATOR OVERPRESSURE	REV: 6 PAGE 5 of 6
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>AFW FLOW SHOULD REMAIN ISOLATED TO AFFECTED S/G(S) UNTIL A STEAM RELEASE PATH IS ESTABLISHED.</p> <p>*****</p>		
6	<p>Close AFW And SAFW Flow Control Valves To Affected S/G(s)</p> <ul style="list-style-type: none"> o S/G A <ul style="list-style-type: none"> • MOV-4007 and AOV-4480, MDAFW pump • AOV-4297, TDAFW pump • MOV-9701A, SAFW pump o S/G B <ul style="list-style-type: none"> • MOV-4008 and AOV-4481, MDAFW pump • AOV-4298, TDAFW pump • MOV-9701B, SAFW pump 	<p>Stop pumps feeding affected S/G(s).</p>
7	<p>Check RCS Hot Leg Temperatures - LESS THAN 530°F</p>	<p>Cool down RCS to less than 530°F by dumping steam from the unaffected S/G.</p>

EOP: FR-H.2	TITLE: RESPONSE TO STEAM GENERATOR OVERPRESSURE	REV: 6 PAGE 6 of 6
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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8 Continue Attempts To Manually
Or Locally Dump Steam From
Affected S/G(s):

- o Open S/G ARVs

-OR-

- o Open steam supply valves to
TDAFW pump

-OR-

- o Dispatch AO to perform the
following:

- a. Open affected S/G MSIV bypass
valve

- b. Open both priming air ejector
steam isolation valves

- V-3580
- V-3581

9 Return To Procedure And Step
In Effect

-END-

EOP: FR-H.2	TITLE: RESPONSE TO STEAM GENERATOR OVERPRESSURE	REV: 6 PAGE 1 of 1
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FR-H.2 APPENDIX LIST

- 1) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 2) FOLDOUT

EOP: FR-H.2	TITLE: RESPONSE TO STEAM GENERATOR OVERPRESSURE	REV: 6 PAGE 1 of 1
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FOLDOUT PAGE

NOTE: This Foldout Page applies to all FR-H series procedures.

1. LOSS OF SW CRITERIA

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

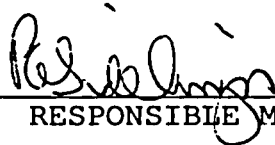
- a. Pull stop any D/G that is NOT supplied by alternate cooling, AND immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

EOP: FR-H.3	TITLE: RESPONSE TO STEAM GENERATOR HIGH LEVEL	REV: 7 PAGE 1 of 7
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23


RESPONSIBLE MANAGER

10-10-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: FR-H.3	TITLE: RESPONSE TO STEAM GENERATOR HIGH LEVEL	REV: 7 PAGE 2 of 7
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- A. PURPOSE - This procedure provides actions to respond to a S/G high level condition and to address the S/G overfill concern.
- B. ENTRY CONDITIONS/SYMPTOMS
1. ENTRY CONDITIONS - This procedure is entered from:
 - a. F-0.3, HEAT SINK Critical Safety Function Status Tree on a YELLOW condition, and
 - b. FR-H.2, RESPONSE TO STEAM GENERATOR OVERPRESSURE, if the affected S/G narrow range level is high.

EOP: FR-H.3	TITLE: RESPONSE TO STEAM GENERATOR HIGH LEVEL	REV: 7 PAGE 3 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

- o IF S/G NARROW RANGE LEVEL HAS INCREASED TO GREATER THAN 90% [80% ADVERSE CNMT], THEN AN EVALUATION SHOULD BE MADE FOR S/G OVERFILL CONSIDERATIONS. STEAM SHOULD NOT BE RELEASED FROM ANY S/G WITH LEVEL GREATER THAN 90% [80% ADVERSE CNMT] PRIOR TO OVERFILL EVALUATION.
- o IF S/G OVERFILL IS EXPECTED AN ATTEMPT SHOULD BE MADE TO DISPATCH PERSONNEL TO PIN MAIN STEAMLINES.

.....

NOTE: o Throughout this procedure, "affected" refers to any S/G in which narrow range level is greater than 80%.

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.

o Foldout Page should be open and monitored periodically.

1 Check Affected S/G(s) Narrow Range Level - GREATER THAN 80%

IF less than 80% in all S/Gs, THEN return to procedure and step in effect.

2 Verify FW Isolation To Affected S/G(s):

a. MFW pumps - TRIPPED

a. Trip MFW pumps.

b. MFW flow control valve(s) - CLOSED

b. Depress MANUAL pushbutton(s) AND manually close valves.

- MFW regulating valve(s)
- MFW bypass valve(s)

c. Verify both S/G pressures - GREATER THAN CONDENSATE HEADER PRESSURE

c. Stop any running condensate pumps.

EOP: FR-H.3	TITLE: RESPONSE TO STEAM GENERATOR HIGH LEVEL	REV: 7 PAGE 4 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	<p>Close AFW And SAFW Flow Control Valves To Affected S/G(s):</p> <ul style="list-style-type: none"> o S/G A <ul style="list-style-type: none"> • MOV-4007 and AOV-4480. MDAFW pump • AOV-4297. TDAFW pump • MOV-9701A. SAFW pump o S/G B <ul style="list-style-type: none"> • MOV-4008 and AOV-4481. MDAFW pump • AOV-4298. TDAFW pump • MOV-9701B. SAFW pump 	<p>Stop pumps feeding affected S/G(s).</p>

EOP:	TITLE:	REV: 7
FR-H.3	RESPONSE TO STEAM GENERATOR HIGH LEVEL	PAGE 5 of 7

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4	Check Affected S/G(s) Level:	
	a. Narrow range level - LESS THAN 90% [80% adverse CNMT]	a. Go to Step 5.
	b. Narrow range level - DECREASING	b. <u>IF</u> affected S/G level continues to increase. <u>THEN</u> perform the following: <ul style="list-style-type: none"> 1) Dispatch AO to locally isolate affected S/G: <ul style="list-style-type: none"> o For S/G A, close MFW regulating and bypass valve outlet isolation valves, V-3987 and V-3991 -OR- o For S/G B, close MFW regulating and bypass valve outlet isolation valves, V-3986 and V-3990 2) Go to Step 5.
	c. Control AFW flow to maintain narrow range level between 17% [25% adverse CNMT] and 52%	
	d. Return to procedure and step in effect	

EOP: FR-H.3	TITLE: RESPONSE TO STEAM GENERATOR HIGH LEVEL	REV: 7 PAGE 6 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	Adjust Affected S/G(s) ARV. Setpoint To 1050 PSIG	
	<p>.....</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF THE TDAFW PUMP IS THE ONLY AVAILABLE SOURCE OF FEED FLOW, THEN STEAM SUPPLY TO THE TDAFW PUMP MUST BE MAINTAINED FROM ONE S/G.</p> <p>.....</p>	
6	Close Affected S/G TDAFW Pump Steam Supply Valve And Place In PULL STOP	
	<ul style="list-style-type: none"> • S/G A. MOV-3505A • S/G B. MOV-3504A 	
7	Close Affected S/G(s) MSIV And Bypass Valves	
8	Check Affected S/G(s) Radiation Levels - NORMAL	
	<ul style="list-style-type: none"> • S/G blowdown, R-19 • S/G A. R-31 • S/G B. R-32 	<p><u>IF</u> an E-3 or ECA-3 series procedure is in effect, <u>THEN</u> return to procedure and step in effect. <u>IF NOT, THEN</u> go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.</p>

EOP: FR-H.3	TITLE: RESPONSE TO STEAM GENERATOR HIGH LEVEL	REV: 7 PAGE 7 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9	<p>Establish Blowdown From Affected S/G(s):</p> <ul style="list-style-type: none"> a. Reset SI and CI b. Reset XY relays for affected S/G blowdown valves c. Place blowdown key switch for affected S/G to defeat d. Verify S/G blowdown valves - OPEN e. Dispatch A0 to establish blowdown to condenser or flash tank, as desired (Refer to T-14F, STEAM GENERATOR BLOWDOWN SYSTEM STARTUP) 	
10	<p>Return To Procedure And Step In Effect</p>	

-END-

EOP: FR-H.3	TITLE: RESPONSE TO STEAM GENERATOR HIGH LEVEL	REV: 7 PAGE 1 of 1
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FR-H.3 APPENDIX LIST

- 1) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 2) FOLDOUT

EOP: FR-H.3	TITLE: RESPONSE TO STEAM GENERATOR HIGH LEVEL	REV: 7 PAGE 1 of 1
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FOLDOUT PAGE

NOTE: This Foldout Page applies to all FR-H series procedures.

1. 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 SHUTDCWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 1 of 13
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

Beldelean
RESPONSIBLE MANAGER

10-10-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 2 of 13
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A. PURPOSE - This procedure provides actions to add negative reactivity to a core which is observed to be critical when expected to be shut down.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. E-0, REACTOR TRIP OR SAFETY INJECTION, when reactor trip is not verified and manual trip is not effective.
- b. F-0.1, SUBCRITICALITY, Critical Safety Function Status Tree on either a RED or ORANGE condition.

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 3 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u> 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>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> manually insert control rods.</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>Check AFW Pumps Running:</p> <ul style="list-style-type: none"> a. MDAFW pumps - RUNNING b. TDAFW pump - RUNNING IF NECESSARY 	<p>a. Manually start MDAFW pumps.</p> <p>b. Manually open steam supply valves.</p> <ul style="list-style-type: none"> • MOV-3505A • MOV-3504A

EOP:	TITLE:	REV: 16
FR-S.1	RESPONSE TO REACTOR RESTART/ATWS	PAGE 4 of 13

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>ACTIONS TAKEN TO INITIATE RCS BORATION SHALL NOT BE REVERSED WHEN PERFORMING STEPS 1 THROUGH 12 OF E-0, REACTOR TRIP OR SAFETY INJECTION.</p> <p>*****</p> <p><u>NOTE:</u> o If offsite power is lost coincident with SI, then MCC C and MCC D lockout relays must be reset to restore BA and RMW pumps.</p> <p> o Foldout page should be open and monitored periodically.</p> <p>4 Initiate Emergency Boration Of RCS:</p> <p> a. Check SI status:</p> <p> o All SI annunciators - EXTINGUISHED</p> <p> o All SI pumps - OFF IN AUTO</p> <p> b. Verify at least one charging pump - RUNNING</p> <p> c. Align boration path:</p> <p> 1) Start two BA transfer pumps</p> <p> 2) Open MOV-350</p> <p> 3) Verify BA flow</p> <p> d. Verify charging flow path:</p> <p> o Charging valve to loop B cold leg (AOV-294) - OPEN</p> <p> o Charging flow control valve (HCV-142) - DEMAND AT 0%</p>		
		<p>a. Perform the following:</p> <p> 1) Complete steps 1 through 12 of E-0, REACTOR TRIP OR SAFETY INJECTION, while continuing with this procedure</p> <p> 2) <u>IF</u> SI flow indicated, <u>THEN</u> go to Step 5. <u>IF NOT</u>, <u>THEN</u> go to Step 4b.</p> <p>b. Perform the following:</p> <p> 1) Reset SI if necessary.</p> <p> 2) Start one charging pump.</p> <p>c. Initiate normal boration at maximum rate using the boric acid flow control valve, FCV-110A. <u>IF</u> flow can <u>NOT</u> be established, <u>THEN</u> refer to ER-CVCS.1, REACTOR MAKEUP CONTROL MALFUNCTION.</p> <p>d. Manually align valves and verify flow.</p>

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 5 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	Check PRZR PORV Status:	
a.	RCS pressure - LESS THAN 2335 PSIG	a. Verify PRZR PORVs and block valves open. <u>IF NOT</u> , <u>THEN</u> open PRZR PORVs and block valves as necessary until PRZR pressure less than 2335 psig.
b.	Check PORVs - BOTH CLOSED	b. <u>IF</u> PRZR pressure less than 2335 psig, <u>THEN</u> manually close PORVs. <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 AO to locally check breaker. • MOV-515, MCC D position 6C • MOV-516, MCC C position 6C
6	Verify CNMT Ventilation Isolation	
a.	CVI annunciator - LIT • Annunciator A-25, CNMT VENTILATION ISOLATION	a. Momentarily deenergize CNMT particulate monitor, R-11, to actuate CVI.
b.	Verify CVI valve status lights - BRIGHT	b. Manually close CVI valves as required <u>IF</u> valves can <u>NOT</u> be verified closed by MCB indication, <u>THEN</u> dispatch AO to locally close valves (Refer to ATT-3.0. ATTACHMENT CI/CVI for alternate isolation valves).

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 6 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	<p>Check If The Following Trips Have Occurred:</p> <p>a. Reactor trip</p> <p>b. Turbine trip</p>	<p>a. Dispatch AO to locally trip reactor:</p> <ul style="list-style-type: none"> o Trip MG set breakers at bus 13 and bus 15. <p>-OR-</p> <ul style="list-style-type: none"> o Open reactor trip breakers locally. <p>b. Dispatch AO to locally trip turbine using manual trip lever on west end of HP turbine.</p>
* 8	<p>Check If Reactor Is Subcritical:</p> <p>a. Energize MCC A <u>AND</u> B</p> <p>b. Check power range channels - LESS THAN 5%</p> <p>c. Check Intermediate range channels</p> <ul style="list-style-type: none"> o Startup rate - NEGATIVE <p>-OR-</p> <ul style="list-style-type: none"> o Intermediate range channels - DECREASING <p>d. Go to Step 18.</p>	<p>b. Go to Step 9.</p> <p>c. Go to Step 9.</p>

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 7 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>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>	
* 9 Monitor S/G Level:		
a.	Narrow range level in at least one S/G - GREATER THAN 5% [25% adverse CNMT]	<p>a. Perform the following:</p> <p>1) Verify total feed flow greater than 400 gpm.</p> <p><u>IF NOT. THEN</u> manually start pumps and align valves as necessary.</p> <p><u>IF AFW can NOT</u> be established, <u>THEN</u> establish SAFW (Refer to ATT-5.1, ATTACHMENT SAFW)</p> <p>2) Maintain total feed flow greater than 400 gpm until narrow range level greater than 5% [25% adverse CNMT] in at least one S/G.</p>
b.	Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%	

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 8 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	<p>Verify Dilution Paths - ISOLATED</p> <p>a. Place RMW mode switch to BORATE</p> <p>b. Stop RMW pumps</p>	<p>b. Perform the following:</p> <p>1) Close RMW to blender (AOV-111)</p> <p>2) Direct AO to locally open RMW pump breaker</p> <ul style="list-style-type: none"> • RMW Pump A. MCC C Pos 13B • RMW Pump B. MCC D Pos 1B
11	<p>Stabilize RCS Temperature:</p> <p>a. Control steam dump as necessary</p> <p>b. Verify the following:</p> <ul style="list-style-type: none"> o Core exit T/Cs - STABLE OR INCREASING o Pressure in both S/Gs - STABLE OR INCREASING o Pressure in both S/Gs - GREATER THAN 110 PSIG <p>c. Go to Step 16</p>	<p>b. <u>IF</u> RCS cooldown can <u>NOT</u> be controlled, <u>THEN</u> close both MSIVs and go to Step 12.</p>

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 9 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12	Verify MFW Isolation: a. MFW pumps - TRIPPED b. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand.	a. Manually close MFW pump discharge valves and trip MFW pumps.
13	Identify Faulted S/G: o Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER -OR- o Any S/G Pressure - LESS THAN 110 PSIG	Go to Step 16.

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 10 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>.....</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>o AT LEAST ONE S/G SHALL BE MAINTAINED AVAILABLE FOR ECS COOLDOWN.</p> <p>o IF BOTH S/GS ARE FAULTED, AT LEAST 50 GPM FEED FLOW SHOULD BE MAINTAINED TO EACH S/G.</p> <p>.....</p>		
14	Isolate Feed Flow To Faulted S/G:	Manually close valves.
	<ul style="list-style-type: none"> o Close faulted S/G MDAFW pump discharge valve <ul style="list-style-type: none"> • S/G A. MOV-4007 • S/G B. MOV-4008 o Pull stop faulted S/G MDAFW pump o Close faulted S/G TDAFW flow control valve <ul style="list-style-type: none"> • S/G A. AOV-4297 • S/G B. AOV-4298 o Verify faulted S/G MFW regulating valve and bypass valve - CLOSED <ul style="list-style-type: none"> • S/G A. HCV-466 and HCV-480 • S/G B. HCV-476 and HCV-481 o Verify MDAFW pump crosstie valves - BOTH CLOSED <ul style="list-style-type: none"> • MOV-4000A • MOV-4000B o Close faulted S/G SAFW pump discharge valve <ul style="list-style-type: none"> • S/G A. MOV-9701A • S/G B. MOV-9701B 	<p>IF valves can <u>NOT</u> be closed. <u>THEN</u> dispatch AO to locally isolate flowpaths as necessary.</p>

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 11 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF THE TDAFW PUMP IS THE ONLY AVAILABLE SOURCE OF FEED FLOW, THEN STEAM SUPPLY TO THE TDAFW PUMP MUST BE MAINTAINED FROM ONE S/G.</p> <p>*****</p>		
15	<p>Isolate Steam Flow From Faulted S/G:</p> <ul style="list-style-type: none"> o Verify faulted S/G ARV - CLOSED <ul style="list-style-type: none"> • S/G A. AOV-3411 • S/G B. AOV-3410 o Close faulted S/G TDAFW pump steam supply valve and place in PULL STOP <ul style="list-style-type: none"> • S/G A. MOV-3505A • S/G B. MOV-3504A o Verify faulted S/G blowdown and sample valves - CLOSED <ul style="list-style-type: none"> • S/G A. AOV-5738 and AOV-5735 • S/G B. AOV-5737 and AOV-5736 o Dispatch A0 to complete faulted S/G isolation (Refer to ATT-10.0, ATTACHMENT FAULTED S/G) 	<p>Manually close valves.</p> <p><u>IF</u> valves can <u>NOT</u> be closed. <u>THEN</u> dispatch A0 to locally isolate flowpaths as necessary.</p>

EOP:	TITLE:	REV: 16
FR-S.1	RESPONSE TO REACTOR RESTART/ATWS	PAGE 12 of 13

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	<p>Check Core Exit T/Cs - LESS THAN 1200°F</p> <p><u>NOTE:</u> Adverse CNMT conditions or loss of forced air cooling may result in failure of NIS detectors.</p>	<p><u>IF</u> core exit temperatures greater than 1200°F and increasing. <u>THEN</u> go to SACRG-1, SEVERE ACCIDENT CONTROL ROOM GUIDELINE INITIAL RESPONSE, step 1.</p>
17	<p>Verify Reactor Subcritical:</p> <ul style="list-style-type: none"> o Power range channels - LESS THAN 5% o Intermediate range channels - STABLE OR DECREASING o Intermediate range channels startup rate - NEGATIVE o Core exit T/Cs - STABLE 	<p>Perform the following:</p> <ul style="list-style-type: none"> a. Stabilize RCS temperature. b. Continue to inject boric acid. c. Perform actions of other FR procedures in effect which do <u>NOT</u> cooldown or otherwise add positive reactivity to the core. d. Direct RP to sample RCS and PRZR for boron concentration. e. Verify boron concentration greater than FIG-2.0, FIGURE SDM. <p><u>IF</u> adequate shutdown margin verified. <u>THEN</u> go to Step 18.</p> <p><u>IF NOT. THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Allow RCS to heat up. b. Perform actions of other FR procedures in effect which do <u>NOT</u> cooldown or otherwise add positive reactivity to the core. c. Return to Step 4.

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 13 of 13
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p>*****</p> <p><u>CAUTION</u></p> <p>BORATION SHOULD CONTINUE TO OBTAIN ADEQUATE SHUTDOWN MARGIN DURING SUBSEQUENT ACTIONS.</p> <p>*****</p> <p>18 Return to Procedure And Step In Effect</p> <p>-END-</p>	

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 1 of 1
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FR-S.1 APPENDIX LIST

TITLE

- 1) FIGURE SDM (FIG-2.0)
- 2) ATTACHMENT FAULTED S/G (ATT-10.0)
- 3) ATTACHMENT CI/CVI (ATT-3.0)
- 4) ATTACHMENT SAFW (ATT-5.1)
- 5) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 6) FOLDOUT

EOP: FR-S.1	TITLE: RESPONSE TO REACTOR RESTART/ATWS	REV: 16 PAGE 1 of 1
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FOLDOUT PAGE

NOTE: This Foldout Page applies to all FR-S series procedures.

1. LOSS OF SW CRITERIA

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

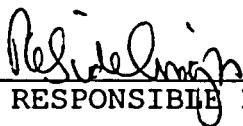
- a. Pull stop any D/G that is NOT supplied by alternate cooling, AND immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

EOP: FR-Z.1	TITLE: RESPONSE TO HIGH CONTAINMENT PRESSURE	REV: 8 PAGE 1 of 7
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23


RESPONSIBLE MANAGER

10-10-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: FR-Z.1	TITLE: RESPONSE TO HIGH CONTAINMENT PRESSURE	REV: 8 PAGE 2 of 7
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A. PURPOSE - This procedure provides actions to respond to a high CNMT pressure.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

a. F-0.5, CONTAINMENT Critical Safety Function Status Tree, on a RED or ORANGE condition.

EOP: FR-Z.1	TITLE: RESPONSE TO HIGH CONTAINMENT PRESSURE	REV: 8 PAGE 3 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><u>NOTE:</u> FOLDOUT Page should be open and monitored periodically.</p>	
1	Verify All CI And CVI Valve Status Lights - BRIGHT	<p><u>IF</u> flow path <u>NOT</u> required. <u>THEN</u> manually close CI and CVI valves. <u>IF</u> valves can <u>NOT</u> be verified closed by MCB indication. <u>THEN</u> dispatch A0 to locally close valves. (Refer to ATT-3.0. ATTACHMENT CI/CVI).</p>

EOP: FR-Z.1	TITLE: RESPONSE TO HIGH CONTAINMENT PRESSURE	REV: 8 PAGE 4 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>IF ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, IS IN EFFECT, THEN CNMT SPRAY SHOULD BE OPERATED AS DIRECTED IN ECA-1.1, RATHER THAN STEP 2 BELOW.</p> <p>*****</p>		
2	Verify CNMT Spray Actuated:	
a.	Verify RWST outlet to SI and CNMT spray pumps - OPEN	a. <u>IF</u> in RHR recirculation mode. <u>THEN</u> perform the following:
	<ul style="list-style-type: none"> • MOV-896A • MOV-896B 	1) Operate SI pumps and one CNMT spray pump as directed in ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 14. 2) Go to Step 3.
b.	Verify CNMT spray pumps - RUNNING	b. Manually start pumps.
c.	Verify NaOH flow (FI-930)	c. <u>IF</u> NaOH flow <u>NOT</u> indicated, <u>THEN</u> place switches for NaOH tank outlet valves to OPEN.
		<ul style="list-style-type: none"> • AOV-836A • AOV-836B
d.	Verify CNMT spray pump discharge valves - OPEN	d. Ensure at least one in each set open.
	<ul style="list-style-type: none"> • MOV-860A • MOV-860B • MOV-860C • MOV-860D 	<ul style="list-style-type: none"> • MOV-860A or MOV-860B • MOV-860C or MOV-860D

EOP: FR-Z.1	TITLE: RESPONSE TO HIGH CONTAINMENT PRESSURE	REV: 8 PAGE 5 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	<p>Verify CNMT RECIRC Fans Running:</p> <p>a. All fans - RUNNING</p> <p>b. Charcoal filter dampers green status lights - EXTINGUISHED</p>	<p>a. Manually start fans.</p> <p>b. Dispatch personnel to relay room with relay rack key to locally open dampers by pushing in trip relay plungers.</p> <ul style="list-style-type: none"> • AUX RELAY RACK RA-2 for fan A • AUX RELAY RACK RA-3 for fan C
4	<p>Verify MSIVs - CLOSED</p>	<p>Manually close valves.</p>

EOP: FR-Z.1	TITLE: RESPONSE TO HIGH CONTAINMENT PRESSURE	REV: 8 PAGE 6 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>*****</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>o AT LEAST ONE S/G SHALL BE MAINTAINED AVAILABLE FOR RCS COOLDOWN.</p> <p>o IF BOTH S/GS ARE FAULTED, THEN AT LEAST 50 GPM FEED FLOW SHOULD BE MAINTAINED TO EACH S/G.</p> <p>*****</p>		
5	<p>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>Isolate feed flow to faulted S/G:</p> <ul style="list-style-type: none"> a. Ensure faulted S/G MDAFW pump discharge valve closed. <ul style="list-style-type: none"> • S/G A. MOV-4007 • S/G B. MOV-4008 b. Ensure faulted S/G TDAFW flow control valve closed. <ul style="list-style-type: none"> • S/G A. AOV-4297 • S/G B. AOV-4298 c. Depress MANUAL pushbuttons for faulted S/G MFW regulating valve and bypass valve <u>AND</u> ensure valves closed. <ul style="list-style-type: none"> • S/G A. HCV-466 and HCV-480 • S/G B. HCV-476 and HCV-481 d. Ensure MFW pump discharge valves closed. <p><u>IF</u> valves can <u>NOT</u> be closed, <u>THEN</u> dispatch AO to locally close valves as necessary to isolate flow.</p>

EOP: FR-Z.1	TITLE: RESPONSE TO HIGH CONTAINMENT PRESSURE	REV: 8 PAGE 7 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Return To Procedure And Step In Effect	
	-END-	

EOP: FR-Z.1	TITLE: RESPONSE TO HIGH CONTAINMENT PRESSURE	REV: 8 PAGE 1 of 1
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FR-Z.1 APPENDIX LIST

TITLE

- 1) ATTACHMENT CI/CVI (ATT-3.0)
- 2) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 3) FOLDOUT

EOP: FR-Z.1	TITLE: RESPONSE TO HIGH CONTAINMENT PRESSURE	REV: 8 PAGE 1 of 1
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FOLDOUT PAGE

NOTE: This Foldout Page applies to all FR-Z series procedures.

1. 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.