

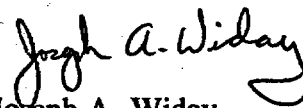
August 26, 2003

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
AP Index
ATT-8.5, Rev 1
AP-CVCS.3, Rev 4
AP-ELEC.14/16, Rev 7

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INPUT PARAMETERS: TYPE: PRATT, PRAP, PRE

STATUS VALUE(S): EF, QU

5 YEARS ONLY:

PRAP ABNORMAL PROCEDURE

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
AP-CCW.1	LEAKAGE INTO THE COMPONENT COOLING LOOP	015	06/26/2002	06/26/2002	06/26/2007	EF
AP-CCW.2	LOSS OF CCW DURING POWER OPERATION	018	05/08/2003	06/26/2002	06/26/2007	EF
AP-CCW.3	LOSS OF CCW - PLANT SHUTDOWN	015	11/19/2002	06/26/2002	06/26/2007	EF
AP-CR.1	CONTROL ROOM INACCESSIBILITY	019	02/25/2003	06/26/2002	06/26/2007	EF
AP-CVCS.1	CVCS LEAK	013	06/26/2002	06/03/2002	06/03/2007	EF
AP-CVCS.3	LOSS OF ALL CHARGING FLOW	004	08/26/2003	02/26/1999	02/26/2004	EF
AP-CW.1	LOSS OF A CIRC WATER PUMP	011	06/26/2002	04/16/2003	04/16/2008	EF
AP-ELEC.1	LOSS OF 12A AND/OR 12B BUSES	026	05/30/2003	06/26/2002	06/26/2007	EF
AP-ELEC.2	SAFEGUARD BUSES LOW VOLTAGE OR SYSTEM LOW FREQUENCY	010	06/26/2002	06/26/2002	06/26/2007	EF
AP-ELEC.3	LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350 F)	012	05/30/2003	06/26/2002	06/26/2007	EF
AP-ELEC.14/16	LOSS OF SAFEGUARDS BUS 14/16	007	08/26/2003	06/26/2002	06/26/2007	EF
AP-ELEC.17/18	LOSS OF SAFEGUARDS BUS 17/18	006	05/30/2003	06/26/2002	06/26/2007	EF
AP-FW.1	ABNORMAL MAIN FEEDWATER FLOW	015	05/08/2003	06/26/2002	06/26/2007	EF
AP-IA.1	LOSS OF INSTRUMENT AIR	018	06/26/2002	04/16/2003	04/16/2008	EF
AP-PRZR.1	ABNORMAL PRESSURIZER PRESSURE	014	05/08/2003	06/26/2002	06/26/2007	EF
AP-RCC.1	CONTINUOUS CONTROL ROD WITHDRAWAL/INSERTION	008	06/26/2002	04/16/2003	04/16/2008	EF
AP-RCC.2	RCC/RPI MALFUNCTION	010	06/26/2002	01/22/2002	01/22/2007	EF
AP-RCC.3	DROPPED ROD RECOVERY	006	02/25/2003	02/25/2003	02/25/2008	EF
AP-RCP.1	RCP SEAL MALFUNCTION	015	05/08/2003	04/24/2003	04/24/2008	EF
AP-RCS.1	REACTOR COOLANT LEAK	016	06/26/2002	04/16/2003	04/16/2008	EF
AP-RCS.2	LOSS OF REACTOR COOLANT FLOW	011	06/26/2002	04/16/2003	04/16/2008	EF
AP-RCS.3	HIGH REACTOR COOLANT ACTIVITY	010	06/26/2002	04/01/2002	01/22/2007	EF
AP-RCS.4	SHUTDOWN LOCA	014	04/30/2003	04/30/2003	04/30/2008	EF
AP-RHR.1	LOSS OF RHR	019	04/30/2003	04/30/2003	04/30/2008	EF
AP-RHR.2	LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS	013	04/30/2003	04/30/2003	04/30/2008	EF
AP-SG.1	STEAM GENERATOR TUBE LEAK	003	11/21/2002	06/26/2002	06/26/2007	EF
AP-SW.1	SERVICE WATER LEAK	019	05/30/2003	04/21/2003	04/21/2008	EF
AP-SW.2	LOSS OF SERVICE WATER	004	05/30/2003	10/31/2001	10/31/2006	EF
AP-TURB.1	TURBINE TRIP WITHOUT RX TRIP REQUIRED	012	05/08/2003	06/26/2002	06/26/2007	EF
AP-TURB.2	TURBINE LOAD REJECTION	018	06/26/2002	06/26/2002	06/26/2007	EF

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INPUT PARAMETERS: TYPE: PRATT, PRAP, PRE

STATUS VALUE(S): EF, QU

5 YEARS ONLY:

PRAP ABNORMAL PROCEDURE

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
AP-TURB.3	TURBINE VIBRATION	011	06/26/2002	06/26/2002	06/26/2007	EF
AP-TURB.4	LOSS OF CONDENSER VACUUM	017	04/30/2003	04/30/2003	04/30/2008	EF
AP-TURB.5	RAPID LOAD REDUCTION	006	06/26/2002	06/26/2002	06/26/2007	EF

PRAP TOTAL: 33

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INPUT PARAMETERS: TYPE: PRATT, PRAP, PRE

STATUS VALUE(S): EF, QU

5 YEARS ONLY:

PRATT EOP ATTACHMENTS

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
ATT-1.0	ATTACHMENT AT POWER CCW ALIGNMENT	003	02/12/2003	02/12/2003	02/12/2008	EF
ATT-1.1	ATTACHMENT NORMAL CCW FLOW	000	05/18/2000	05/18/2000	05/18/2005	EF
ATT-2.1	ATTACHMENT MIN SW	005	02/01/2001	02/03/2003	02/03/2008	EF
ATT-2.2	ATTACHMENT SW ISOLATION	008	03/06/2002	03/27/2003	03/27/2008	EF
ATT-2.3	ATTACHMENT SW LOADS IN CNMT	004	03/06/2002	12/31/1999	12/31/2004	EF
ATT-2.4	ATTACHMENT NO SW PUMPS	002	05/30/2003	10/31/2001	10/31/2006	EF
ATT-2.5	ATTACHMENT SPLIT SW HEADERS	000	06/26/2002	06/26/2002	06/26/2007	EF
ATT-3.0	ATTACHMENT CVCVI	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	005	03/06/2002	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 LD	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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STATUS VALUE(S): EF, QU

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 SG	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	014	06/20/2002	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

EOP: ATT-8.5	TITLE: ATTACHMENT LOSS OF OFFSITE POWER	REV: 1 PAGE 1 of 1
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Responsible Manager *W. W. W.* Date 8-26-2003

1. IF offsite power is lost after SI has been reset, THEN the following equipment will auto start if available:

- o Powered from D/G(s):
 - One CCW pump, due to low header pressure (122 kw)
 - Selected SW pumps, on 40 sec timer (257 kw each)
 - MDAFPs, due to both MFP breakers open (223 kw each) (discharge MOVs also open)
 - CS pumps, if previously running
- o TDAFW pump, if both 11A AND 11B deenergized

CAUTION

OBSERVE D/G LOAD LIMITS WHEN MANUALLY STARTING EQUIPMENT SUPPLIED BY THE D/G.

2. Manual start is required for the following equipment:


- SI pumps
- RHR pumps
- CNMT recirc fans (205 kw each)
- Charging pumps (75 kw each)
- PRZR heaters (400 kw each)
- SAFW pumps

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 1 of 31
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23


RESPONSIBLE MANAGER

8-26-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 2 of 31
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A. PURPOSE - This procedure provides the necessary instructions to mitigate the consequences of a loss of all charging flow or gas binding of charging pumps.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. AP-CVCS.1, CVCS LEAK, when no charging flow paths are available for inventory control.
- b. AP-ELEC.14/16, LOSS OF SAFEGUARDS BUS 14/16, when no charging pumps are available.

2. SYMPTOMS - The symptoms of a loss of all charging or gas binding charging of pumps are;

- a. Annunciator B-9 (B-10), RCP A(B) LABYR SEAL LO DIFF PRESS 15" H2O, lit, or
- b. Seal injection flow low or erratic, or
- c. Charging line flow low or erratic, or
- d. Charging pump discharge pressure low or erratic, or
- e. Annunciator F-14, CHARGING PUMP SPEED, lit, or
- f. Annunciator A-2, VCT LEVEL 14%86, if gas intrusion to charging pumps is indicated, or
- g. Annunciator A-4, REGEN HX LETDOWN OUT HI TEMP 395°F, lit, or
- h. Annunciator A-10, VCT PRESSURE 15PSI65, if gas intrusion to charging pumps is indicated, or
- i. Annunciator G-25, MOTOR OFF CTR SECT PUMPS EXCEPT MAIN & AUX FEED PUMPS

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 3 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	Check Charging Pumps - ANY RUNNING	Start two charging pumps. <u>IF</u> at least one pump cannot be started, <u>THEN</u> go to step 4.
2	Check Charging Pump Conditions: <ul style="list-style-type: none"> o Check charging pump discharge pressure - GREATER THAN RCS PRESSURE AND STABLE o Check charging flow - NORMAL o Check RCP labyrinth seal dp - GREATER THAN 15 INCHES AND STABLE 	<p>Evaluate System Conditions</p> <ul style="list-style-type: none"> o AO Reports <ul style="list-style-type: none"> • Indications of CVCS leakage • Increased sump pump operation • Abnormal indications for operating charging pumps o Rad Monitors o VCT Indications o Aux Bldg Sump Indication <ul style="list-style-type: none"> • Frequency of level alarms • Increased sump pump operation <p><u>IF</u> AP-CVCS.1, CVCS LEAK directed this procedure be entered, <u>THEN</u> go to Step 4.</p> <p><u>IF NOT</u> and a charging system leak is suspected, <u>THEN</u> go to AP-CVCS.1, CVCS LEAK.</p> <p><u>IF NOT</u>, <u>THEN</u> stop all charging pumps and go to step 4.</p>

EDP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 4 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	Return To Guidance In Effect	
4	Isolate Letdown <ul style="list-style-type: none"> a. Close letdown isolation valve, AOV-427 b. Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202) c. Close excess letdown flow control valve, HCV-123. d. Close excess letdown isolation valve, AOV-310. e. Close charging flow control valve, HCV-142. 	
5	Check CCW To RCP Thermal Barriers <ul style="list-style-type: none"> o Annunciator A-7, RCP 1A CCW RETURN HI TEMP OR LOW FLOW-EXTINGUISHED o Annunciator A-15, RCP 1B CCW RETURN HI TEMP OR LOW FLOW - EXTINGUISHED 	<p><u>IF</u> CCW lost to RCP(s). <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Trip the Rx. b. Trip affected RCP(s) c. Close seal return AOV for affected RCP(s) <ul style="list-style-type: none"> • RCP A - AOV-270A • RCP B - AOV-270B d. Go to E-0, REACTOR TRIP OR SAFETY INJECTION.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 5 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* 6	Monitor PRZR Level - GREATER THAN 5%	IF reactor trip breakers are closed, <u>THEN</u> trip the reactor and go to E-0. REACTOR TRIP OR SAFETY INJECTION.
7	Check VCT Makeup System:	
	a. Ensure the following:	
	1) RMW mode selector switch in AUTO	
	2) RMW control armed - RED LIGHT LIT	
	b. Check VCT level:	b. Check letdown divert valve, LCV-112A, aligned to VCT.
	o Level - GREATER THAN 20%	1) Manually increase VCT makeup flow as follows:
	-OR-	a) Ensure BA transfer pumps and RMW pumps running.
	o Level - STABLE OR INCREASING	b) Adjust RMW flow control valve, HCV-111, to increase flow.
		c) Adjust boric acid flow to maintain required concentration.
		IF VCT level can <u>NOT</u> be maintained, <u>THEN</u> refer to ER-CVCS.1, REACTOR MAKEUP CONTROL MALFUNCTION, if necessary.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 6 of 31
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: A load reduction may be required if charging pump suction is aligned to the RWST.

**8 Check Charging Pump Suction
Aligned To VCT:**

a. VCT level - GREATER THAN 20%

a. IF VCT level can NOT be maintained greater than 5%. THEN perform the following:

1) Ensure charging pump suction aligned to RWST

o LCV-112B open

o LCV-112C closed

IF LCV-112B and/or LCV-112C CAN NOT be operated THEN perform the following:

a) Stop charging pump A and place in PULL STOP.

b) Dispatch A0 to locally open V-358. manual charging pump suction from RWST (charging pump room).

c) WHEN V-358 open. THEN direct A0 to close V-268 to isolate charging pumps B and C from VCT (charging pump room).

2) Direct A0 to isolate H2 and N2 to the VCT.

• Close V-261

• Close V-262

3) Close seal return. MOV-313.

This Step continued on the next page.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 7 of 31
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

(Step 8 continued from previous page)

- 4) Continue with step 9. IF AO reports no leakage in Aux Bldg. THEN when VCT level greater than 20%, and LCV-112B and LCV-112C are BOTH operable. THEN perform the following:
 - a) Open LCV-112C. return to AUTO.
 - b) Close LCV-112B. return to AUTO.
 - c) Open VCT suction isolation to charging pumps B and C. V-268.
 - d) Close charging pump suction from RWST. V-358.
 - e) Restore H² to VCT. V-261.
 - f) Open seal return. MOV-313.

b. Align charging pumps to VCT

- o LCV-112C open
- o LCV-112B closed

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 8 of 31
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: A load reduction may be required if charging pump suction is aligned to the RWST.

9 Try To Restore Charging Pump A

- | | |
|--|---|
| a. Check charging pump isolation.
V-268 - OPEN | a. Go to Step 10. |
| b. Charging pump A is to be started | b. Go to Step 10. |
| c. Gas binding of charging pump A
<u>NOT</u> suspected | c. Vent and fill charging pump A as follows:

1) Close discharge isolation.
V-287.

2) Throttle open discharge
drain, V-292C.

3) <u>WHEN</u> sump tank level increase
is noted, <u>THEN</u> close
discharge drain, V-292C.

4) Open discharge isolation.
V-287. |
| d. Start charging pump A. | d. <u>IF</u> charging pump A will not
start, <u>THEN</u> go to Step 10. |
| e. Check charging pump conditions:

o Charging pump discharge
pressure - ABOVE RCS PRESSURE
AND STABLE

o Charging flow normal | e. Perform the following:

1) Stop charging pump A.

2) Go to Step 10. |

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 9 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p>NOTE: A load reduction may be required if charging pump suction is aligned to the RWST.</p>	
10	Try To Restore Charging Pump B	
a.	Charging pump B is to be started	a. Go to Step 11.
b.	Gas binding of charging pump B <u>NOT</u> suspected	b. Vent and fill charging pump B as follows: <ul style="list-style-type: none"> 1) Close discharge isolation, V-288. 2) Throttle open discharge drain, V-292D. 3) <u>WHEN</u> sump tank level increase is noted, <u>THEN</u> close discharge drain, V-292D. 4) Open discharge isolation, V-288.
c.	Start charging pump B	c. <u>IF</u> charging pump B will not start, <u>THEN</u> go to Step 11.
d.	Check charging pump conditions: <ul style="list-style-type: none"> o Charging pump discharge pressure - ABOVE RCS PRESSURE AND STABLE o Charging flow normal 	d. Perform the following: <ul style="list-style-type: none"> 1) Stop charging pump B. 2) Go to Step 11.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 10 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p>NOTE: A load reduction may be required if charging pump suction is aligned to the RWST.</p>	
11	Try To Restore Charging Pump C	
a.	Gas binding of charging pump C <u>NOT</u> suspected	<p>a. Vent and fill charging pump C as follows:</p> <ol style="list-style-type: none"> 1) Close discharge isolation. V-291. 2) Throttle open discharge drain. V-292E. 3) <u>WHEN</u> sump tank level increase is noted, <u>THEN</u> close discharge drain. V-292E. 4) Open discharge isolation. V-291.
b.	Check charging pumps A and B - BOTH RUNNING	<p>b. Perform the following:</p> <ol style="list-style-type: none"> 1) <u>IF</u> desired, <u>THEN</u> start charging pump C. <u>IF</u> charging pump C can not be started, <u>THEN</u> go to Step 12. 2) Go to Step 11d.
c.	Go to Step 12.	
d.	Check charging pump conditions: <ul style="list-style-type: none"> o Charging pump discharge pressure - ABOVE RCS PRESSURE AND STABLE o Charging flow normal 	<p>d. Perform the following:</p> <ol style="list-style-type: none"> 1) Stop charging pump C. 2) Go to Step 12.

EDP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 11 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>NOTE: A load reduction may be required if charging pump suction is aligned to the RWST.</p>		
<p>12 Check Charging Pumps</p>		
	<p>a. At least one charging pump running</p> <p>b. Check charging pump conditions:</p> <ul style="list-style-type: none"> o Charging pumps discharge pressure - ABOVE RCS PRESSURE AND STABLE o Charging flow - NORMAL <p>c. Adjust charging pump speed and HCV-142 to:</p> <ul style="list-style-type: none"> • Restore PRZR level to program • Maintain labyrinth seal D/P between 15 inches and 80 inches 	<p>a. Continue efforts to restore charging capability <u>AND</u> go to Step 17.</p> <p>b. Perform the following:</p> <ul style="list-style-type: none"> 1) Stop charging pump(s). 2) Continue efforts to restore charging capability <u>AND</u> go to step 17.
<p>13 Check PRZR Level</p>		
	<p>a. Check PRZR level - INCREASING</p> <p>b. Check PRZR level - GREATER THAN 13%</p>	<p>a. <u>IF</u> Tavg is stable or increasing, <u>THEN</u> go to AP-RCS.1. REACTOR COOLANT LEAK.</p> <p>b. <u>WHEN</u> PRZR level increases to greater than 13%, <u>THEN</u> do step 14.</p>

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 12 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14	Establish Normal Letdown (Refer to ATT-9.0, ATTACHMENT LETDOWN)	<u>IF</u> normal letdown can <u>NOT</u> be established, <u>THEN</u> establish excess letdown. (Refer to ATT-9.1, ATTACHMENT EXCESS L/D)
15	Evaluate MCB Annunciator Status (Refer to AR Procedures)	
16	Return To Procedure Or Guidance In Effect	

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

IF CHARGING CAPABILITY IS RESTORED DURING SUBSEQUENT STEPS THE OPERATOR SHOULD STOP THE LOAD DECREASE AND RETURN TO STEP 7 FOR RECOVERY ACTIONS.

17 Initiate Load Reduction

a. Verify rods in AUTO

a. Perform the following:

1) Place rods to MANUAL.

2) Insert rods as necessary to match Tav_g and Tref.

b. Reduce turbine load in AUTO as follows:

b. IF Auto Control is inoperable, THEN reduce turbine load in manual at 5%/min.

1) Place Turbine EH Control in OPER PAN., IMP PRESS IN. if desired

2) Select rate of 5%/min on thumbwheel

3) Reduce the setter to zero

4) Depress the GO button

c. Steam dump armed and operating:

c. IF steam dump required but NOT operating, THEN perform the following:

o Annunciator G-15, STEAM DUMP ARMED - LIT

1) Place STEAM DUMP MODE SELECTOR Switch to MANUAL.

o Steam dump operating properly in AUTO

2) Place steam dump controller, HC-484, to MANUAL.

3) Operate steam dump valves manually as necessary.

d. Transfer 4160V Auxiliary load from #11 Transformer (Refer to ATT-23.0, ATTACHMENT TRANSFER 4160V LOADS)

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 14 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>EXTREME AND RAPID ROD MOTION TO MITIGATE TAVG SWINGS MAY RESULT IN LARGE POWER EXCURSIONS AND SHOULD BE AVOIDED.</p> <p>.....</p>		
*18 Monitor RCS Tavg	<ul style="list-style-type: none"> o Tavg - GREATER THAN 545°F o Tavg - LESS THAN 566°F 	<p>Verify control rods responding in AUTO. <u>IF NOT, THEN</u> place rods to MANUAL and adjust rods to restore Tavg within limits.</p> <p><u>IF</u> Tavg is outside limits <u>AND</u> can <u>NOT</u> be controlled, <u>THEN</u> trip the reactor and go to E-0. REACTOR TRIP OR SAFETY INJECTION.</p>
<p><u>NOTE:</u> It is permissible to operate RCPs for limited periods without seal injection, provided CCW is being supplied to the thermal barriers.</p>		
19 Check IA Available To CNMT	<ul style="list-style-type: none"> o IA pressure - > 60 psig o Instr Air to CNMT Isol Valve, AOV-5392 - OPEN 	<p>Control PRZR level and pressure as follows:</p> <ul style="list-style-type: none"> o Adjust load reduction rate o Ensure control rods are moving to control Tavg o Operate proportional and backup heaters as required

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 15 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p>NOTE: With PRZR pressure controller 431K in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3)</p>	
*20	Monitor PRZR Pressure - TRENDING TO 2235 PSIG IN AUTO	<p>Control PRZR pressure by one of the following:</p> <ul style="list-style-type: none"> • 431K in MANUAL • Manual control of PRZR heaters and sprays <p><u>IF</u> PRZR pressure can <u>NOT</u> be controlled manually, <u>THEN</u> refer to AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE.</p>
*21	Monitor MFW Regulating Valves - RESTORING S/G LEVEL TO 52% IN AUTO	<p>Perform the following:</p> <ol style="list-style-type: none"> Place affected S/G(s) MFW regulating valve in MANUAL Restore S/G level to 52%. <p><u>IF</u> S/G level can <u>NOT</u> be controlled manually, <u>THEN</u> refer to AP-FW.1, ABNORMAL MAIN FEEDWATER FLOW.</p>
	<p>NOTE: The load reduction should not be delayed to perform the remaining steps.</p>	
22	Check If Condensate Booster Pumps Should Be Secured	
	<ol style="list-style-type: none"> Power < 65% <u>OR</u> Trim Valve V-9508G indicates > 80% open Place the auto condensate booster pump to the trip position Stop one condensate booster pump <u>WHEN</u> condensate system pressures stabilize, <u>THEN</u> stop the remaining condensate booster pump 	<ol style="list-style-type: none"> <u>WHEN</u> power < 65% <u>OR</u> Trim Valve V-9508G indicates > 80% open, <u>THEN</u> continue with Step 22b.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 16 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23	<p>Check If One MFW Pump Should Be Secured</p> <ul style="list-style-type: none"> a. Power < 50% b. Verify at least one MFWP Seal Booster pump in service c. Two MFW Pumps running d. Close discharge valve for the pump to be secured <ul style="list-style-type: none"> • MFW Pump A - MOV-3977 • MFW Pump B - MOV-3976 e. Stop the desired MFW Pump f. Close the secured MFW pump recirc valve by placing the control switch in pull stop g. Close the service water block valve to the secured MFW pump oil cooler <ul style="list-style-type: none"> • MFW Pump A - V-4701 • MFW Pump B - V-4702 	<ul style="list-style-type: none"> a. <u>WHEN</u> power < 50%, <u>THEN</u> continue with Step 23b. b. Notify AO to start one MFWP Seal Booster pump c. Go to Step 24.
24	<p>Verify Trim Valves Controlling Condensate System Pressure In Auto (300-375 PSIG)</p>	<p>Place controller in manual and control pressure between 300-375 psig</p>

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 17 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>IF MAIN FEEDWATER FLOW SHOULD DECREASE TO 25% OF FULL POWER VALUE (.825 E+6 LBM/HR) PRIOR TO THE AMSAC SYSTEM AUTOMATICALLY BLOCKING, THEN A TURBINE TRIP AND AUX FEED PUMPS START COULD RESULT.</p> <p>*****</p>		
25	Check AMSAC System Status	
	<p>a. Power < 35% (~150 psig first stage pressure)</p> <p>b. Verify AMSAC Auto Block Status Light is ON</p>	<p>a. Continue with Step 26. <u>WHEN</u> power < 35% (~150 psig first stage pressure). <u>THEN</u> do Step 25b.</p> <p>b. Place AMSAC Manual Block switch to the BLOCK position</p>
26	Check Heater Drain Tank Pump Status	
	<p>a. Generator load < 175 MWe</p> <p>b. Stop one Heater Drain Tank Pump</p> <p>c. <u>WHEN</u> Heater Drain Tank level control is stable, <u>THEN</u> stop the second Heater Drain Tank Pump</p>	<p>a. <u>WHEN</u> generator load < 175 MWe, <u>THEN</u> continue with Step 26b.</p>

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 18 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27	Check MFW Regulating Bypass Vlv Status	
	a. Power < 30%	a. <u>WHEN</u> power is < 30%. <u>THEN</u> continue with Step 27b.
	b. MFW Regulating Bypass Vlvs in AUTO <ul style="list-style-type: none"> • HCV-480 • HCV-481 	b. Perform the following: <ol style="list-style-type: none"> 1) Slowly open the MFW Regulating Bypass Vlvs while verifying the associated MFW Regulating Vlv compensates by closing slightly 2) Place MFW Regulating Bypass Vlvs in AUTO
28	Align Systems For Low Power Operation	
	a. Place AOV-3959. CNDST Bypass Vlv to CLOSE	
	b. Place LC-107. Hotwell Level Control. to MANUAL at 50%	
	c. Generator load < 100 MWe	c. <u>WHEN</u> generator load < 100 MWe. <u>THEN</u> continue with Step 28d.
	d. Open turbine drain valves	

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 19 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29	Check If Turbine Should Be Tripped:	
	a. Check turbine load - ≤ 15 MW	a. <u>WHEN</u> turbine load is ≤ 15 MW, <u>THEN</u> continue with Step 29b.
	b. Trip the turbine	
30	Verify Proper Operation Of Steam Dump:	
	a. Verify annunciator G-15, STEAM DUMP ARMED - LIT	a. Place steam dump mode selector switch to MANUAL.
	b. Condenser steam dump operating in AUTO	b. <u>IF</u> steam dump <u>NOT</u> available, <u>THEN</u> perform the following: <ul style="list-style-type: none"> 1) <u>IF</u> power is greater than 8%, <u>THEN</u> ensure reactor trip and go to E-0, REACTOR TRIP OR SAFETY INJECTION. 2) Adjust S/G ARV setpoints to 1005 psig and verify proper operation.
	c. Tavg - TRENDING TO PROGRAM	c. <u>IF</u> temperature less than 547°F and decreasing, <u>THEN</u> perform the following: <ul style="list-style-type: none"> 1) Stop dumping steam 2) <u>IF</u> cooling 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> <p><u>IF</u> Tavg can <u>NOT</u> be controlled, <u>THEN</u> manually trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.</p>

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 20 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE: Transition to E-0 is NOT required when the reactor trip breakers are opened in the following step.

31 Shutdown The Reactor

- a. Place rod control in MANUAL
- b. Drive control rods until $\leq 1\%$ RTP
- c. Press Rx trip pushbutton
- d. Verify Rx trip breakers open
- e. Verify all control and shutdown rods on bottom
- d. Dispatch A0 to locally open reactor trip breakers.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 21 of 31
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

IF ANY S/G LEVEL ABOVE 52%. THEN AFW FLOW MAY BE THROTTLED IMMEDIATELY TO PREVENT S/G ISOLATION.

32 Check S/G Feed Flow Status:

a. Manually start both MDAFW pumps

b. Verify AFW flow - SUFFICIENT FLOW TO MAINTAIN S/G LEVELS

b. Perform the following:

1) Establish MFW flow using MFW regulating valve bypass valves.

IF MFW NOT available, THEN manually start TDAFW pump and establish flow AND go to Step 32c.

2) Adjust feed flow to restore S/G level to 52%.

3) Go to Step 34.

c. Verify MFW flow control valves - CLOSED

- MFW regulating valves
- MFW bypass valves

c. Place A and B MFW regulating and bypass valve controllers in manual at 0% demand.

d. Close MFW pump discharge valves

- MOV-3977. A MFW pump
- MOV-3976. B MFW pump

e. Stop any running MFW pump and place in PULL STOP

f. Place A and B MFW regulating and bypass valve controllers in manual at 0% demand.

g. Adjust AFW pump flow to restore S/G level to 52%

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 22 of 31
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

**33 Establish Normal AFW Pump
Shutdown Alignment:**

- a. Place AFW bypass switches to DEF
- b. Close MDAFW pump discharge valves
 - MOV-4007
 - MOV-4008
- c. Open AFW bypass valves as
necessary to control S/G levels
 - AOV-4480
 - AOV-4481

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 23 of 31
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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>34 Check If Source Range Detectors Should Be Energized:</p> <p>a. Source range channels - DEENERGIZED</p> <p>b. Check intermediate range flux - EITHER CHANNEL LESS THAN 10⁻¹⁰ AMPS</p> <p>c. Check the following:</p> <p>o Both intermediate range channels - LESS THAN 10⁻¹⁰ AMPS</p> <p>-OR-</p> <p>o Greater than 20 minutes since reactor trip</p> <p>d. Verify source range detectors - ENERGIZED</p> <p>e. Transfer Rk-45 recorder to one source range and one intermediate range channel</p>	
		<p>a. Go to Step 34e.</p> <p>b. Continue with Step 35. <u>WHEN</u> flux is less than 10⁻¹⁰ amps on any operable channel. <u>THEN</u> do Steps 34c, d and e.</p> <p>c. Continue with Step 35. <u>When</u> either condition met. <u>THEN</u> do Steps 34d and e.</p> <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 35.</p>

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 24 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
35	Check RCPs - BOTH RUNNING	<p><u>IF</u> only one RCP is running. <u>THEN</u> go to step 37.</p> <p><u>IF</u> no RCPs are running. <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Ensure 2 control rod shroud fans running. b. Go to ES-0.2. NATURAL CIRCULATION COOLDOWN, step 1. <p><u>NOTE:</u> The temperature limit of 530°F is based on two loop SDM requirements.</p>
36	Initiate RCS Cooldown To 540°F	
	<ul style="list-style-type: none"> a. Place Steam Dump Mode Selector Switch to MANUAL b. Dump steam to condenser from intact S/G(s) c. Establish and maintain cooldown rate in RCS cold legs - LESS THAN 100°F/HR d. RCS T cold - LESS THAN 540°F e. Stop RCS cooldown and stabilize T cold between 530°F and 540°F f. Go to step 38 	<ul style="list-style-type: none"> b. Manually or locally dump steam using intact S/Gs ARV. d. Continue with Step 38. <u>WHEN</u> RCS T cold less than 540°F <u>THEN</u> do step 36e.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 25 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
37	Maintain RCS TAVG - STABLE AT 547°F	
	a. Dump steam to condenser from intact S/G(s)	a. Manually or locally dump steam using intact S/Gs ARV.
	b. Establish and maintain TAVG - STABLE AT 547°F	
	NOTE: <u>WHEN</u> using a PRZR PORV. <u>THEN</u> select one with an operable block valve.	
38	Depressurize RCS To Less Than 1950 PSIG Using Normal Spray	<u>IF</u> normal spray not available, <u>THEN</u> use one PRZR PORV.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 26 of 31
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

.....
CAUTION

SI ACTUATION CIRCUITS WILL AUTOMATICALLY UNBLOCK IF PRZR PRESSURE INCREASES TO GREATER THAN 1992 PSIG.
.....

39 Monitor SI Block Criteria:

a. Check the following:

- o PRZR pressure - LESS THAN 1950 PSIG

-OR-

- o LOW PRZR PRESS BLOCK SAF INJEC status light - LIT

b. Stop RCS depressurization AND maintain RCS pressure less than 1950 psig and stable

c. Place SI block switches to BLOCK

- Train A
- Train B

d. Verify SAFETY INJECTION BLOCKED status light - LIT

a. Return to Step 38.

d. Maintain PRZR pressure greater than 1750 psig and S/G pressure greater than 514 psig until SI blocked.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 27 of 31
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

- o WHEN using a PRZR PORV, THEN select one with an operable block valve.

40 Restore PRZR Level

- a. Verify RCS T cold - LESS THAN 540°F (stable at 547°F for one RCP)

- a. Perform the following:

- o IF both RCPs running. THEN return to step 36.

-OR-

- o IF only one RCP running. THEN return to step 37.

- b. Ensure at least one SI pump suction valve from RWST open

- MOV-825A
- MOV-825B

- c. Start one SI Pump

- d. Depressurize RCS to between 1350 psig and 1450 psig using normal spray

- d. IF normal spray not available. THEN use one PRZR PORV.

- e. Verify injection flow to RCS

- f. Verify PRZR level greater than 13%

- f. Continue with step 41. WHEN PRZR level is greater than 13%. THEN do step 40g.

- g. Energize PRZR heaters as necessary to return PRZR to saturation conditions

EOP:
AP-CVCS.3

TITLE:
LOSS OF ALL CHARGING FLOW

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

OBSERVE SAFETY INJECTION PUMP STARTING DUTY LIMITS PER P-7. SAFETY INJECTION AND CONTAINMENT SPRAY SYSTEMS.

NOTE: Adjust RCS pressure, if required, between 1350 psig and 1450 psig as necessary to obtain SI flow.

***41 Maintain Stable Plant Conditions**

- | | |
|--|--|
| a. Maintain RCS pressure between 1350 psig and 1450 psig using PRZR heaters and normal PRZR spray | a. <u>IF</u> normal spray not available, <u>THEN</u> maintain RCS pressure between 1350 psig and 1450 psig using PRZR heaters. |
| b. Maintain PRZR level between 35% and 50% by starting and stopping one SI pump as needed | |
| c. Maintain RCS T cold between 530°F and 540°F (stable at 547°F for one RCP) using steam dump to condenser | c. <u>IF</u> condenser not available, <u>THEN</u> maintain RCS T cold between 530°F and 540°F (stable at 547°F for one RCP) using intact S/G(s) ARV. |

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 29 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
42	Establish Normal Shutdown Alignment:	
	<ul style="list-style-type: none"> a. Check condenser - AVAILABLE b. Perform the following as necessary: <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 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) c. Verify Bus 11A and Bus 11B energized - BOTH BUSSES GREATER THAN 4 KV d. Dispatch AO to perform ATT-17.0. ATTACHMENT SD-1 	<ul style="list-style-type: none"> a. Dispatch AO to perform ATT-17.1. ATTACHMENT SD-2. c. <u>IF</u> either bus <u>NOT</u> energized. <u>THEN</u> refer to O-6.9.2. ESTABLISHING AND/OR TRANSFERRING OFFSITE POWER TO BUS 12A/ BUS 12B.

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 30 of 31
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
43	Notify RP To Obtain Primary Samples Required By ITS LCO 3.4.16 (Load Reduction > 15% in one hour)	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
44	<p>Consult Plant Staff For Long Term Recovery</p> <ul style="list-style-type: none"> o Determine method of VCT level control o Drain VCT to Aux Bldg Sump Tank through one charging pump drain valve <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> o Divert RCP seal return to PRT by closing MOV-313 o Refer to 0-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN o Refer to 0-2.2. PLANT SHUTDOWN FROM HOT SHUTDOWN TO COLD CONDITIONS o Review ITS LCOs (3.1.1. 3.4.5. 3.5.1. 3.5.2. 3.5.4. TRM 3.1.1) o Review SDM requirements (Refer to 0-2.1, 0-3.1) o Determine preferred water source to SI pumps <ul style="list-style-type: none"> • RWST • BAST o Review SI Accumulator isolation criteria (refer to 0-2.2) o Determine if excess letdown should be placed in service (Refer to ATT-9.1. ATTACHMENT EXCESS L/D) o Determine how long RCPs should be run without seal injection (generally less than 24 hours) o Determine method to increase RCP seal cooling, if necessary 	

-END-

EOP: AP-CVCS.3	TITLE: LOSS OF ALL CHARGING FLOW	REV: 4 PAGE 1 of 1
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AP-CVCS.3 APPENDIX LIST

TITLES

- 1) ATTACHMENT SD-1 (ATT-17.0)
- 2) ATTACHMENT EXCESS L/D (ATT-9.1)
- 3) ATTACHMENT TRANSFER 4160V LOADS (ATT-23.0)
- 4) ATTACHMENT SD-2 (ATT-17.1)
- 5) ATTACHMENT LETDOWN (ATT-9.0)

EOP: AP-ELEC.14/16	TITLE: LOSS OF SAFEGUARDS BUS 14/16	REV: 7 PAGE 1 of 21
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

Resilman
RESPONSIBLE MANAGER

8-26-2003
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: AP-ELEC.14/16	TITLE: LOSS OF SAFEGUARDS BUS 14/16	REV: 7 PAGE 2 of 21
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- A. PURPOSE - This procedure provides actions to respond to a loss of AC Emergency Bus 14 or Bus 16.
- B. ENTRY CONDITIONS/SYMPTOMS
 - 2. SYMPTOMS - The symptoms of a LOSS OF SAFEGUARDS BUS 14/16 are;
 - a. Annunciator J-7, 480V MAIN OR TIE BREAKER TRIP, lit, or
 - b. Annunciator J-29, 480V TRANSFORMER BREAKER TRIP, lit.

EOP:

TITLE:

REV: 7

AP-ELEC.14/16

LOSS OF SAFEGUARDS BUS 14/16

PAGE 3 of 21

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

.....

CAUTION

- o IF A LOSS OF BUS 12A OR 12B HAS OCCURRED, THEN AP-ELEC.1. LOSS OF 12A AND/OR 12B BUSSES, SHOULD BE PERFORMED.
 - o OBSERVE D/G LOADING LIMITS OF 2300 KW FOR 1/2 HOUR. 2250 KW FOR 2 HOURS. AND 1950 KW FOR CONTINUOUS SERVICE.
-

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

* 1 Monitor Tavg

- a. Place Rods in MANUAL
- b. Manually move control rods to control Tavg

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

Manually start D/G(s) associated
with affected bus. (Refer to
ER-D/G.1. RESTORING D/Gs)

- o Bus 14 - D/G A
- o Bus 16 - D/G B

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

3 Verify Both Trains Of AC
Emergency Busses Energized To
At Least 420 VOLTS:

- o Bus 14 and Bus 18
- o Bus 16 and Bus 17

IF Bus 14 AND Bus 16 are
deenergized, THEN go to ECA-0.0.
LOSS OF ALL AC POWER.

IF one train deenergized, THEN
perform the following:

a. Ensure D/G aligned for unit
operation

- o Mode switch in UNIT

- o Voltage control selector in
AUTO

b. Check D/G running.

IF NOT, THEN perform the
following:

1) Depress D/G FIELD RESET
pushbutton

2) Depress D/G RESET pushbutton

3) Start D/G

4) IF D/G will NOT start, THEN
dispatch AO to locally start
D/G. (Refer to ER-D/G.1,
RESTORING D/Gs)

c. Adjust D/G voltage to
approximately 480V.

d. Adjust D/G frequency to
approximately 60 Hz.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION

IF CCW FLOW TO A RCP IS INTERRUPTED FOR GREATER THAN 2 MINUTES OR IF EITHER RCP MOTOR BEARING TEMPERATURE EXCEEDS 200°F. THEN TRIP THE AFFECTED RCP.

4 Verify CCW Pump Status

a. At least one CCW Pump - RUNNING

a. Start one CCW pump (122 kw)

IF neither CCW pump can be started, THEN perform the following:

o IF reactor trip breakers closed, THEN:

1) Trip the reactor.

2) WHEN all E-0 Immediate Actions done, THEN trip BOTH RCP's.

3) Close letdown isolation, AOV-427.

4) Close excess letdown, HCV-123.

5) Pull stop BOTH CCW pumps.

6) Go to E-0, REACTOR TRIP OR SAFETY INJECTION.

o IF reactor trip breakers open, THEN:

1) Trip both RCPs.

2) Close letdown isolation, AOV-427.

3) Close excess letdown, HCV-123.

4) Pull stop BOTH CCW pumps.

5) Go to Step 5.

b. Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSIG - EXTINGUISHED

b. Start second CCW pump (122 kw).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	Verify Charging Pump Status- AT LEAST ONE RUNNING	Isolate letdown flowpaths a. Close letdown isolation, AOV-427. b. Close EXCESS LETDOWN HCV-123. c. Close loop A cold leg to EXCESS LETDOWN Hx, AOV-310.
6	Check MFW Regulating Valves - RESTORING S/G LEVEL TO 52% IN AUTO	Perform the following: a. Place affected S/G MFW regulating valve in MANUAL. b. Restore S/G level to 52%. <u>IF</u> S/G level can <u>NOT</u> be controlled manually, <u>THEN</u> refer to AP-FW.1. ABNORMAL MAIN FEEDWATER FLOW.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	Verify Bus 14 - ENERGIZED TO AT LEAST 420 VOLTS	<p>Perform the following:</p> <ul style="list-style-type: none"> a. Close letdown isolation, AOV-427. b. <u>IF</u> steam dump is armed, <u>THEN</u> place STEAM DUMP MODE SELECTOR Switch to MANUAL. c. Ensure only one charging pump operating (75 kw). d. Transfer Inst Bus B to maintenance supply. e. Return steam dump to AUTO, if desired. f. Ensure the following equipment operating as necessary: <ul style="list-style-type: none"> • CCW Pump B • PRZR Backup Heaters • CNMT Recirc Fans B and C • Boric Acid Pump B • RMW Pump B • Reactor Compartment Cooling Fan B • Penetration Cooling Fan B • SFP cooling g. <u>IF</u> Bus 14 can <u>NOT</u> be energized, <u>THEN</u>: <ul style="list-style-type: none"> o Provide alternate room cooling for D/G A. o Cross-connect D/G B fuel oil transfer pump to D/G A (Refer to ER-D/G.1, RESTORING D/Gs).

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

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

9 Check VCT Makeup System:

a. Ensure the following:

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

b. Check VCT level:

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

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

Manually increase VCT makeup
flow as follows:

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

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

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	<p>Check Charging Pump Suction Aligned To VCT:</p> <p>a. VCT level - GREATER THAN 20%</p> <p>b. 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> <p>1) Ensure charging pump suction aligned to RWST</p> <ul style="list-style-type: none"> o LCV-112B open o LCV-112C closed <p>2) Continue with Step 11. <u>WHEN</u> VCT level greater than 20%. <u>THEN</u> do Step 10b.</p>

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

11 Check CVCS Operation:

a. Charging pumps - AT LEAST ONE
RUNNING

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

1) IF all seal cooling has been
lost to any RCP, THEN isolate
seal injection to affected RCP

- RCP A, V-300A
- RCP B, V-300B

2) Start one charging pump
(75 kw).

3) Establish greater than 20 gpm
charging line flow.

IF NO charging pumps available,
THEN perform the following:

1) WHILE continuing in this
procedure, perform actions of
AP-CVCS.3, LOSS OF ALL
CHARGING FLOW.

2) Go to Step 13.

b. Charging line flow - GREATER
THAN 20 GPM

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

This Step continued on the next page.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

(Step 11 continued from previous page)

c. Check letdown indications:

- o Check PRZR level - GREATER THAN 13%
- o Letdown flow - APPROXIMATELY 40 GPM (60 GPM IF AOV-202 OPEN)
- o Letdown flow - STABLE

c. Perform the following:

- 1) Close letdown isolation. AOV-427.
- 2) Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202)
- 3) Close letdown isolation. AOV-371.
- 4) IF seal injection in service. THEN close charging flow control valve HCV-142 WHILE adjusting charging pump speed to maintain:
 - o RCP labyrinth seal D/P between 15 inches and 80 inches
 - o PRZR level at program
- 5) IF PRZR level greater than 13%. THEN go to Step 12. IF NOT. THEN continue with Step 14. WHEN PRZR level greater than 13%, THEN do Steps 12 and 13.

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

e. Go to Step 13

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12	Establish Normal Letdown (Refer to ATT-9.0, ATTACHMENT LETDOWN)	<u>IF</u> normal letdown can <u>NOT</u> be established. <u>THEN</u> establish excess letdown. (Refer to ATT-9.1, ATTACHMENT EXCESS L/D)
13	Verify PRZR Heaters Restored: <ul style="list-style-type: none"> o PRZR proportional heater breaker - CLOSED o PRZR backup heater breaker - RESET. IN AUTO 	<p><u>IF</u> adequate D/G capacity available for PRZR heaters (400 kw each bank). <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> a. Reset and close PRZR proportional heater breaker if necessary. b. Reset PRZR backup heater breaker and return to AUTO if necessary. <p><u>IF</u> adequate D/G capacity <u>NOT</u> available. <u>THEN</u> refer to ER-PRZR.1. RESTORATION OF PRZR HEATERS DURING BLACKOUT.</p>

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

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: With PRZR pressure controller 431K in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3)

15 Establish Stable Plant Conditions:

a. Check Tavg - TRENDING TO TREF

a. IF Tavg greater than Tref, THEN restore Tavg to Tref by one or more of the following:

- Insert control rods
- RCS boration

IF Tavg less than Tref, THEN restore Tavg to Tref by one or more of the following:

- Withdraw control rods
- Reduce turbine load
- Dilution of RCS

b. Check PRZR pressure - TRENDING TO 2235 PSIG IN AUTO

b. Control PRZR pressure by one of the following:

- 431K in MANUAL
- Manual control of PRZR heaters and sprays

IF PRZR pressure can NOT be controlled manually, THEN refer to AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE.

c. Check PRZR level - TRENDING TO PROGRAM IN AUTO CONTROL

c. Perform the following:

- 1) Place affected charging pumps in MANUAL
- 2) Adjust charging pump speed to restore PRZR level to program.

IF PRZR level can NOT be controlled manually, THEN refer to AP-RCS.1, REACTOR COOLANT LEAK.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	Restore Normal Electric System Alignment:	
a.	Verify all AC bus normal feed breakers - CLOSED	a. Perform the following:
	<ul style="list-style-type: none"> • Bus 13 • Bus 14 • Bus 15 • Bus 16 • Bus 17 • Bus 18 	1) Refer to AR-L-5 to reset a safeguards bus over current condition. 2) Restore non-faulted AC busses and MCCs to normal power supply (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER) 3) <u>IF</u> normal power is restored to all AC emergency buses. <u>THEN</u> return to step 9. <u>IF NOT. THEN</u> go to step 17.
b.	Stop any unloaded emergency D/G and place in standby (Refer to T-27.4, DIESEL GENERATOR OPERATION)	
c.	Restore D/G Fuel Oil Transfer System to normal alignment. (Refer to ER-D/G.1, RESTORING D/Gs)	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	Establish Normal Plant Conditions:	
a.	Verify 2 charging pumps - RUNNING	a. Perform the following: 1) Manually start charging pumps as necessary. 2) Place one charging pump in AUTO, if desired.
b.	Verify at least 2 CNMT recirc fans - RUNNING	b. Establish 2 CNMT recirc fans running.
c.	Check CCW pumps - ONLY ONE RUNNING	c. Locally verify two CCW pumps running. <u>THEN</u> manually stop one pump.
d.	Check radiation monitoring systems: o CNMT vent sample pump - RUNNING o Plant vent sample pump - RUNNING o All area and process monitors operating as required	d. Restore sample pumps and radiation monitors as necessary. (Refer to the ODCM).
18	Check Status Of DC System Loads:	
a.	Verify TDAFW pump DC oil pump - OFF IN AUTO	a. Perform the following: 1) Direct AO to locally check TDAFW AC oil pump running. <u>IF</u> not running, <u>THEN</u> start pump from MCB. <u>IF</u> AC oil pump can <u>NOT</u> be started, <u>THEN</u> go to Step 19. 2) Stop TDAFW pump DC oil pump.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

19 Check Status of Battery
Chargers:

a. Battery Chargers 1A OR 1A1 -
ENERGIZED (Annunciator J-15,
BATTERY CHRGR FAILURE OR PA
INVERTER TROUBLE, EXTINGUISHED)

b. Battery Chargers 1B OR 1B1 -
ENERGIZED (Annunciator J-15,
BATTERY CHRGR FAILURE OR PA
INVERTER TROUBLE, EXTINGUISHED)

a. IF BOTH battery chargers are
deenergized, THEN direct the
Electricians to crosstie TSC
battery charger to main battery
A (Refer to ATT-24.0.
ATTACHMENT TRANSFER BATTERY TO
TSC).

b. IF BOTH battery chargers are
deenergized, THEN direct the
Electricians to crosstie TSC
battery charger to main battery
B (Refer to ATT-24.0.
ATTACHMENT TRANSFER BATTERY TO
TSC).

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

20 Restore Equipment Alignment:

- | | |
|--|---|
| <ul style="list-style-type: none"> a. Verify annunciator L-1, AUX BLDG VENT SYSTEM CONTROL PANEL - EXTINGUISHED b. Restore affected bus equipment as power supply permits. <ul style="list-style-type: none"> o SFP Cooling o Penetration cooling fans o Reactor compartment cooling fans o Hydrogen panel o PA system inverter (Battery Room A) o Auxiliary Bldg lighting (normal supply MCC D, manual throwover to MCC C) (switch at MCC C, locked valve key required) o Fire system (Refer to SC-3.16.2.3) c. Evaluate MCB annunciator status (Refer to AR Procedures) d. Verify control board valve alignment - NORMAL (Refer to O-6.13, DAILY SURVEILLANCE LOG) | <ul style="list-style-type: none"> a. Dispatch A0 to restore AUX BLDG ventilation (Refer to T-35A, AUX AND INTERMEDIATE BUILDING VENTILATION STARTUP AND SHUTDOWN) d. Manually align valves as necessary. |
|--|---|

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STEP
ACTION/EXPECTED RESPONSE
RESPONSE NOT OBTAINED
21 Establish Control System In Auto:

- | | |
|---|--|
| a. Verify 431K in AUTO | a. Place 431K in AUTO, if desired. |
| b. Verify PRZR spray valves in AUTO | b. Place PRZR spray valves in AUTO, if desired. |
| c. Verify PRZR heaters restored: | c. Restore PRZR heaters, if desired. |
| o PRZR proportional heaters breaker - CLOSED | |
| o PRZR backup heaters breaker - RESET. IN AUTO | |
| d. Verify one charging pump in AUTO | d. Place one charging pump in AUTO, if desired. |
| e. Verify MFW regulating valves in AUTO | e. Place MFW regulating valves in AUTO, if desired. |
| f. Restore EH controls | |
| 1) Place in OP PAN. IMP OUT | |
| 2) Place load rate thumbwheel to 10%/hr | |
| 3) Match setter and reference | |
| g. Verify annunciator G-15, STEAM DUMP ARMED - EXTINGUISHED | g. <u>WHEN</u> Tavg within 5°F of Tref, <u>THEN</u> perform the following: |
| | 1) Ensure steam dump valves closed |
| | 2) Reset steam dump |
| h. Verify rods in AUTO | h. Place rods in AUTO, if desired. |

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	Evaluate MCB Annunciator Status (Refer to AR Procedures)	
	NOTE: Refer to 0-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.	
23	Verify emergency AC bus normal feed breakers closed	Return to Step 9
	o Bus 14	
	o Bus 16	
24	Verify Inst Bus B on normal supply	Place Inst Bus B on normal supply (Refer to ER-INST.3, INSTRUMENT BUS POWER RESTORATION).
25	Reset UV relay targets on undervoltage cabinets	
	o Bus 14	
	o Bus 16	
26	Notify Higher Supervision	
27	Return To Procedure Or Guidance In Effect	
	-END-	

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AP-ELEC.14/16 APPENDIX LIST

TITLE

- 1) ATTACHMENT TRANSFER BATTERY TO TSC (ATT-24.0)
- 2) ATTACHMENT EXCESS L/D (ATT-9.1)
- 3) ATTACHMENT LETDOWN (ATT-9.0)