

PARAMETERS: DOC TYPES - PRAP PRATT PRER STATUS: EF QU 5 YEARS ONLY:

| PROCEDURE NUMBER | PROCEDURE TITLE                                     | REV | EFFECT DATE | LAST REVIEW | NEXT REVIEW | ST |
|------------------|---|-----|-------------|-------------|-------------|----|
| AP-CCW.1         | LEAKAGE INTO THE COMPONENT COOLING LOOP             | 015 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-CCW.2         | LOSS OF CCW DURING POWER OPERATION                  | 016 | 06/26/02    | 08/17/99    | 08/17/04    | EF |
| AP-CCW.3         | LOSS OF CCW - PLANT SHUTDOWN                        | 014 | 06/26/02    | 08/17/99    | 08/17/04    | EF |
| AP-CR.1          | CONTROL ROOM INACCESSIBILITY                        | 018 | 06/26/02    | 01/11/00    | 01/11/05    | EF |
| AP-CVCS.1        | CVCS LEAK   | 013 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-CVCS.3        | LOSS OF ALL CHARGING FLOW                           | 003 | 06/26/02    | 02/26/99    | 02/26/04    | EF |
| AP-CW.1          | LOSS OF A CIRC WATER PUMP                           | 011 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-ELEC.1        | LOSS OF 12A AND/OR 12B BUSES                        | 023 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-ELEC.2        | SAFEGUARD BUSES LOW VOLTAGE OR SYSTEM LOW FREQUENCY | 010 | 06/26/02    | 03/22/99    | 03/22/04    | EF |
| AP-ELEC.3        | LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350 F)    | 011 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-ELEC.14/16    | LOSS OF SAFEGUARDS BUS 14/16                        | 004 | 06/26/02    | 01/22/02    | 01/22/07    | EF |
| AP-ELEC.17/18    | LOSS OF SAFEGUARDS BUS 17/18                        | 004 | 06/26/02    | 01/22/02    | 01/22/07    | EF |
| AP-FW.1          | ABNORMAL MAIN FEEDWATER FLOW                        | 013 | 06/26/02    | 02/27/98    | 02/27/03    | EF |
| AP-IA.1          | LOSS OF INSTRUMENT AIR                              | 018 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-PRZR.1        | ABNORMAL PRESSURIZER PRESSURE                       | 013 | 06/26/02    | 12/02/99    | 12/02/04    | EF |
| AP-RCC.1         | CONTINUOUS CONTROL ROD WITHDRAWAL/INSERTION         | 008 | 06/26/02    | 05/14/98    | 05/14/03    | EF |
| AP-RCC.2         | RCC/RPI MALFUNCTION                                 | 010 | 06/26/02    | 01/22/02    | 01/22/07    | EF |
| AP-RCC.3         | DROPPED ROD RECOVERY                                | 005 | 06/26/02    | 02/27/98    | 02/27/03    | EF |
| AP-RCP.1         | RCP SEAL MALFUNCTION                                | 014 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-RCS.1         | REACTOR COOLANT LEAK                                | 016 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-RCS.2         | LOSS OF REACTOR COOLANT FLOW                        | 011 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-RCS.3         | HIGH REACTOR COOLANT ACTIVITY                       | 010 | 06/26/02    | 04/01/02    | 01/22/07    | EF |
| AP-RCS.4         | SHUTDOWN LOCA                                       | 012 | 06/26/02    | 05/01/98    | 05/01/03    | EF |
| AP-RHR.1         | LOSS OF RHR   | 017 | 05/30/02    | 05/01/98    | 05/01/03    | EF |

REPORT NO. 01  
REPORT: NPSP0200  
DOC TYPE: PRAP

GINNA NUCLEAR POWER PLANT  
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ABNORMAL PROCEDURE

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PARAMETERS: DOC TYPES - PRAP PRATT PRER STATUS: EF QU 5 YEARS ONLY:

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|---------------------|---|-----|----------------|----------------|----------------|----|
| AP-RHR.2            | LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS | 012 | 05/30/02       | 03/31/00       | 03/31/05       | EF |
| AP-SG.1             | STEAM GENERATOR TUBE LEAK                                       | 002 | 06/26/02       | 09/08/00       | 09/08/05       | EF |
| AP-SW.1             | SERVICE WATER LEAK  | 017 | 06/26/02       | 06/03/98       | 06/03/03       | EF |
| AP-SW.2             | LOSS OF SERVICE WATER   | 002 | 06/26/02       | 10/31/01       | 10/31/06       | EF |
| AP-TURB.1           | TURBINE TRIP WITHOUT RX TRIP REQUIRED                           | 011 | 06/26/02       | 01/22/02       | 01/22/07       | EF |
| AP-TURB.2           | TURBINE LOAD REJECTION  | 018 | 06/26/02       | 05/13/98       | 05/13/03       | EF |
| AP-TURB.3           | TURBINE VIBRATION   | 011 | 06/26/02       | 02/10/98       | 02/10/03       | EF |
| AP-TURB.4           | LOSS OF CONDENSER VACUUM  | 015 | 06/26/02       | 05/01/98       | 05/01/03       | EF |
| AP-TURB.5           | RAPID LOAD REDUCTION  | 006 | 06/26/02       | 06/09/00       | 06/09/05       | EF |
| TOTAL FOR PRAP      | 33  |     |                |                |                |    |

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| PROCEDURE NUMBER | PROCEDURE TITLE                             | REV | EFFECT DATE | LAST REVIEW | NEXT REVIEW | ST |
|------------------|---|-----|-------------|-------------|-------------|----|
| ATT-1.0          | ATTACHMENT AT POWER CCW ALIGNMENT           | 002 | 05/02/02    | 02/10/98    | 02/10/03    | EF |
| ATT-1.1          | ATTACHMENT NORMAL CCW FLOW                  | 000 | 05/18/00    | 05/18/00    | 05/18/05    | EF |
| ATT-2.1          | ATTACHMENT MIN SW                           | 005 | 02/01/01    | 02/10/98    | 02/10/03    | EF |
| ATT-2.2          | ATTACHMENT SW ISOLATION                     | 008 | 03/06/02    | 08/11/98    | 08/11/03    | EF |
| ATT-2.3          | ATTACHMENT SW LOADS IN CNMT                 | 004 | 03/06/02    | 12/31/99    | 12/31/04    | EF |
| ATT-2.4          | ATTACHMENT NO SW PUMPS                      | 001 | 01/08/02    | 10/31/01    | 10/31/06    | EF |
| ATT-2.5          | ATTACHMENT SPLIT SW HEADERS                 | 000 | 06/26/02    | 06/26/02    | 06/26/07    | EF |
| ATT-3.0          | ATTACHMENT CI/CVI                           | 006 | 03/06/02    | 01/06/99    | 01/06/04    | EF |
| ATT-3.1          | ATTACHMENT CNMT CLOSURE                     | 004 | 03/06/02    | 01/25/99    | 01/25/04    | EF |
| ATT-4.0          | ATTACHMENT CNMT RECIRC FANS                 | 003 | 07/26/94    | 05/13/98    | 05/13/03    | EF |
| ATT-5.0          | ATTACHMENT COND TO S/G                      | 005 | 03/06/02    | 12/31/99    | 12/31/04    | EF |
| ATT-5.1          | ATTACHMENT SAFW                             | 008 | 05/30/02    | 12/31/99    | 12/31/04    | EF |
| ATT-5.2          | ATTACHMENT FIRE WATER COOLING TO TDAFW PUMP | 003 | 01/14/99    | 01/14/99    | 01/14/04    | EF |
| ATT-6.0          | ATTACHMENT COND VACUUM                      | 003 | 12/18/96    | 02/10/98    | 02/10/03    | EF |
| ATT-7.0          | ATTACHMENT CR EVAC                          | 006 | 03/06/02    | 02/10/98    | 02/10/03    | EF |
| ATT-8.0          | ATTACHMENT DC LOADS                         | 006 | 03/22/99    | 01/14/99    | 01/14/04    | EF |
| ATT-8.1          | ATTACHMENT D/G STOP                         | 005 | 03/06/02    | 02/10/98    | 02/10/03    | EF |
| ATT-8.2          | ATTACHMENT GEN DEGAS                        | 008 | 06/20/02    | 08/17/99    | 08/17/04    | EF |
| ATT-8.3          | ATTACHMENT NONVITAL                         | 004 | 03/06/02    | 02/10/98    | 02/10/03    | EF |
| ATT-8.4          | ATTACHMENT SI/UV                            | 005 | 03/06/02    | 02/10/98    | 02/10/03    | EF |
| ATT-8.5          | ATTACHMENT LOSS OF OFFSITE POWER            | 000 | 05/02/02    | 05/02/02    | 05/02/07    | EF |
| ATT-9.0          | ATTACHMENT LETDOWN                          | 008 | 03/06/02    | 03/06/02    | 03/06/07    | EF |
| ATT-9.1          | ATTACHMENT EXCESS L/D                       | 005 | 03/06/02    | 10/31/01    | 10/31/06    | EF |
| ATT-10.0         | ATTACHMENT FAULTED S/G                      | 006 | 03/06/02    | 05/13/98    | 05/13/03    | EF |

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|---------------------|----------------------------------|-----|----------------|----------------|----------------|----|
| ATT-11.0            | ATTACHMENT IA CONCERNS           | 002 | 04/07/97       | 08/11/98       | 08/11/03       | EF |
| ATT-11.1            | ATTACHMENT IA SUPPLY             | 003 | 03/06/02       | 08/11/98       | 08/11/03       | EF |
| ATT-11.2            | ATTACHMENT DIESEL AIR COMPRESSOR | 002 | 05/11/01       | 04/03/98       | 04/03/03       | EF |
| ATT-12.0            | ATTACHMENT N2 PORVS              | 004 | 03/06/02       | 02/10/98       | 02/10/03       | EF |
| ATT-13.0            | ATTACHMENT NC                    | 002 | 07/26/94       | 02/10/98       | 02/10/03       | EF |
| ATT-14.0            | ATTACHMENT NORMAL RHR COOLING    | 003 | 03/06/02       | 09/23/99       | 09/23/04       | EF |
| ATT-14.1            | ATTACHMENT RHR COOL              | 005 | 01/08/02       | 01/08/02       | 01/08/07       | EF |
| ATT-14.2            | ATTACHMENT RHR ISOL              | 002 | 03/06/02       | 02/10/98       | 02/10/03       | EF |
| ATT-14.3            | ATTACHMENT RHR NPSH              | 003 | 03/06/02       | 01/06/99       | 01/06/04       | EF |
| ATT-14.5            | ATTACHMENT RHR SYSTEM            | 002 | 07/26/94       | 02/10/98       | 02/10/03       | EF |
| ATT-14.6            | ATTACHMENT RHR PRESS REDUCTION   | 002 | 03/06/02       | 01/14/99       | 01/14/04       | EF |
| ATT-15.0            | ATTACHMENT RCP START             | 009 | 03/06/02       | 03/17/00       | 03/17/05       | EF |
| ATT-15.1            | ATTACHMENT RCP DIAGNOSTICS       | 003 | 04/24/97       | 02/10/98       | 02/10/03       | EF |
| ATT-15.2            | ATTACHMENT SEAL COOLING          | 005 | 03/06/02       | 02/10/98       | 02/10/03       | EF |
| ATT-16.0            | ATTACHMENT RUPTURED S/G          | 011 | 07/18/01       | 01/11/00       | 01/11/05       | EF |
| ATT-16.1            | ATTACHMENT SGTL                  | 002 | 03/06/02       | 09/08/00       | 09/08/05       | EF |
| ATT-16.2            | ATTACHMENT RCS BORON FOR SGTL    | 002 | 04/09/02       | 09/08/00       | 09/08/05       | EF |
| ATT-17.0            | ATTACHMENT SD-1                  | 014 | 06/20/02       | 02/29/00       | 02/28/05       | EF |
| ATT-17.1            | ATTACHMENT SD-2                  | 006 | 03/06/02       | 01/30/01       | 01/30/06       | EF |
| ATT-18.0            | ATTACHMENT SFP - RWST            | 005 | 03/06/02       | 02/10/98       | 02/10/03       | EF |
| ATT-20.0            | ATTACHMENT VENT TIME             | 003 | 07/26/94       | 02/10/98       | 02/10/03       | EF |
| ATT-21.0            | ATTACHMENT RCS ISOLATION         | 002 | 03/06/02       | 02/10/98       | 02/10/03       | EF |
| ATT-22.0            | ATTACHMENT RESTORING FEED FLOW   | 003 | 05/02/02       | 01/22/02       | 01/22/07       | EF |
| ATT-23.0            | ATTACHMENT TRANSFER 4160V LOADS  | 000 | 02/26/99       | 02/26/99       | 02/26/04       | EF |

REPORT NO. 01  
REPORT: NPSP0200  
DOC TYPE: PRATT

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EOP ATTACHMENTS

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PARAMETERS: DOC TYPES - PRAP PRATT PRER STATUS: EF QU 5 YEARS ONLY:

| PROCEDURE<br>NUMBER | PROCEDURE TITLE                        | REV | EFFECT<br>DATE | LAST<br>REVIEW | NEXT<br>REVIEW | ST |
|---------------------|--|-----|----------------|----------------|----------------|----|
| ATT-24.0            | ATTACHMENT TRANSFER BATTERY TO TSC     | 000 | 09/08/00       | 09/08/00       | 09/08/05       | EF |
| ATT-26.0            | ATTACHMENT RETURN TO NORMAL OPERATIONS | 000 | 10/31/01       | 10/31/01       | 10/31/06       | EF |
| TOTAL FOR PRATT     | 50                                     |     |                |                |                |    |

|                 |                                       |                       |
|-----------------|---------------------------------------|-----------------------|
| EOP:<br>ATT-2.5 | TITLE:<br>ATTACHMENT SPLIT SW HEADERS | REV: 0<br>PAGE 1 of 1 |
|-----------------|---------------------------------------|-----------------------|

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Responsible Manager RSiddhanta Date 6-26-2002

NOTE: Locked valve key required.

Dispatch AO to perform the following to split SW headers (requires entry to LCO 3.7.8, Condition C).

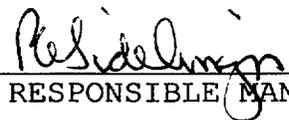
- Close D/G SW crosstie V-4669 OR V-4760 (B D/G Room)
- Close SW loop crosstie V-4611 OR V-4612 (Screenhouse Basement)
- IF SW leak is in SW Loop A, THEN close SW loop crosstie V-4625 (Int Bldg clean side)
- IF SW leak is in SW Loop B, THEN close SW loop crosstie V-4626 (Int Bldg clean side)
- Close SW loop crosstie V-4639 OR V-4756 (Int Bldg clean side)
- Close SW loop crosstie V-4610 OR V-4779 (Aux Bldg middle level)
- IF SW leak is in SW Loop A, THEN close SW loop A isolation valve to Aux Bldg motor coolers, V-4739 (Aux Bldg middle level, SW header area)
- IF SW leak is in SW Loop B, THEN close SW loop B root valve to Aux Bldg motor coolers, V-4738 (Aux Bldg middle level, SW header area)

|                  |   |                         |
|------------------|---|-------------------------|
| EOP:<br>AP-CCW.1 | TITLE:<br>LEAKAGE INTO THE COMPONENT COOLING LOOP | REV: 15<br>PAGE 1 of 15 |
|------------------|---|-------------------------|

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

  
\_\_\_\_\_  
RESPONSIBLE MANAGER

6-26-2002  
\_\_\_\_\_  
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: \_\_\_\_\_

|                  |   |                         |
|------------------|---|-------------------------|
| EOP:<br>AP-CCW.1 | TITLE:<br>LEAKAGE INTO THE COMPONENT COOLING LOOP | REV: 15<br>PAGE 2 of 15 |
|------------------|---|-------------------------|

A. PURPOSE - This procedure provides the actions required to identify and isolate leakage into the CCW system and to control the plant during the course of the event.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from;

- a. AP-CVCS.1, CVCS LEAK, or,
- b. AP-RCS.1, RCS LEAK, or,
- c. AP-RCP.1 RCP SEAL MALFUNCTION, when CCW surge tank level increasing.

2. SYMPTOMS - The symptoms of LEAKAGE INTO THE COMPONENT COOLING LOOP are;

- a. Annunciator A-5, CCW SURGE TANK HI LEVEL 58.8%, lit or
- b. CCW radiation monitor (R-17) alarm, or
- c. Annunciator A-7 (15), RCP A (B) CCW RETURN HI TEMP OR LO FLOW 165 GPM 125°F, lit or
- d. Erratic RCP labyrinth seal D/P.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*

CAUTION

IF CCW SYSTEM RADIATION MONITOR ALARMS, THEN VERIFY CCW SURGE TANK VENT, RCV-017, CLOSES.

\*\*\*\*\*

1 Check CCW Indications

- |  |   |
|--|---|
| <p>a. Check CCW surge tank level - INCREASING</p> <p>b. Direct RP tech to perform CH-PRI-CCW-LEAK, DETERMINATION OF CCW SYSTEM LEAKAGE</p> <p>c. CCW radiation monitor, R-17, - INCREASING</p> | <p>a. <u>IF</u> level decreasing, <u>THEN</u> go to AP-CCW.2, LOSS OF CCW DURING POWER OPERATION or AP-CCW.3, LOSS OF CCW - PLANT SHUTDOWN. <u>IF</u> level stable, <u>THEN</u> return to procedure or step in effect.</p> <p>c. Check RCS leakrate. <u>IF</u> RCS leakrate increasing, <u>THEN</u> go to Step 2 (Refer to RCS Leakage Surveillance Sheet).<br/><br/><u>IF</u> RCS leakage and R-17 indication normal, <u>THEN</u> go to Step 13.</p> |
|--|---|

|      |                          |                       |
|------|--------------------------|-----------------------|
| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

\*\*\*\*\*

CAUTION

IF EITHER RCP #1 SEAL OUTLET TEMPERATURE EXCEEDS 215°F, THEN THE AFFECTED RCP(S) SHOULD BE STOPPED.

\*\*\*\*\*

NOTE: RCPs may be safely operated without CCW to the thermal barrier if seal injection flow is maintained.

2 Check RCP Thermal Barrier Indications:

- o Labyrinth seal D/Ps - GREATER THAN 15 INCHES OF WATER AND APPROXIMATELY EQUAL
- o RCP #1 seal leak off flows - WITHIN THE NORMAL OPERATING RANGE OF FIG-4.0, FIGURE RCP SEAL LEAKOFF
- o Annunciator A-7 (15), RCP A (B) CCW RETURN HI TEMP OR LO FLOW 165 GPM 125°F - EXTINGUISHED

IF either pump has indication of a thermal barrier leak, THEN perform the following:

- a. Verify seal injection flow to affected RCP.
- b. Close CCW return from affected RCP thermal barrier (labyrinth seal D/P should increase).
  - RCP A, AOV-754A
  - RCP B, AOV-754B
- c. Evaluate CCW surge tank level trend. IF leakage into the CCW system has stopped, THEN go to Step 17.

3 Check RCS temperature - GREATER THAN 350°F

Go to Step 7.

| STEP                           | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED  |
|--------------------------------|--------------------------|--|
| 4 Check NRHX For Leakage:      |                          |  |
| a. Normal letdown - IN SERVICE |                          | a. Perform the following: <ol style="list-style-type: none"> <li>1) <u>IF</u> excess letdown in service, <u>THEN</u> perform the following:               <ol style="list-style-type: none"> <li>a) Close excess letdown flow control valve, HCV-123.</li> <li>b) Close excess letdown isolation valve, AOV-310.</li> </ol> </li> <li>2) Go to Step 5.</li> </ol>  |
| b. Check Letdown Indications:  |                          | b. Isolate Normal Letdown: <ol style="list-style-type: none"> <li>1) Close letdown isolation, AOV-427.</li> <li>2) Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202).</li> <li>3) Close letdown isolation, AOV-371.</li> <li>4) Close charging flow control valve, HCV-142 <u>WHILE</u> adjusting charging pump speed to maintain:               <ul style="list-style-type: none"> <li>• RCP labyrinth seal D/P between 15 inches and 80 inches.</li> <li>• PRZR level at program</li> </ul> </li> <li>5) Go to Step 5.</li> </ol> |
| c. Go to Step 6                |                          |  |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

5 Check If CCW Inleakage Has Stopped:

a. CCW surge tank level - STABLE

a. IF CCW surge tank level still increasing, THEN perform the following:

1) Restore letdown flowpath previously isolated (Refer to ATT-9.0, ATTACHMENT LETDOWN OR ATT-9.1, ATTACHMENT EXCESS L/D).

2) Adjust charging flow to restore PRZR level.

3) Go to Step 13.

b. Restore an intact letdown flowpath if available (Refer to ATT-9.0, ATTACHMENT LETDOWN OR ATT-9.1, ATTACHMENT EXCESS L/D)

c. Check any letdown flowpath - RESTORED

c. IF no letdown flowpath available, THEN consult Plant Staff.

d. Adjust charging flow to restore PRZR level

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)

6 Establish Stable Plant Conditions:

a. Check Tav<sub>g</sub> - TRENDING TO TREF

a. IF Tav<sub>g</sub> greater than Tref, THEN restore Tav<sub>g</sub> to Tref by one or more of the following:

- Insert control rods
- RCS boration

IF Tav<sub>g</sub> less than Tref, THEN restore Tav<sub>g</sub> 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.

d. Go to Step 17

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*  
CAUTION  
 UNFILTERED WATER MAY DAMAGE RCP SEAL SURFACES.  
 \*\*\*\*\*

7 Check NRHX For Leakage:

- a. Narrow range PRZR level - ON SCALE
- a. IF the RCS is solid, THEN perform the following:
  - 1) Stop any running RCP.
  - 2) WHEN RCPs stopped, THEN stop any running charging pump.
- b. Isolate letdown flow to NRHX:
  - o Ensure the following valves - CLOSED
    - Letdown isolation, AOV-427
    - Letdown orifice valves (AOV-200A, AOV-200B, and AOV-202)
    - RHR letdown flow control valve, HCV-133
  - o Close letdown isolation valve, AOV-371
  - o Place letdown pressure controller, PCV-135, in MANUAL and close valve (demand at 100%).

|      |                          |                       |
|------|--------------------------|-----------------------|
| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

\*\*\*\*\*  
CAUTION  
 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.  
 \*\*\*\*\*

8 Check If CCW Inleakage Has Stopped:

- |   |   |
|---|---|
| a. CCW surge tank level - STABLE                                      | a. <u>IF</u> CCW inleakage continues, <u>THEN</u> go to Step 9.   |
| b. Narrow range PRZR level - ON SCALE                                 | b. <u>IF</u> RCS is solid, <u>THEN</u> perform the following:<br>1) Ensure both RCPs off.<br>2) Cycle charging pumps to control RCS pressure. |
| c. Establish excess letdown (Refer to ATT-9.1, ATTACHMENT EXCESS L/D) |   |
| d. Start one charging pump  |   |
| e. Adjust charging flow to restore PRZR level                         |   |
| f. Check RCS temperature - STABLE                                     | f. Adjust RHR cooling to stabilize RCS temperature.   |
| g. Go to Step 17  |   |

| STEP               | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED   |
|--------------------|---|---|
| 9 Restore Letdown: | <p>a. Check RHR - IN SERVICE</p> <p>b. Open letdown isolation valve, AOV-371</p> <p>c. Place letdown controllers in MANUAL at 40% open</p> <ul style="list-style-type: none"> <li>• TCV-130</li> <li>• PCV-135</li> </ul> <p>d. Manually open RHR LETDOWN TO CVCS, HCV-133</p> <p>e. Place TCV-130 in AUTO at 105°F</p> <p>f. Place PCV-135 in AUTO at desired pressure</p> <p>g. Start one charging pump</p> <p>h. Adjust charging flow to restore PRZR pressure/level</p> | <p>a. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Establish normal letdown (Refer to ATT-9.0, ATTACHMENT LETDOWN).</li> <li>2) Go to Step 10.</li> </ol> |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*  
CAUTION  
 o ONE TRAIN OF RHR SHALL BE OPERABLE AT ALL TIMES.  
 o IF AN RHR PUMP OR HX IS REMOVED FROM SERVICE, THEN OPERABILITY REQUIREMENTS SHOULD BE EVALUATED (REFER TO ITS SECTIONS 3.4 AND 3.5).  
 \*\*\*\*\*

10 Check RHR System For Leakage:

a. Both RHR loops - ALIGNED AND OPERABLE

a. IF any loop isolated for this leak investigation, THEN perform the following:

- 1) Restore isolated loop to service (Refer to ATT-14.2, ATTACHMENT RHR ISOL and S-13A, RHR LINEUP FOR SAFETY INJECTION).
- 2) WHEN loop restored, THEN isolate other RHR loop (Refer to ATT-14.2, ATTACHMENT RHR ISOL).
- 3) Go to Step 11.

b. Isolate selected RHR loop (Refer to ATT-14.2, ATTACHMENT RHR ISOL)

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED   |
|------|--|---|
| 11   | Verify RCS temperature -<br>STABLE OR DECREASING   | Increase cooling from available RHR loop. Attempt to establish S/G cooling if necessary.  |
| 12   | Check If CCW Inleakage Has Stopped:<br><br>a. CCW surge tank level - STABLE  | a. <u>IF</u> any RHR loop has <u>NOT</u> been checked for leakage, <u>THEN</u> return to Step 10.<br><br><u>IF</u> both RHR loops have been checked, <u>THEN</u> restore RHR loops to operable and go to Step 13.   |
|      | b. Go to Step 17   |   |
| 13   | Check RMW to CCW Surge Tank:<br><br>o Verify CCW surge tank fill valve, MOV-823 - CLOSED<br><br>o Verify RMW pump(s) - OFF | <u>IF</u> RMW to CCW surge tank, MOV-823, open <u>OR</u> RMW pump running, <u>THEN</u> perform the following:<br><br>a. Close CCW surge tank fill valve, MOV-823.<br><br>b. Shut off running RMW pumps.<br><br>c. <u>IF</u> CCW inleakage stops, <u>THEN</u> go to Step 17. |

| STEP   | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED   |
|--|---|---|
| 14 Check For Sample Hx Leaks:  | <ul style="list-style-type: none"> <li>a. Direct AO to locally check nuclear sample room Hxs <ul style="list-style-type: none"> <li>o Sample Hx (TI-602) common CCW return temperature from sample Hxs - NORMAL (Refer to Aux Bldg log sheet, 3 of 3)</li> <li>o Sample Hx (FI-603) common CCW return flow from sample Hxs - NORMAL (Refer to Aux Bldg log sheet, 3 of 3)</li> </ul> </li> <li>b. Direct RP Tech to check PASS - SAMPLING IN PROGRESS</li> <li>c. Direct RP Tech to terminate PASS sampling</li> <li>d. Verify CCW inleakage - STOPPED</li> </ul> | <ul style="list-style-type: none"> <li>a. Determine which sample Hx CCW outlet temperature is high, <u>THEN</u> perform the following: <ul style="list-style-type: none"> <li>1) Isolate the affected Hx.</li> <li>2) <u>IF</u> CCW inleakage has stopped, <u>THEN</u> go to Step 17.</li> </ul> </li> <li>b. Go to Step 15.</li> </ul> |
| 15 Check SW Header Pressure - LESS THAN 60 PSIG  | <p>Dispatch AO to check CCW pump discharge pressure. <u>IF</u> SW pressure greater than CCW pressure, <u>THEN</u> investigate possible SW leak into CCW system.</p>   |   |
| * * * * *  |   |   |
| <u>CAUTION</u>   |   |   |
| <p>IF A SAFEGUARDS PUMP IS TO BE REMOVED FROM SERVICE DURING AN EMERGENCY CONDITION, THEN CONSULT WITH PLANT STAFF PRIOR TO STOPPING PUMP.</p> |   |   |
| * * * * *  |   |   |
| 16 Check Safeguards Pump Status - ALL SAFEGUARDS PUMPS OFF   | <ul style="list-style-type: none"> <li>• SI pumps</li> <li>• RHR pumps</li> <li>• CS pumps</li> </ul>   | <p><u>IF</u> any event in progress requiring safeguards pump operation, <u>THEN</u> consult Plant Staff for guidance on checking safeguards pumps for CCW leakage.</p>  |

| STEP  | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|---|--|--|
| 17 Evaluate Plant Conditions:                     | <ul style="list-style-type: none"> <li>a. CCW inleakage - IDENTIFIED AND ISOLATED</li> <li>b. Determine if operation can continue (Consult Plant staff if necessary) - OPERATION CAN CONTINUE</li> </ul>   | <ul style="list-style-type: none"> <li>a. Return to Step 2.</li> <li>b. <u>IF</u> plant shutdown is required, <u>THEN</u> refer to 0-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN.</li> </ul>  |
| 18 Check CCW Surge Tank Level - APPROXIMATELY 50% |  | Consult RP tech to determine method to drain and dispose of excess CCW.  |
| 19 Establish Control Systems In Auto              | <ul style="list-style-type: none"> <li>a. Verify rods in AUTO</li> <li>b. Verify 431K in AUTO</li> <li>c. Verify PRZR spray valves in AUTO</li> <li>d. Verify PRZR heaters restored: <ul style="list-style-type: none"> <li>o PRZR proportional heaters breaker - CLOSED</li> <li>o PRZR backup heaters breaker - RESET, IN AUTO</li> </ul> </li> <li>e. Verify one charging pump in AUTO</li> </ul> | <ul style="list-style-type: none"> <li>a. Place rods in AUTO, if desired.</li> <li>b. Place 431K in AUTO, if desired.</li> <li>c. Place PRZR spray valves in AUTO, if desired.</li> <li>d. Restore PRZR heaters, if desired.</li> <li>e. Place one charging pump in AUTO, if desired.</li> </ul> |

EOP:

AP-CCW.1

TITLE:

LEAKAGE INTO THE COMPONENT COOLING LOOP

REV: 15

PAGE 15 of 15

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

20 Evaluate MCB Annunciator  
Status (Refer to AR  
Procedures)

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

21 Notify Higher Supervision

22 Return To Procedure Or  
Guidance In Effect

-END-

|                  |   |                        |
|------------------|---|------------------------|
| EOP:<br>AP-CCW.1 | TITLE:<br>LEAKAGE INTO THE COMPONENT COOLING LOOP | REV: 15<br>PAGE 1 of 1 |
|------------------|---|------------------------|

AP-CCW.1 APPENDIX LIST

TITLE

- 1) FIGURE RCP SEAL LEAKOFF (FIG-4.0)
- 2) ATTACHMENT RHR ISOL (ATT-14.2)
- 3) ATTACHMENT LETDOWN (ATT-9.0)
- 4) ATTACHMENT EXCESS L/D (ATT-9.1)

|

|                  |  |                         |
|------------------|--|-------------------------|
| EOP:<br>AP-CCW.2 | TITLE:<br>LOSS OF CCW DURING POWER OPERATION | REV: 16<br>PAGE 1 of 10 |
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23



RESPONSIBLE MANAGER

6-26-2002

EFFECTIVE DATE

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| EOP:<br>AP-CCW.2 | TITLE:<br>LOSS OF CCW DURING POWER OPERATION | REV: 16<br>PAGE 2 of 10 |
|------------------|--|-------------------------|

A. PURPOSE - This procedure provides the steps necessary to respond to a loss of CCW while the plant is at power.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

a. AP-CCW.1, LEAKAGE INTO THE COMPONENT COOLING SYSTEM, when CCW surge tank level decrease indicated at power.

2. SYMPTOMS - The symptoms of LOSS OF CCW DURING POWER OPERATION are;

a. Annunciator A-13, CCW SURGE TANK LO LEVEL 41.2%, lit, or

b. Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSI, lit, or

c. Annunciator A-17, MOTOR OFF RCP CCWP, lit, or

d. Annunciator A-9, RHR PUMP COOLING WATER OUTLET LO FLOW 15 GPM, lit or

e. Annunciator A-6, CONT SPRAY PUMP COOLING WATER OUT LOW FLOW 15 GPM, lit or

f. Annunciator A-14, SAFETY INJ PUMPS COOLING WATER OUT LO FLOW 25 GPM, lit or

g. Annunciator A-7 (A-15), RCP A (B) CCW RETURN HI TEMP OR LO FLOW 165 GPM 125°F, lit or

h. Annunciator A-24 (A-32), RCP A (B) OIL LEVEL + 1.25, lit or,

i. Annunciator A-12, NON-REGEN HX LETDOWN OUT HI TEMP 145°F lit or,

j. Annunciator A-18, VCT HI TEMP 145°.

|      |                          |                       |
|------|--------------------------|-----------------------|
| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

\*\*\*\*\*

CAUTION

- o 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.
- o IF CCW IS LOST, THEN SEAL INJECTION SHOULD BE MAINTAINED TO THE RCP(S) UNTIL RCS TEMPERATURE IS LESS THAN 150°F, OR UNTIL CCW IS RESTORED.

\*\*\*\*\*

1 Check CCW Pump Status:

- o Both CCW pump breaker white lights - EXTINGUISHED
- o Annunciator A-17, MOTOR OFF RCP CCWP - EXTINGUISHED

Perform the following:

- a. Ensure standby CCW pump running.
  - IF no CCW pump can be operated, THEN perform the following:
    - 1) Trip the reactor.
    - 2) Trip BOTH RCPs.
    - 3) Close letdown isol, AOV-427.
    - 4) Close excess letdown, HCV-123.
    - 5) Go to E-0, REACTOR TRIP OR SAFETY INJECTION.
- b. IF annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSI, lit, THEN check closed CCW to RHR HXs (MOV-738A and MOV-738B).

|                  |  |                         |
|------------------|--|-------------------------|
| EOP:<br>AP-CCW.2 | TITLE:<br>LOSS OF CCW DURING POWER OPERATION | REV: 16<br>PAGE 4 of 10 |
|------------------|--|-------------------------|

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: MCB CCW surge tank level indication should be verified locally in the AUX BLDG, if possible.

\* 2 Monitor CCW Surge Tank Level  
- APPROXIMATELY 50% AND STABLE

Perform the following:

- a. Open RMW to CCW surge tank, MOV-823.
- b. Start RMW pump(s).
- c. IF surge tank level stable or increasing, THEN control level at approximately 50% while continuing with Step 3.

IF CCW surge tank level can NOT be maintained greater than 10%, THEN perform the following:

- 1) Close letdown isol, AOV-427.
- 2) Close excess letdown, HCV-123.
- 3) Trip the reactor.
- 4) Trip BOTH RCPs.
- 5) Place both CCW pumps in pull stop.
- 6) Go to E-0, REACTOR TRIP OR SAFETY INJECTION.

| STEP | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED   |
|------|---|---|
| 3    | <p>Check CCW To Both RCPs:</p> <ul style="list-style-type: none"> <li>o Annunciator A-7 (A-15), RCP 1A (1B) CCW return Hi temp or low flow 165 gpm 125°F alarm - EXTINGUISHED</li> <li>o RCP motor bearings temperature (PPCS Group Display-RCPS OR RCP temperature monitor RK-30A recorder) - ≤ 200°F</li> </ul> | <p><u>IF</u> CCW lost to RCP(s), <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <li>a. Trip the reactor.</li> <li>b. Trip affected RCP(s).</li> <li>c. Go to E-0, REACTOR TRIP OR SAFETY INJECTION.</li> </ul>   |
| * 4  | <p>Monitor If Letdown Should Be Isolated:</p> <ul style="list-style-type: none"> <li>a. Check annunciator A-12, Non-Regen Hx Letdown Out Hi Temp 145° - EXTINGUISHED</li> </ul>   | <p>Isolate Normal Letdown:</p> <ul style="list-style-type: none"> <li>1) Close letdown isolation, AOV-427.</li> <li>2) Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202).</li> <li>3) Close letdown isolation, AOV-371.</li> <li>4) Close charging flow control valve, HCV-142 <u>WHILE</u> adjusting charging pump speed to maintain: <ul style="list-style-type: none"> <li>• RCP labyrinth seal D/P between 15 inches and 80 inches</li> <li>• PRZR level at program</li> </ul> </li> </ul> |
|      | <ul style="list-style-type: none"> <li>b. Check excess letdown temperature - LESS THAN 195°F</li> </ul>   | <p>Isolate Excess Letdown:</p> <ul style="list-style-type: none"> <li>1) Close excess letdown flow control valve, HCV-123.</li> <li>2) Close excess letdown isolation valve, AOV-310.</li> </ul>  |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

5 Check CCW Valve Alignment -  
NORMAL

- a. Check MCB CCW valves (Refer to ATT-1.0, ATTACHMENT AT POWER CCW ALIGNMENT)
- b. Direct AO to check local flow indications per ATT-1.1, ATTACHMENT NORMAL CCW FLOW

a. Align CCW valves as necessary.

- NOTE:
- o IF Seal Water Hx will be bypassed, THEN an increase in VCT temperature is expected.
  - o IF Seal Water Hx will be isolated, THEN seal return and excess letdown (if in service) will be to the PRT through RV-314.

6 Check Seal Water Hx For Tube  
Leak:

- o Locally check Seal Water Hx CCW outlet flow - NORMAL (FI-605, refer to AO log)
- o Locally check Seal Water Hx CCW outlet temperature - NORMAL (TI-604, refer to AO log)
- o VCT level - NO UNEXPLAINED INCREASE

IF a tube leak is indicated, THEN bypass and isolate Seal Water Hx and, if desired, isolate Seal Return.

- a. To bypass and isolate Hx perform the following:
  - 1) Open seal bypass V-394
  - 2) Close seal inlet V-265
  - 3) Close seal outlet V-321
  - 4) Close CCW inlet V-763
  - 5) Close CCW outlet V-767
- b. IF desired to isolate seal return line, THEN close MOV-313.
- c. Notify RP to sample RCS for chromates.

|                  |  |                         |
|------------------|--|-------------------------|
| EOP:<br>AP-CCW.2 | TITLE:<br>LOSS OF CCW DURING POWER OPERATION | REV: 16<br>PAGE 7 of 10 |
|------------------|--|-------------------------|

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Operation may continue with the reactor support coolers isolated. If this occurs, notify higher supervision.

7 Check For CCW Leakage In CNMT:

a. Check CNMT sump A level:

- o Level - STABLE
- o Sump A pumps - OFF

b. RCP oil levels - STABLE

a. IF abnormal increase in CNMT sump level, THEN perform the following:

- 1) Direct RP Tech to sample sump A for chromates.
- 2) Prepare to make CNMT entry to check for CCW leak.

b. IF any RCP oil level increasing uncontrollably, THEN perform the following:

- 1) Trip the reactor.
- 2) Trip affected RCP(s).
- 3) Close CCW supply and return for affected RCP(s).
  - RCP A, MOV-749A and MOV-759A
  - RCP B, MOV-749B and MOV-759B
- 4) Go to E-0, REACTOR TRIP OR SAFETY INJECTION.

| STEP   | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|--|--|--|
| 8 Check for CCW Leakage In AUX BLDG:           | <ul style="list-style-type: none"> <li>o Start frequency of AUX BLDG sump pump(s) - NORMAL (Refer to RCS daily leakage log)</li> <li>o Waste holdup tank level - STABLE OR INCREASING AS EXPECTED</li> </ul> | Dispatch A0 to investigate AUX BLDG for CCW leakage.   |
| 9 Verify CCW System Leak - IDENTIFIED          | <ul style="list-style-type: none"> <li>a. Leak identified</li> <li>b. Isolate leak if possible</li> <li>c. Refer to ER-SC.5, HAZARDOUS AND MIXED WASTE MANAGEMENT AND CONTROL</li> </ul>                     | <ul style="list-style-type: none"> <li>a. Perform the following: <ul style="list-style-type: none"> <li>1) Direct RP Tech to sample CCW HX SW outlet for chromates.</li> <li>2) Return to Step 2.</li> </ul> </li> </ul>   |
| 10 Check Normal Or Excess Letdown - IN SERVICE |  | <p><u>IF</u> normal letdown desired, <u>THEN</u> establish normal letdown (refer to ATT-9.0, ATTACHMENT LETDOWN).</p> <p><u>IF</u> normal letdown <u>NOT</u> available, <u>THEN</u> establish excess letdown if desired. (Refer to ATT-9.1, ATTACHMENT EXCESS L/D)</p> |

| STEP  | ACTION/EXPECTED RESPONSE                | RESPONSE NOT OBTAINED  |
|---|---|--|
| 11 Check CCW System Leak Isolated   | a. Surge tank level - APPROXIMATELY 50% | a. <u>IF</u> level less than 50%, <u>THEN</u> continue filling.                              |
|   |   | <u>IF</u> $\geq$ 50%, <u>THEN</u> perform the following:                                     |
|   |   | 1) Stop RMW pump(s).   |
|   |   | 2) Close MOV-823.  |
|   | b. Surge tank level - STABLE            | b. Return to Step 2.   |
| 12 Direct RP To Sample CCW System For Chromates                                 |   |  |
| 13 Evaluate MCB Annunciator Status (Refer to AR Procedures)                     |   |  |
| 14 Evaluate Plant Conditions:   |   |  |
| a. CCW system malfunction - IDENTIFIED AND CORRECTED                            |   | a. Return to Step 1.   |
| b. CCW system status adequate for power operation (Refer to ITS Section 3.7.7). |   | b. <u>IF</u> shutdown required, <u>THEN</u> refer to 0-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN. |

|                  |  |                          |
|------------------|--|--------------------------|
| EOP:<br>AP-CCW.2 | TITLE:<br>LOSS OF CCW DURING POWER OPERATION | REV: 16<br>PAGE 10 of 10 |
|------------------|--|--------------------------|

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

15 Notify Higher Supervision

16 Return To Procedure Or  
Guidance In Effect

-END-

|                  |  |                        |
|------------------|--|------------------------|
| EOP:<br>AP-CCW.2 | TITLE:<br>LOSS OF CCW DURING POWER OPERATION | REV: 16<br>PAGE 1 of 1 |
|------------------|--|------------------------|

AP-CCW.2 APPENDIX LIST

TITLE

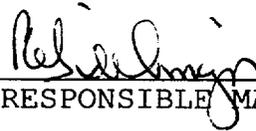
- |    |                                   |           |  |
|----|-----------------------------------|-----------|--|
| 1) | ATTACHMENT AT POWER CCW ALIGNMENT | (ATT-1.0) |  |
| 2) | ATTACHMENT EXCESS L/D             | (ATT-9.1) |  |
| 3) | ATTACHMENT NORMAL CCW FLOW        | (ATT-1.1) |  |
| 4) | ATTACHMENT LETDOWN                | (ATT-9.0) |  |

|                  |  |                         |
|------------------|--|-------------------------|
| EOP:<br>AP-CCW.3 | TITLE:<br>LOSS OF CCW - PLANT SHUTDOWN | REV: 14<br>PAGE 1 of 12 |
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6-26-2002  
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| EOP:<br>AP-CCW.3 | TITLE:<br>LOSS OF CCW - PLANT SHUTDOWN | REV: 14<br>PAGE 2 of 12 |
|------------------|--|-------------------------|

A. PURPOSE - This procedure provides the steps necessary to respond to a loss of CCW while the plant is shut down.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from:

- a. AP-CCW.1, LEAKAGE INTO THE COMPONENT COOLING LOOP, or
- b. AP-ELEC.3, LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F), or
- c. AP-RHR.1, LOSS OF RHR, or
- d. AP-RHR.2, LOSS OF RHR WHILE OPERATING AT REDUCED RCS INVENTORY CONDITIONS, when CCW malfunction indicated.

2. SYMPTOMS - The symptoms of LOSS OF CCW - PLANT SHUTDOWN are:

- a. Annunciator A-6, CONT SPRAY PUMP COOLING WATER OUT LO FLOW 15 GPM, lit, or
- b. Annunciator A-7, (A-15), RCP A (B) CCW RETURN HI TEMP OR LO FLOW 165 GPM 125°F, lit, or
- c. Annunciator A-9, RHR PUMP COOLING WATER OUTLET LO FLOW 15 GPM, lit, or
- d. Annunciator A-13, CCW SURGE TANK LO LEVEL 41.2%, lit, or
- e. Annunciator A-14, SAFETY INJ PUMPS COOLING WATER OUT LO FLOW 25 GPM, lit, or
- f. Annunciator A-17, MOTOR OFF RCP CCWP, lit, or
- g. Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSI, lit, or
- h. Annunciator A-24, (A-32), RCP A (B) OIL LEVEL +/- 1.25, lit, or
- i. Annunciator A-31, CCW SYSTEM LO FLOW 1800 GPM, lit or
- j. Annunciator A-12, NON-REGEN HX LETDOWN OUT HI TEMP 145°F lit, or
- k. Annunciator A-18, VCT Hi Temp 145°F.

|      |                          |                       |
|------|--------------------------|-----------------------|
| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

\*\*\*\*\*

CAUTION

- o 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.
- o IF CCW IS LOST, THEN SEAL INJECTION SHOULD BE MAINTAINED TO THE RCP(S) UNTIL RCS TEMPERATURE IS LESS THAN 150°F, OR UNTIL CCW IS RESTORED.

\*\*\*\*\*

NOTE: IF CCW is lost to operating CS, RHR, or SI pumps, they may be left running for brief periods while isolating a CCW leak.

1 Check CCW Pump Status:

- o Both CCW pump breaker white lights - EXTINGUISHED
- o Annunciator A-17, MOTOR OFF, RCP CCWP - EXTINGUISHED

IF a CCW pump has tripped, THEN perform the following:

- a. Ensure standby CCW pump running.
- b. Attempt to reset and start the affected CCW pump if required for cooling.
- c. IF no CCW pumps available, THEN trip BOTH RCPs.

NOTE: MCB surge tank level indication should be verified locally in the Aux Bldg, if possible.

2 Check CCW Surge Tank Level - APPROXIMATELY 50% AND STABLE

IF CCW surge tank level is decreasing, THEN perform the following:

- a. Open RMW to CCW surge tank, MOV-823.
- b. Start RMW pump(s).
- c. Dispatch AO to AUX BLDG to investigate for CCW leak
- d. Control CCW surge tank level at approximately 50% while continuing with Step 3.

| STEP                         | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|------------------------------|--|--|
| 3 Check CCW Cooling To RCPs: | <ul style="list-style-type: none"> <li>a. RCPs - BOTH RUNNING</li> <br/> <li>b. Check RCP indications: <ul style="list-style-type: none"> <li>o Annunciator A-7 (A-15), RCP A (B) CCW RETURN HI TEMP OR LOW FLOW 165 GPM 125°F - EXTINGUISHED</li> <li>o Verify RCP motor bearing temperatures (PPCS Group Display - RCPS or RK-30A recorder) - LESS THAN 200°F</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>a. Perform the following: <ul style="list-style-type: none"> <li>1) Verify SDM requirements met. (Refer to 0-3.1, BORON CONCENTRATION FOR THE XENON FREE ALL RODS IN - MOST REACTIVE ROD STUCK OUT SHUTDOWN MARGIN)</li> <li>2) <u>IF</u> no RCPs running, <u>THEN</u> verify natural circulation (refer to ATT-13.0, ATTACHMENT NC) <u>AND</u> go to Step 4.</li> </ul> </li> <li>b. <u>IF</u> CCW lost to RCP(s), <u>THEN</u> perform the following: <ul style="list-style-type: none"> <li>1) Stop the affected RCP(s).</li> <li>2) <u>IF</u> no RCPs running, <u>THEN</u> verify natural circulation (Refer to ATT-13.0, ATTACHMENT NC).</li> <li>3) Verify SDM requirements met. (Refer to 0-3.1, BORON CONCENTRATION FOR THE XENON FREE ALL RODS IN - MOST REACTIVE ROD STUCK OUT SHUTDOWN MARGIN)</li> </ul> </li> </ul> |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\* 4 Monitor If Letdown Should Be Isolated:

a. Check annunciator A-12,  
Non-Regen Hx Letdown Out Hi Temp  
145° - EXTINGUISHED

a. Isolate Normal Letdown:

- 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 PRZR solid, THEN perform the following:
  - a) Stop all charging pumps.
  - b) IF CCW lost to RCP thermal barrier Hx, THEN close seal injection V-300A and V-300B.
  - c) Start and stop charging pump to maintain RCS at desired pressure.
  - d) Go to Step 4b.
- 5) Close charging flow control valve, HCV-142, WHILE adjusting charging pump speed to control:
  - o RCP labyrinth seal D/P between 15 inches and 80 inches
  - o PRZR level at desired level
- 6) Establish excess letdown, if desired (Refer to ATT-9.1, ATTACHMENT EXCESS L/D).

b. Check excess letdown temperature  
- LESS THAN 195°F.

b. Isolate Excess Letdown:

- 1) Close excess letdown flow control valve, HCV-123.
- 2) Close excess letdown isolation valve, AOV-310.

| STEP | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED  |
|------|---|--|
| 5    | Check CCW Pump Discharge Pressure<br><br>a. At least one CCW pump - RUNNING<br><br>b. Verify Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSIG - EXTINGUISHED | a. Go to Step 6.<br><br>b. Dispatch A0 to the AUX BLDG to perform the following:<br><br>1) Throttle CCW to RHR Hxs as necessary to restore CCW pump discharge pressure.<br><br><ul style="list-style-type: none"> <li>• MOV-738A</li> <li>• MOV-738B</li> </ul> 2) Investigate for CCW leaks.  |
| 6    | Check RCS Temperature - STABLE OR DECREASING  | IF RHR cooling available, THEN adjust RHR cooling to stabilize RCS temperature AND go to Step 7.<br><br>IF S/G cooling available, THEN control S/G ARVs to stabilize RCS temperature. IF S/G ARVs do NOT provide adequate cooling, THEN perform the following:<br><br>a. Stop all but one RCP.<br><br>b. Initiate S/G blowdown from both S/Gs. (Refer to T-14 series)<br><br>c. Maintain both S/G levels stable by controlling AFW flow. |

| STEP | ACTION/EXPECTED RESPONSE                           | RESPONSE NOT OBTAINED  |
|------|--|--|
| * 7  | Monitor CCW Surge Tank Level<br>- GREATER THAN 10% | Perform the following: <ul style="list-style-type: none"> <li>a. Stop any running RCP.</li> <li>b. Close letdown isolation, AOV-427.</li> <li>c. <u>IF</u> RHR pump(s) running in shutdown cooling mode, <u>THEN</u> stop both RHR pumps <u>AND</u> refer to AP-RHR.1, LOSS OF RHR or AP-RHR.2, LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS.</li> <li>d. Pull stop both CCW pumps.</li> <li>e. Verify natural circulation (Refer to ATT-13.0, ATTACHMENT NC).</li> </ul> |
| 8    | Check CCW System Leakage - ANY LEAKAGE INDICATED   | Go to Step 13.   |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

- NOTE:
- o IF Seal Water Hx will be bypassed, THEN an increase in VCT temperature is expected.
  - o IF Seal Water Hx will be isolated, THEN seal return will be to the PRT through RV-314.

9 Check Seal Water Hx For Tube Leak:

- Locally check Seal Water Hx CCW outlet flow - NORMAL (FI-605, refer to AO log)
- Locally check Seal Water Hx CCW outlet temperature - NORMAL (TI-604, refer to AO log)
- VCT level - NO UNEXPLAINED INCREASE

IF a tube leak is indicated, THEN bypass and isolate Seal Water Hx and, if desired, isolate Seal Return as follows.

- a. To bypass and isolate Hx perform the following:
  - 1) Open seal bypass V-394
  - 2) Close seal inlet V-265
  - 3) Close seal outlet V-321
  - 4) Close CCW inlet V-763
  - 5) Close CCW outlet V-767
- b. If desired to isolate seal return line close MOV-313.
- c. Notify RP to sample RCS for chromates.

| STEP                              | ACTION/EXPECTED RESPONSE    | RESPONSE NOT OBTAINED  |
|-----------------------------------|-----------------------------|--|
| 10 Check For CCW Leakage In CNMT: | a. Check CNMT sump A level: | a. <u>IF</u> abnormal increase in CNMT sump level, <u>THEN</u> perform the following:  |
|                                   | o Level - STABLE            | 1) Direct RP Tech to sample sump A for chromates.  |
|                                   | o Sump A pumps - OFF        | 2) Prepare to make CNMT entry to check for CCW leak.   |
|                                   | b. RCP oil levels - STABLE  | b. <u>IF</u> any RCP oil level increasing uncontrollably, <u>THEN</u> perform the following:   |
|                                   |                             | 1) Stop affected RCP.  |
|                                   |                             | 2) Close CCW supply and return for affected RCP(s).  |
|                                   |                             | <ul style="list-style-type: none"> <li>• RCP A, MOV-749A and MOV-759A</li> <li>• RCP B, MOV-749B and MOV-759B</li> </ul>                           |
|                                   |                             | 3) <u>IF</u> no RCPs running, <u>THEN</u> verify natural circulation (Refer to ATT-13.0, ATTACHMENT NC).   |
|                                   |                             | 4) Verify SDM requirements met. (Refer to O-3.1, BORON CONCENTRATION FOR THE XENON FREE ALL RODS IN - MOST REACTIVE ROD STUCK OUT SHUTDOWN MARGIN) |

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|------|--|--|
| 11   | <p>Check for CCW Leakage In AUX BLDG:</p> <ul style="list-style-type: none"> <li>o Start frequency of AUX BLDG sump pump(s) - NORMAL (Refer to RCS daily leakage log)</li> <li>o Waste holdup tank level - STABLE OR INCREASING AS EXPECTED</li> </ul> | <p>Dispatch A0 to investigate AUX BLDG for CCW leakage.</p>  |
| 12   | <p>Verify CCW System Leak - IDENTIFIED</p> <ul style="list-style-type: none"> <li>a. Leak identified</li> <li>b. Isolate leak if possible</li> <li>c. Refer to ER-SC.5, HAZARDOUS AND MIXED WASTE MANAGEMENT AND CONTROL</li> </ul>                    | <p>a. Perform the following:</p> <ul style="list-style-type: none"> <li>1) Direct RP Tech to sample CCW HX SW outlet for chromates.</li> <li>2) Return to Step 2.</li> </ul> |
| 13   | <p>Check CCW Valve Alignment And Flow Rates - AS REQUIRED FOR PLANT CONDITIONS (Refer to ATT-1.1, ATTACHMENT NORMAL CCW FLOW)</p>  | <p>Realign valves to restore CCW to individual components.</p>   |

| STEP  | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED   |
|---|--|---|
| 14 Evaluate Plant Conditions:                               | <ul style="list-style-type: none"> <li>a. RHR normal cooling - IN SERVICE</li> <li>b. Check RCS Cooling: <ul style="list-style-type: none"> <li>o RCS temperature - STABLE OR DECREASING</li> <li>o CCW system status - ADEQUATE FOR RHR NORMAL COOLING</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>a. Adjust S/G ARVs to stabilize RCS temperature and go to Step 15.</li> <li>b. Perform the following: <ul style="list-style-type: none"> <li>1) Increase SW from CCW Hx <ul style="list-style-type: none"> <li>• CCW Hx A, V-4619</li> <li>• CCW Hx B, V-4620</li> </ul> </li> <li>2) Adjust CCW to RHR Hxs, MOV-738A and MOV-738B to maintain RCS temperature stable or decreasing.</li> <li>3) <u>IF</u> &gt; 4900 gpm CCW flow required for desired RHR cooling (FI-619), <u>THEN</u> notify the Shift Supervisor.</li> <li>4) <u>IF</u> CCW inadequate for RHR normal cooling, <u>THEN</u> go to AP-RHR.1, LOSS OF RHR <u>OR</u> AP-RHR.2, LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS.</li> </ul> </li> </ul> |
| 15 Evaluate MCB Annunciator Status (Refer to AR Procedures) |  |   |

EOP:

AP-CCW.3

TITLE:

LOSS OF CCW - PLANT SHUTDOWN

REV: 14

PAGE 12 of 12

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

16 Notify Higher Supervision

17 Return To Procedure Or  
Guidance In Effect

-END-

|                  |  |                        |
|------------------|--|------------------------|
| EOP:<br>AP-CCW.3 | TITLE:<br>LOSS OF CCW - PLANT SHUTDOWN | REV: 14<br>PAGE 1 of 1 |
|------------------|--|------------------------|

AP-CCW.3 APPENDIX LIST

TITLE

- 1) ATTACHMENT NC (ATT-13.0)
- 2) ATTACHMENT EXCESS L/D (ATT-9.1)
- 3) ATTACHMENT NORMAL CCW FLOW (ATT-1.1)

|                 |  |                         |
|-----------------|--|-------------------------|
| EOP:<br>AP-CR.1 | TITLE:<br>CONTROL ROOM INACCESSIBILITY | REV: 18<br>PAGE 1 of 14 |
|-----------------|--|-------------------------|

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

  
\_\_\_\_\_  
RESPONSIBLE MANAGER

6-26-2002  
\_\_\_\_\_  
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: \_\_\_\_\_

|                 |  |                         |
|-----------------|--|-------------------------|
| EOP:<br>AP-CR.1 | TITLE:<br>CONTROL ROOM INACCESSIBILITY | REV: 18<br>PAGE 2 of 14 |
|-----------------|--|-------------------------|

- A. PURPOSE - This procedure provides the guidance necessary to place and maintain the plant in a Hot Shutdown Condition in the event that a control room evacuation is necessary.
- B. ENTRY CONDITIONS/SYMPTOMS
1. ENTRY CONDITIONS - This procedure is entered from:
    - a. ER-SC.9, SECURITY EVENT PLAN, if SS determines to evacuate the Control Room.
  2. SYMPTOMS - The symptoms of CONTROL ROOM INACCESSIBILITY are:
    - a. Fire in the Control Complex, or
    - b. Smoke in the Control Complex, or
    - c. Noxious Fumes in the Control Room.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

1 Verify Reactor Trip:

- o At least one train of reactor trip breakers - OPEN
- o Neutron flux - DECREASING
- o MRPI indicates - ALL CONTROL AND SHUTDOWN RODS ON BOTTOM

Manually trip reactor.

IF reactor trip breakers NOT open, THEN perform the following:

- 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.

IF the Rx can NOT be tripped from the Control Room, THEN dispatch personnel to locally open the reactor trip breakers.

2 Verify Turbine Stop Valves - CLOSED

Manually trip turbine. IF turbine can NOT be tripped, THEN close both MSIVs.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

3 Evaluate Control Complex Conditions:

o Verify no fire in progress

IF fire is NOT controllable. THEN perform the following:

- a. Place BOTH ARVs in AUTO, set at 1005 psig.
- b. Manually close both MSIVs.
- c. Trip both RCPs AND place in PULL-STOP.
- d. Place both PRZR PORV switches to CLOSE.
  - PCV-430
  - PCV-431C
- e. Stop all charging pumps AND place in PULL-STOP.
- f. Operating shift personnel proceed to Appendix R locker immediately outside the Control Room.
- g. Go to ER-FIRE.1, ALTERNATIVE SHUTDOWN FOR CONTROL COMPLEX FIRE. DO NOT continue in this procedure.

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|------|--|--|
|      | <p><u>NOTE:</u> PPCS terminals may be used for monitoring and trending plant parameters.</p> |  |
| 4    | Establish Local Operating Stations (Refer to ATT-7.0, ATTACHMENT CR EVAC)                    |  |
| 5    | Locally Verify Emergency AC Busses 14 And 18 - ENERGIZED (STA in A D/G room at ELCP)         | Consider restoration of emergency AC power using ER-FIRE.1, ALTERNATE SHUTDOWN FOR CONTROL COMPLEX FIRE. |

## STEP

## ACTION/EXPECTED RESPONSE

## RESPONSE NOT OBTAINED

6 Locally Establish AFW Flow To S/Gs (HCO):

a. Transfer MDAFW pump control to LOCAL

b. Start MDAFW pumps - ANY PUMPS RUNNING

c. Verify MDAFW pump flow - LESS THAN 230 GPM PER RUNNING PUMP

d. Throttle MDAFP flow to each S/G to maintain approximately 350 inches wide range level.

- MDAFP A, MOV-4007
- MDAFP B, MOV-4008

b. Locally perform the following:

1) Open TDAFW pump steam supply valves at the steam header.

- MOV-3504A
- MOV-3505A

2) Insert pins in valve operators for TDAFW flow control valves to allow operation of valves.

- AOV-4297
- AOV-4298

3) Throttle TDAFW flow to each S/G to maintain approximately 350 inches wide range level.

4) Go to Step 7.

c. Locally throttle MDAFW flow control valves to maintain flow less than 230 gpm per running pump.

- MOV-4007
- MOV-4008

| STEP | ACTION/EXPECTED RESPONSE                     | RESPONSE NOT OBTAINED |
|------|--|-----------------------|
| 7    | Energize IPELIP (Switch At Bottom Of IBELIP) |                       |

| STEP | ACTION/EXPECTED RESPONSE         | RESPONSE NOT OBTAINED   |
|------|----------------------------------|---|
| * 8  | Monitor RCS Temperature (IBELIP) |   |
|      | a. RCS Temperature - STABLE      | <p>a. <u>IF</u> RCS temperature increasing, <u>THEN</u> go to Step 9.</p> <p><u>IF</u> RCS temperature decreasing, <u>THEN</u> perform the following:</p> <p>1) Locally throttle AFW flow to that required to maintain S/G level stable.</p> <ul style="list-style-type: none"> <li>• MDAFW Pump A, MOV-4007</li> <li>• MDAFW Pump B, MOV-4008</li> <li>• TDAFW Pump to S/G A, AOV-4297</li> <li>• TDAFW Pump to S/G B, AOV-4298</li> </ul> <p>2) <u>IF</u> cooldown continues, <u>THEN</u> close MSIVs as follows: (locked valve key required)</p> <ul style="list-style-type: none"> <li>o S/G A <ul style="list-style-type: none"> <li>• Close IA to MSIV, V-5408A</li> <li>• Open vent valves, V-5471 <u>AND</u> V-5473</li> </ul> </li> <li>o S/G B <ul style="list-style-type: none"> <li>• Close IA to MSIV, V-5409B</li> <li>• Open vent valves, V-5472 <u>AND</u> V-5474</li> </ul> </li> </ul> <p>3) <u>IF</u> MDAFW pump available to feed S/Gs, <u>THEN</u> manually isolate steam supply to TDAFW pump.</p> <ul style="list-style-type: none"> <li>• V-3504</li> <li>• V-3505</li> </ul> |
|      | b. Go to Step 11.                |   |

| STEP   | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED   |
|--|--|---|
| 9 Monitor RCS Temperature (IBELIP)               | <p>a. RCS temperature - INCREASING</p> <p>b. Locally throttle S/G ARVs to stabilize RCS temperature.</p> <p>c. <u>IF</u> ARVs <u>NOT</u> adequate, <u>THEN</u> perform the following:</p> <p>1) Check open MSIVs or open MSIV bypass valves as necessary.</p> <ul style="list-style-type: none"> <li>• S/G A, V-3615</li> <li>• S/G B, V-3614</li> </ul> <p>2) Open priming ejector steam supply root valve, V-3578</p> <p>3) Throttle open selected priming ejector steam supply to 200 psig (PI-2019)</p> <ul style="list-style-type: none"> <li>• Priming ejector A, V-3581</li> <li>• Priming ejector B, V-3580</li> </ul> | a. To to Step 10.   |
| 10 Locally Establish Charging Flow Control (CO): | <p>a. Transfer charging pump control to LOCAL</p> <p>b. Verify at least one charging pump - RUNNING</p> <p>c. Check PRZR level - GREATER THAN 13% (charging pump room and AFW pump area, west wall)</p> <p>d. Locally control charging pump speed and letdown orifices to restore PRZR level to 35%</p>  | <p>b. Locally start one charging pump.</p> <p>c. Locally increase charging pump speed to restore PRZR level to greater than 13%. <u>IF</u> necessary, <u>THEN</u> locally start a second charging pump.</p> |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

11 Locally Monitor PRZR Pressure  
- PRESSURE STABLE (AFW pump  
area, west wall)

IF pressure increasing, THEN ensure  
RCS temperature and PRZR level  
stable.

IF pressure decreasing, THEN  
perform the following:

- a. Transfer PRZR heater backup  
group to local control (MDAFW  
pump area).
- b. Verify PRZR level greater than  
13%.
- c. Energize PRZR heater backup  
group.

12 Check SW Pumps - AT LEAST ONE  
RUNNING IN EACH LOOP (CRF,  
Locally in the Screenhouse)

Locally close SW Pump breakers to  
establish one SW pump running in  
each loop.

- o Loop A
  - Bus 18 Position 29C, SW Pump A
  - Bus 17 Position 27C, SW Pump B
- o Loop B
  - Bus 18 Position 29D, SW Pump C
  - Bus 17 Position 27D, SW Pump D

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

13 Transfer CNMT Recirc Fan Control To LOCAL And Check - AT LEAST TWO FANS RUNNING (At local operating stations by TDAFW pump)

Establish two fans running.

\*14 Monitor S/G Levels (AFW pump area, west wall):

Locally throttle AFW flows to maintain S/G level approximately 350 inches wide range level.

- o Levels - APPROXIMATELY 350 INCHES
- o Levels - STABLE

- MDAFW pump A, MOV-4007
- MDAFW pump B, MOV-4008
- TDAFW pump to S/G A, AOV-4297
- TDAFW pump to S/G B, AOV-4298

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

15 Establish CSD Xenon Free Boron Concentration:

a. Determine amount of boron required (Refer to 0-3.1, BORON CONCENTRATION FOR THE XENON FREE ALL RODS IN - MOST REACTIVE ROD STUCK OUT SHUTDOWN MARGIN)

b. Locally open emergency borate valve, MOV-350 (Primary A0)

c. Transfer boric acid pump control to LOCAL (Primary A0)

d. Start one boric acid pump (Primary A0)

e. Check if required amount of boric acid added

f. Stop boration as follows:

1) Stop all boric acid pumps

2) Locally close emergency borate valve, MOV-350

b. Perform the following:

1) Locally open manual charging pump suction from RWST, V-358 (charging pump room between A and B pumps).

2) Go to Step 15e.

e. Continue with Step 16. WHEN required amount of boric acid added, THEN do Step 15f.

EOP:

AP-CR.1

TITLE:

CONTROL ROOM INACCESSIBILITY

REV: 18

PAGE 13 of 14

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

16 Evaluate Control Room  
Conditions - CONTROL ROOM  
HABITABLE

Return to Step 5.

17 Evaluate MCB Annunciator  
Status (Refer to AR  
Procedures)

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: When the control room is manned by NRC licensed personnel, then equipment control may be transferred back to the control room in an orderly manner. Consult plant staff for additional guidance.

### 18 Establish Normal Control Room Operation:

a. Restore normal control room operation of equipment

- PRZR heaters
- Charging pumps
- SW pumps
- CNMT recirc fans
- ARVs
- TDAFW pump steam supplies
- TDAFW pump flow control valves
- Letdown orifice valves
- MOV-350
- BAST pumps
- Other equipment that was locally operated

b. Verify 431K in AUTO

c. Verify PRZR spray valves in AUTO

d. Ensure PRZR heaters restored:

- o PRZR proportional heaters breaker - CLOSED
- o PRZR backup heaters breaker - RESET, IN AUTO

e. Verify one charging pump in AUTO

f. Consult Plant Staff to determine if cooldown is necessary

g. At least one RCP - RUNNING

h. Go to O-2.2, PLANT SHUTDOWN FROM HOT SHUTDOWN TO COLD SHUTDOWN

b. Place 431K in AUTO, if desired.

c. Place PRZR spray valves in AUTO, if desired.

e. Place one charging pump in AUTO, if desired.

f. IF cooldown NOT required, THEN go to O-3, HOT SHUTDOWN WITH XENON PRESENT.

g. Perform the following:

- 1) Ensure 2 control rod shroud fans running.
- 2) Go to ES-0.2, NATURAL CIRCULATION COOLDOWN, Step 1.

-END-

|                 |  |                        |
|-----------------|--|------------------------|
| EOP:<br>AP-CR.1 | TITLE:<br>CONTROL ROOM INACCESSIBILITY | REV: 18<br>PAGE 1 of 1 |
|-----------------|--|------------------------|

AP-CR.1 APPENDIX LIST

TITLE

- 1) ATTACHMENT CR EVAC (ATT-7.0)

|                   |                     |                         |
|-------------------|---------------------|-------------------------|
| EOP:<br>AP-CVCS.1 | TITLE:<br>CVCS LEAK | REV: 13<br>PAGE 1 of 12 |
|-------------------|---------------------|-------------------------|

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

  
\_\_\_\_\_

RESPONSIBLE MANAGER

6-26-2002

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: \_\_\_\_\_

|                   |                     |                         |
|-------------------|---------------------|-------------------------|
| EOP:<br>AP-CVCS.1 | TITLE:<br>CVCS LEAK | REV: 13<br>PAGE 2 of 12 |
|-------------------|---------------------|-------------------------|

A. PURPOSE - This procedure provides the necessary instructions to mitigate the consequences of a CVCS leak.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure is entered from;

a. AP-RCS.1, REACTOR COOLANT LEAK, when conditions indicate a CVCS leak.

2. SYMPTOMS - The symptoms of CVCS leak are;

a. Annunciator B-9 (B-10), RCP A(B) LABYR SEAL LO DIFF PRESS 15" H2O, lit, or

b. Charging line pressure low, or

c. Annunciator F-14, CHARGING PUMP SPEED, lit, or

d. Annunciator A-4, REGEN HX LETDOWN OUT HI TEMP 395°F, lit, or

e. Letdown line low pressure and/or low flow, or

f. Charging Pump Room area monitor R-4 on alarm.

| STEP   | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED  |
|--|--------------------------|--|
| <p><u>NOTE:</u></p> <ul style="list-style-type: none"> <li>o Conditions should be evaluated for site contingency reporting (Refer to EPIP-1.0, GINNA STATION EVENT EVALUATION AND CLASSIFICATION.</li> <li>o A local radiation emergency should be declared for any unexplained area radiation monitor alarm.</li> </ul> |                          |  |
| <p>* 1 Monitor PRZR Level - STABLE AT PROGRAM LEVEL</p>  |                          | <p><u>IF</u> PRZR level decreasing, <u>THEN</u> start additional charging pumps and increase speed to increase PRZR level to program.</p> <p><u>IF</u> PRZR level continues to decrease, <u>THEN</u> close letdown isolation AOV-427 <u>AND</u> excess letdown AOV-310.</p> <p><u>IF</u> available charging pumps are running at maximum speed with letdown isolated, <u>AND</u> PRZR level is decreasing, <u>THEN</u> trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.</p> |

| STEP  | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED   |
|---|---|---|
| <p><u>NOTE:</u> IF VCT level decreases to 5%, charging pump suction will swap to the RWST. This may require a load reduction.</p>   |   |   |
| <p>2 Check VCT Makeup System:</p>   |   |   |
| <p>a. Verify VCT level - GREATER THAN 5%</p>  | <p>a. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Ensure charging pump suction aligned to RWST <ul style="list-style-type: none"> <li>• LCV-112B - OPEN</li> <li>• LCV-112C - CLOSED</li> </ul> </li> <li>2) Go to Step 3.</li> </ol>  |   |
| <p>b. Ensure the following:</p> <ol style="list-style-type: none"> <li>1) RMW mode selector switch in AUTO</li> <li>2) RMW control armed - RED LIGHT LIT</li> </ol>                     |   |   |
| <p>c. Check VCT level:</p> <ul style="list-style-type: none"> <li>o Level GREATER THAN 20%</li> <li style="padding-left: 40px;">-OR-</li> <li>o Level - STABLE OR INCREASING</li> </ul> | <p>c. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Ensure letdown divert valve, LCV-112A, aligned to VCT.</li> <li>2) Manually increase VCT makeup flow as follows: <ol style="list-style-type: none"> <li>a) Ensure BA transfer pumps and RMW pumps running.</li> <li>b) Adjust RMW flow control valve, HCV-111, to increase RMW flow.</li> <li>c) Adjust boric acid flow to maintain required concentration.</li> </ol> </li> </ol> |   |
|   |   | <p>IF VCT level can <u>NOT</u> be maintained, <u>THEN</u> refer to ER-CVCS.1, REACTOR MAKEUP CONTROL MALFUNCTION, if necessary.</p> |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

3 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

2) Continue with Step 4. WHEN VCT level greater than 20%, THEN do Step 3b.

b. Align charging pumps to VCT

o LCV-112C open

o LCV-112B closed

4 Check If RCS Leakage In CNMT:

IF leakage is indicated in CNMT, THEN perform the following:

o Check CNMT radiation monitors - NORMAL

a. Direct RP to sample CNMT for entry.

- R-2
- R-7
- R-10A
- R-11
- R-12

b. Continue with Step 5. WHEN CNMT cleared for entry, THEN dispatch personnel to investigate CNMT for RCS leakage.

o CNMT sump A pump run frequency - NORMAL (Refer to leakage surveillance sheet)

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*

CAUTION

RADIATION PROTECTION TECHNICIAN SHOULD BE CONSULTED PRIOR TO ENTERING A HIGH AIRBORNE AREA.

\*\*\*\*\*

5 Check If RCS Leakage In AUX BLDG:

Dispatch AO To AUX BLDG To Investigate For CVCS Leak (locked area keys required)

a. Check AUX BLDG radiation monitors - NORMAL

- R-4
- R-9
- R-10B
- R-13
- R-14

b. AUX BLDG sump pump run frequency - NORMAL (Refer to leakage surveillance sheet)

c. AUX BLDG sump tank leak rate - NORMAL (Refer to leakage surveillance sheet)

| STEP | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED  |
|------|---|--|
| 6    | <p>Check For Leak In Charging Line To REGEN Hx:</p> <ul style="list-style-type: none"> <li>o Annunciator A-4, REGEN HX LETDOWN OUT HI TEMP 395°F - EXTINGUISHED</li> <li>o Regen Hx Ltdn Outlet Temp - LESS THAN 350°F AND STABLE (TI-127)</li> </ul> | <p>Perform the following to isolate normal letdown:</p> <ul style="list-style-type: none"> <li>a. Close letdown isolation, AOV-427.</li> <li>b. Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202).</li> <li>c. Close letdown isolation, AOV-371.</li> <li>d. Close charging flow control valve, HCV-142 <u>WHILE</u> adjusting charging pump speed to maintain: <ul style="list-style-type: none"> <li>o RCP labyrinth seal D/P between 15 inches and 80 inches</li> <li>o PRZR level at program</li> </ul> </li> <li>e. Close charging to loop B cold leg, AOV-294.</li> <li>f. Go to Step 9.</li> </ul> |

|      |                          |                       |
|------|--------------------------|-----------------------|
| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

\*\*\*\*\*

CAUTION

- o IF LEAK EXISTS IN THE LETDOWN LINE, H2 GASES FROM THE VCT MAY DIFFUSE OUT THE LEAK AND CAUSE A HAZARDOUS CONDITION.
- o WHILE ON EXCESS LETDOWN, VCT LEVEL MAY BE DECREASED BY MANUALLY DIVERTING EXCESS LETDOWN FLOW TO THE RCDT USING AOV-312.

\*\*\*\*\*

7 Check Normal Letdown:

a. Normal letdown - IN SERVICE

a. Perform the following:

- 1) IF excess letdown in service, THEN perform the following:
  - a) Close excess letdown flow control valve, HCV-123.
  - b) Close excess letdown isolation valve, AOV-310.

2) Go to Step 8.

b. Check Letdown Indications:

b. Isolate Normal Letdown:

- o Letdown flow - APPROXIMATELY 40 GPM (60 GPM IF AOV-202 OPEN)
- o Low pressure LTDN pressure - APPROXIMATELY 250 PSIG
- o Pressure control valve, PCV-135, demand - APPROXIMATELY 35% OPEN (40% OPEN IF AOV-202 OPEN)

- 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) Close charging flow control valve, HCV-142 WHILE adjusting charging pump speed to maintain:
  - RCP labyrinth seal D/P less than 80 inches
  - PRZR level at program
- 5) Close charging to loop B cold leg, AOV-294.
- 6) Go to Step 12.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

8 Check For Leakage To CCW System:

- o CCW radiation monitor (R-17) - NORMAL
- o CCW surge tank level - APPROXIMATELY 50% AND STABLE

IF leakage to the CCW system is indicated, THEN go to AP-CCW.1, LEAKAGE INTO THE COMPONENT COOLING LOOP.

\*\*\*\*\*

CAUTION

RCP OPERATION WITHOUT SEAL INJECTION SHOULD BE MINIMIZED.

\*\*\*\*\*

9 Check RCP Seal Injection Indications:

- o Seal injection flows - GREATER THAN 6 GPM AND STABLE
- o RCP labyrinth seal D/Ps - GREATER THAN 15 INCHES AND APPROXIMATELY EQUAL
- o RCP seal inlet temperatures - STABLE

IF RCP seal injection leak is suspected, THEN perform the following:

- a. Verify charging flow control valve, HCV-142, open. IF no charging path through REGEN Hx available, THEN go to Step 11.
- b. Verify CCW cooling to operating RCP thermal barriers. IF NOT, THEN seal injection should be maintained.
- c. Attempt to locate and isolate leak.
- d. Go to Step 12.

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| EOP:<br>AP-CVCS.1 | TITLE:<br>CVCS LEAK | REV: 13<br>PAGE 10 of 12 |
|-------------------|---------------------|--------------------------|

| STEP  | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED  |
|---|---|--|
| 10 Check RCP Seal Leakoff Flows:  | <ul style="list-style-type: none"> <li>o RCP seal leakoff flows - WITHIN THE NORMAL OPERATING RANGE OF FIG-4.0, FIGURE RCP SEAL LEAKOFF</li> <li>o RCP seal leakoff flows - STABLE</li> </ul> | <p>Dispatch AO with a key to the RWST gate to check seal return line for leakage.</p> <p><u>IF</u> a seal return line leak is indicated downstream of RCP seal return isolation valve, MOV-313, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <li>a. Close RCP seal return isolation valve, MOV-313.</li> <li>b. Monitor RCP indications.</li> <li>c. Evaluate leak location. <u>IF</u> possible, <u>THEN</u> isolate the seal return line from the VCT.</li> <li>d. Go to Step 12.</li> </ul> |
| 11 Evaluate Local Leak Investigation - CVCS SYSTEM INTACT IN AUX BLDG                                     |   | Isolate leak if possible (Refer to CVCS piping diagrams as necessary).   |
| 12 Evaluate Plant Status:   |   |  |
| a. Leak location identified   |   | a. <u>IF</u> CVCS leak <u>NOT</u> indicated, <u>THEN</u> go to AP-RCS.1, REACTOR COOLANT LEAK.   |
| b. Check RCS leakage within limits (Refer to leakage surveillance sheet and ITS section 3.4.13)           |   | b. Initiate plant shutdown (Refer to O-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN).  |
| c. At least one charging flowpath - AVAILABLE FOR INVENTORY CONTROL                                       |   | c. Go to AP-CVCS.3, LOSS OF ALL CHARGING FLOW.   |
| <ul style="list-style-type: none"> <li>• AOV-294</li> <li>• AOV-392A</li> <li>• Seal Injection</li> </ul> |   |  |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

13 Check Normal Or Excess  
Letdown - IN SERVICE

IF normal letdown desired, THEN  
establish normal letdown. (Refer  
to ATT-9.0, ATTACHMENT LETDOWN)

IF normal letdown NOT available,  
THEN establish excess letdown if  
desired (Refer to ATT-9.1,  
ATTACHMENT EXCESS L/D).

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

14 Establish Stable Plant  
Conditions:

a. PRZR level - TRENDING TO PROGRAM  
IN AUTO CONTROL

a. Perform the following:

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

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

EOP:

TITLE:

REV: 13

AP-CVCS.1

CVCS LEAK

PAGE 12 of 12

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

15 Establish Control Systems In Auto

a. Verify 431K in AUTO

b. Verify PRZR spray valves in AUTO

c. Verify PRZR heaters restored:

o PRZR proportional heaters breaker - CLOSED

o PRZR backup heaters breaker - RESET, IN AUTO

d. Verify one charging pump in AUTO

a. Place 431K in AUTO, if desired.

b. Place PRZR spray valves in AUTO, if desired.

c. Restore PRZR heaters, if desired.

d. Place one charging pump in AUTO, if desired.

16 Evaluate MCB Annunciator Status (Refer to AR Procedures)

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

17 Notify Higher Supervision

-END-

|                   |                     |                        |
|-------------------|---------------------|------------------------|
| EOP:<br>AP-CVCS.1 | TITLE:<br>CVCS LEAK | REV: 13<br>PAGE 1 of 1 |
|-------------------|---------------------|------------------------|

AP-CVCS.1 APPENDIX LIST

TITLES

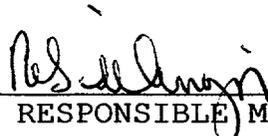
- 1) FIGURE RCP SEAL LEAKOFF (FIG-4.0)
- 2) ATTACHMENT EXCESS L/D (ATT-9.1)
- 3) ATTACHMENT LETDOWN (ATT-9.0)

|                   |                                     |                        |
|-------------------|-------------------------------------|------------------------|
| EOP:<br>AP-CVCS.3 | TITLE:<br>LOSS OF ALL CHARGING FLOW | REV: 3<br>PAGE 1 of 31 |
|-------------------|-------------------------------------|------------------------|

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

  
\_\_\_\_\_  
RESPONSIBLE MANAGER

6-26-2002  
\_\_\_\_\_  
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: \_\_\_\_\_

|                   |                                     |                        |
|-------------------|-------------------------------------|------------------------|
| EOP:<br>AP-CVCS.3 | TITLE:<br>LOSS OF ALL CHARGING FLOW | REV: 3<br>PAGE 2 of 31 |
|-------------------|-------------------------------------|------------------------|

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.
  
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

| 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"> <li>o Check charging pump discharge pressure - GREATER THAN RCS PRESSURE AND STABLE</li> <li>o Check charging flow - NORMAL</li> <li>o Check RCP labyrinth seal dp - GREATER THAN 15 INCHES AND STABLE</li> </ul> | Evaluate System Conditions <ul style="list-style-type: none"> <li>o AO Reports               <ul style="list-style-type: none"> <li>• Indications of CVCS leakage</li> <li>• Increased sump pump operation</li> <li>• Abnormal indications for operating charging pumps</li> </ul> </li> <li>o Rad Monitors</li> <li>o VCT Indications</li> <li>o Aux Bldg Sump Indication               <ul style="list-style-type: none"> <li>• Frequency of level alarms</li> <li>• Increased sump pump operation</li> </ul> </li> </ul> <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> |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

3 Return To Guidance In Effect

4 Isolate Letdown

- 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

- 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

IF CCW lost to RCP(s), THEN perform the following:

- a. Trip the Rx.
- b. Trip affected RCP(s)
- c. Close seal return AOV for affected RCP(s)
  - RCP A - AOV-270A
  - RCP B - AOV-270B
- d. Go to E-0, REACTOR TRIP OR SAFETY INJECTION.

| STEP | ACTION/EXPECTED RESPONSE             | RESPONSE NOT OBTAINED   |
|------|--------------------------------------|---|
| * 6  | Monitor PRZR Level - GREATER THAN 5% | <u>IF</u> 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-                                 |   |
|      | o Level - STABLE OR INCREASING       | a) Ensure BA transfer pumps and RMW pumps running.  |
|      |                                      | b) Adjust RMW flow control valve, HCV-111, to increase flow.  |
|      |                                      | c) Adjust boric acid flow to maintain required concentration.   |
|      |                                      | <u>IF</u> VCT level can <u>NOT</u> be maintained, <u>THEN</u> refer to ER-CVCS.1, REACTOR MAKEUP CONTROL MALFUNCTION, if necessary. |

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 AO to locally open V-358, manual charging pump suction from RWST (charging pump room).
- c) WHEN V-358 open, THEN direct AO to close V-268 to isolate charging pumps B and C from VCT (charging pump room).

2) Direct AO 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:<br>AP-CVCS.3 | TITLE:<br>LOSS OF ALL CHARGING FLOW | REV: 3<br>PAGE 7 of 31 |
|-------------------|-------------------------------------|------------------------|

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 H<sup>2</sup> to VCT, V-261.

f) Open seal return, MOV-313.

b. Align charging pumps to VCT

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

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  
NOT suspected

c. Vent and fill charging pump A as follows:

1) Close discharge isolation,  
V-287.

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

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

4) Open discharge isolation,  
V-287.

d. Start charging pump A.

d. IF charging pump A will not  
start, THEN go to Step 10.

e. Check charging pump conditions:

e. Perform the following:

o Charging pump discharge  
pressure - ABOVE RCS PRESSURE  
AND STABLE

1) Stop charging pump A.

2) Go to Step 10.

o Charging flow normal

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

10 Try To Restore Charging Pump B |

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>a. Charging pump B is to be started  </li> <li>b. Gas binding of charging pump B<br/><u>NOT</u> suspected  </li> <li>c. Start charging pump B  </li> <li>d. Check charging pump conditions:   <ul style="list-style-type: none"> <li>o Charging pump discharge pressure - ABOVE RCS PRESSURE AND STABLE  </li> <li>o Charging flow normal  </li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>a. Go to Step 11.  </li> <li>b. Vent and fill charging pump B as follows:   <ul style="list-style-type: none"> <li>1) Close discharge isolation, V-288.  </li> <li>2) Throttle open discharge drain, V-292D.  </li> <li>3) <u>WHEN</u> sump tank level increase is noted, <u>THEN</u> close discharge drain, V-292D.  </li> <li>4) Open discharge isolation, V-288.  </li> </ul> </li> <li>c. <u>IF</u> charging pump B will not start, <u>THEN</u> go to Step 11.  </li> <li>d. Perform the following:   <ul style="list-style-type: none"> <li>1) Stop charging pump B.  </li> <li>2) Go to Step 11.  </li> </ul> </li> </ul> |
|---|--|

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

### 11 Try To Restore Charging Pump C |

a. Gas binding of charging pump C  
NOT suspected |

a. Vent and fill charging pump C as follows: |

1) Close discharge isolation, V-291. |

2) Throttle open discharge drain, V-292E. |

3) WHEN sump tank level increase is noted, THEN close discharge drain, V-292E. |

4) Open discharge isolation, V-291. |

b. Check charging pumps A and B -  
BOTH RUNNING |

b. Perform the following: |

1) IF desired, THEN start charging pump C. |

IF charging pump C can not be started, THEN go to Step 12. |

2) Go to Step 11d. |

c. Go to Step 12. |

d. Check charging pump conditions: |

d. Perform the following: |

o Charging pump discharge pressure - ABOVE RCS PRESSURE AND STABLE |

1) Stop charging pump C. |

2) Go to Step 12. |

o Charging flow normal |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

12 Check Charging Pumps

a. At least one charging pump running

a. Continue efforts to restore charging capability AND go to Step 17.

b. Check charging pump conditions:

b. Perform the following:

- o Charging pumps discharge pressure - ABOVE RCS PRESSURE AND STABLE

1) Stop charging pump(s).

- o Charging flow - NORMAL

2) Continue efforts to restore charging capability AND go to step 17.

c. Adjust charging pump speed and HCV-142 to:

- Restore PRZR level to program
- Maintain labyrinth seal D/P between 15 inches and 80 inches

13 Check PRZR Level

a. Check PRZR level - INCREASING

a. IF Tav<sub>g</sub> is stable or increasing, THEN go to AP-RCS.1, REACTOR COOLANT LEAK.

b. Check PRZR level - GREATER THAN 13%

b. WHEN PRZR level increases to greater than 13%, THEN do step 14.

| STEP | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED  |
|------|---|--|
| 14   | Establish Normal Letdown<br>(Refer to ATT-9.0, ATTACHMENT<br>LETDOWN) | <u>IF</u> normal letdown can <u>NOT</u> be<br>established, <u>THEN</u> establish excess<br>letdown. (Refer to ATT-9.1,<br>ATTACHMENT EXCESS L/D) |
| 15   | Evaluate MCB Annunciator<br>Status (Refer to AR<br>Procedures)        |  |
| 16   | Return To Procedure Or<br>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

- |  |  |   |
|--|--|---|
| <p>a. Verify rods in AUTO</p> <p>b. Reduce turbine load in AUTO as follows:</p> <ul style="list-style-type: none"> <li>1) Place Turbine EH Control in OPER PAN., IMP PRESS IN, if desired</li> <li>2) Select rate of 5%/min on thumbwheel</li> <li>3) Reduce the setter to zero</li> <li>4) Depress the GO button</li> </ul> <p>c. Steam dump armed and operating:</p> <ul style="list-style-type: none"> <li>o Annunciator G-15, STEAM DUMP ARMED - LIT</li> <li>o Steam dump operating properly in AUTO</li> </ul> <p>d. Transfer 4160V Auxiliary load from #11 Transformer (Refer to ATT-23.0, ATTACHMENT TRANSFER 4160V LOADS)</p> |  | <p>a. Perform the following:</p> <ul style="list-style-type: none"> <li>1) Place rods to MANUAL.</li> <li>2) Insert rods as necessary to match Tavg and Tref.</li> </ul> <p>b. <u>IF</u> Auto Control is inoperable, <u>THEN</u> reduce turbine load in manual at 5%/min.</p> <p>c. <u>IF</u> steam dump required but <u>NOT</u> operating, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <li>1) Place STEAM DUMP MODE SELECTOR Switch to MANUAL.</li> <li>2) Place steam dump controller, HC-484, to MANUAL.</li> <li>3) Operate steam dump valves manually as necessary.</li> </ul> |
|--|--|---|

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*

CAUTION

EXTREME AND RAPID ROD MOTION TO MITIGATE TAVG SWINGS MAY RESULT IN LARGE POWER EXCURSIONS AND SHOULD BE AVOIDED.

\*\*\*\*\*

**\*18** Monitor RCS Tavg

- o Tavg - GREATER THAN 545°F
- o Tavg - LESS THAN 566°F

Verify control rods responding in AUTO. IF NOT, THEN place rods to MANUAL and adjust rods to restore Tavg within limits.

IF Tavg is outside limits AND can NOT be controlled, THEN trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.

NOTE: It is permissible to operate RCPs for limited periods without seal injection, provided CCW is being supplied to the thermal barriers.

19 Check IA Available To CNMT

- o IA pressure - > 60 psig
- o Instr Air to CNMT Isol Valve, AOV-5392 - OPEN

Control PRZR level and pressure as follows:

- o Adjust load reduction rate
- o Ensure control rods are moving to control Tavg
- o Operate proportional and backup heaters as required

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)

**\*20** Monitor PRZR Pressure -  
TRENDING TO 2235 PSIG IN AUTO

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.

**\*21** Monitor MFW Regulating Valves  
- RESTORING S/G LEVEL TO 52%  
IN AUTO

Perform the following:

- a. Place affected S/G(s) MFW regulating valve in MANUAL
- b. Restore S/G level to 52%.

IF S/G level can NOT be controlled manually, THEN refer to AP-FW.1, ABNORMAL MAIN FEEDWATER FLOW.

NOTE: The load reduction should not be delayed to perform the remaining steps.

22 Check If Condensate Booster Pumps Should Be Secured

- a. Power < 65% OR Trim Valve V-9508G indicates > 80% open
- b. Place the auto condensate booster pump to the trip position
- c. Stop one condensate booster pump
- d. WHEN condensate system pressures stabilize, THEN stop the remaining condensate booster pump

- a. WHEN power < 65% OR Trim Valve V-9508G indicates > 80% open, THEN continue with Step 22b.

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|------|--|--|
| 23   | Check If One MFW Pump Should Be Secured  |  |
|      | a. Power < 50%   | a. <u>WHEN</u> power < 50%, <u>THEN</u> continue with Step 23b.      |
|      | b. Verify at least one MFWP Seal Booster pump in service   | b. Notify AO to start one MFWP Seal Booster pump                     |
|      | c. Two MFW Pumps running   | c. Go to Step 24.  |
|      | d. Close discharge valve for the pump to be secured  |  |
|      | <ul style="list-style-type: none"> <li>• MFW Pump A - MOV-3977</li> <li>• MFW Pump B - MOV-3976</li> </ul> |  |
|      | 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"> <li>• MFW Pump A - V-4701</li> <li>• MFW Pump B - V-4702</li> </ul>     |  |
| 24   | Verify Trim Valves Controlling Condensate System Pressure In Auto (300-375 PSIG)                           | Place controller in manual and control pressure between 300-375 psig |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*

CAUTION

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.

\*\*\*\*\*

25 Check AMSAC System Status

a. Power < 35% (~150 psig first stage pressure)

a. Continue with Step 26. WHEN power < 35% (~150 psig first stage pressure), THEN do Step 25b.

b. Verify AMSAC Auto Block Status Light is ON

b. Place AMSAC Manual Block switch to the BLOCK position

26 Check Heater Drain Tank Pump Status

a. Generator load < 175 MWe

a. WHEN generator load < 175 MWe, THEN continue with Step 26b.

b. Stop open Heater Drain Tank Pump

c. WHEN Heater Drain Tank level control is stable, THEN stop the second Heater Drain Tank Pump

| 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  | b. Perform the following:   |
|      | <ul style="list-style-type: none"> <li>• HCV-480</li> <li>• HCV-481</li> </ul> | 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   |   |

| STEP | ACTION/EXPECTED RESPONSE                           | RESPONSE NOT OBTAINED   |
|------|--|---|
| 29   | Check If Turbine Should Be Tripped:                |   |
|      | a. Check turbine load - $\leq$ 15 MW               | a. <u>WHEN</u> turbine load is $\leq$ 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:<br><br>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.   |
|      | c. Tavg - TRENDING TO PROGRAM                      | 2) Adjust S/G ARV setpoints to 1005 psig and verify proper operation.<br><br>c. <u>IF</u> temperature less than 547°F and decreasing, <u>THEN</u> perform the following:<br><br>1) Stop dumping steam<br><br>2) <u>IF</u> cooling continues, <u>THEN</u> close both MSIVs.<br><br><u>IF</u> temperature greater than 547°F and increasing, <u>THEN</u> dump steam to stabilize and slowly decrease temperature to 547°F.<br><br><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. |

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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 AO to locally open reactor trip breakers.

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:

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>a. Manually start both MDAFW pumps</li> <li>b. Verify AFW flow - SUFFICIENT FLOW TO MAINTAIN S/G LEVELS</li> <li>c. Verify MFW flow control valves - CLOSED           <ul style="list-style-type: none"> <li>• MFW regulating valves</li> <li>• MFW bypass valves</li> </ul> </li> <li>d. Close MFW pump discharge valves           <ul style="list-style-type: none"> <li>• MOV-3977, A MFW pump</li> <li>• MOV-3976, B MFW pump</li> </ul> </li> <li>e. Stop any running MFW pump and place in PULL STOP</li> <li>f. Place A and B MFW regulating and bypass valve controllers in manual at 0% demand.</li> <li>g. Adjust AFW pump flow to restore S/G level to 52%</li> </ul> | <ul style="list-style-type: none"> <li>b. Perform the following:           <ul style="list-style-type: none"> <li>1) Establish MFW flow using MFW regulating valve bypass valves.<br/><br/>               IF MFW NOT available, THEN manually start TDAFW pump and establish flow AND go to Step 32c.</li> <li>2) Adjust feed flow to restore S/G level to 52%.</li> <li>3) Go to Step 34.</li> </ul> </li> <li>c. Place A and B MFW regulating and bypass valve controllers in manual at 0% demand.</li> </ul> |
|---|---|

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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

|                   |                                     |                         |
|-------------------|-------------------------------------|-------------------------|
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Loss of forced air cooling may result in failure of NIS detectors.

34 Check If Source Range Detectors Should Be Energized:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>a. Source range channels - DEENERGIZED</li> <li>b. Check intermediate range flux - EITHER CHANNEL LESS THAN 10<sup>-10</sup> AMPS</li> <li>c. Check the following: <ul style="list-style-type: none"> <li>o Both intermediate range channels - LESS THAN 10<sup>-10</sup> AMPS</li> </ul> </li> <li style="text-align: center;">-OR-</li> <li>o Greater than 20 minutes since reactor trip</li> <li>d. Verify source range detectors - ENERGIZED</li> <li>e. Transfer Rk-45 recorder to one source range and one intermediate range channel</li> </ul> | <ul style="list-style-type: none"> <li>a. Go to Step 34e.</li> <li>b. Continue with Step 35. <u>WHEN</u> flux is less than 10<sup>-10</sup> amps on any operable channel, <u>THEN</u> do Steps 34c, d and e.</li> <li>c. Continue with Step 35. <u>When</u> either condition met, <u>THEN</u> do Steps 34d and e.</li> <li>d. Manually energize source range detectors by depressing P-6 permissive defeat pushbuttons (2 of 2).<br/><br/><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.</li> </ul> |
|---|--|

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

35 Check RCPs - BOTH RUNNING

IF only one RCP is running, THEN go to step 37.

IF no RCPs are running, THEN perform the following:

- a. Ensure 2 control rod shroud fans running.
- b. Go to ES-0.2, NATURAL CIRCULATION COOLDOWN, step 1.

NOTE: The temperature limit of 530°F is based on two loop SDM requirements.

36 Initiate RCS Cooldown To 540°F

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

b. Manually or locally dump steam using intact S/Gs ARV.

d. Continue with Step 38. WHEN RCS T cold less than 540°F THEN do step 36e.

| STEP  | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|---|--|--|
| 37  | Maintain RCS TAVG - STABLE AT 547° F<br><br>a. Dump steam to condenser from intact S/G(s)<br><br>b. Establish and maintain TAVG - STABLE AT 547° F | a. Manually or locally dump steam using intact S/Gs ARV.             |
| 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. |

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:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>a. Check the following:           <ul style="list-style-type: none"> <li>o PRZR pressure - LESS THAN 1950 PSIG</li> <li style="text-align: center;">-OR-</li> <li>o LOW PRZR PRESS BLOCK SAF INJEC status light - LIT</li> </ul> </li> <li>b. Stop RCS depressurization AND maintain RCS pressure less than 1950 psig and stable</li> <li>c. Place SI block switches to BLOCK           <ul style="list-style-type: none"> <li>• Train A</li> <li>• Train B</li> </ul> </li> <li>d. Verify SAFETY INJECTION BLOCKED status light - LIT</li> </ul> | <ul style="list-style-type: none"> <li>a. Return to Step 38.</li> <li>d. Maintain PRZR pressure greater than 1750 psig and S/G pressure greater than 514 psig until SI blocked.</li> </ul> |
|--|--|

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)
- 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
- e. Verify injection flow to RCS
- f. Verify PRZR level greater than 13%
- g. Energize PRZR heaters as necessary to return PRZR to saturation conditions

- 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.

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

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

|      |                          |                       |
|------|--------------------------|-----------------------|
| 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**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>a. Maintain RCS pressure between 1350 psig and 1450 psig using PRZR heaters and normal PRZR spray</li> <li>b. Maintain PRZR level between 35% and 50% by starting and stopping one SI pump as needed</li> <li>c. Maintain RCS T cold between 530°F and 540°F (stable at 547°F for one RCP) using steam dump to condenser</li> </ul> | <ul style="list-style-type: none"> <li>a. <u>IF</u> normal spray not available, <u>THEN</u> maintain RCS pressure between 1350 psig and 1450 psig using PRZR heaters.</li> <li>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.</li> </ul> |
|--|--|

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

42 Establish Normal Shutdown Alignment:

a. Check condenser - AVAILABLE

a. Dispatch A0 to perform Attachment SD-2.

b. Perform the following as necessary:

o Open generator disconnects

- 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

c. IF either bus NOT energized, THEN refer to 0-6.9.2, ESTABLISHING AND/OR TRANSFERRING OFFSITE POWER TO BUS 12A/ BUS 12B.

d. Dispatch A0 to perform Attachment SD-1

| 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) |                       |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

#### 44 Consult Plant Staff For Long Term Recovery

- o Determine method of VCT level control
  - o Drain VCT to Aux Bldg Sump Tank through one charging pump drain valve
- OR-
- 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
    - 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-

|                   |                                     |                       |
|-------------------|-------------------------------------|-----------------------|
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AP-CVCS.3 APPENDIX LIST

TITLES

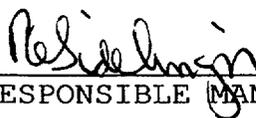
- 1) ATTACHMENT SD-1 (ATT-17.0)
- 2) ATTACHMENT EXCESS L/D (ATT-9.1)
- 3) ATTACHMENT TRANSFER 4160V LOADS (ATT-23.0)
- 4) ATTACHMENT SD-2 (ATT-17.1) |
- 5) ATTACHMENT LETDOWN (ATT-9.0) |

|                 |                                     |                         |
|-----------------|-------------------------------------|-------------------------|
| EOP:<br>AP-CW.1 | TITLE:<br>LOSS OF A CIRC WATER PUMP | REV: 11<br>PAGE 1 of 11 |
|-----------------|-------------------------------------|-------------------------|

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23



RESPONSIBLE MANAGER

6-26-2002

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: \_\_\_\_\_

|                 |                                     |                         |
|-----------------|-------------------------------------|-------------------------|
| EOP:<br>AP-CW.1 | TITLE:<br>LOSS OF A CIRC WATER PUMP | REV: 11<br>PAGE 2 of 11 |
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A. PURPOSE - This procedure provides the actions necessary to respond to a loss of a circ water pump while the plant is at power.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS: This procedure is entered from AP-TURB.4, LOSS OF CONDENSER VACUUM, when circulating water system malfunction indicated.

2. SYMPTOMS - The symptoms of LOSS OF A CIRC WATER PUMP are;

- a. Annunciator J-16 MOTOR OFF CW-EH EMERG OIL SEAL OIL BU alarm, or
- b. Annunciator G-8 4 KV MOTOR OVERLOAD alarm.

EOP:

AP-CW.1

TITLE:

LOSS OF A CIRC WATER PUMP

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

1 Verify One Circ Water Pump -  
RUNNING

IF power greater than 8%, THEN  
verify Rx trip and go to E-0,  
REACTOR TRIP OR SAFETY INJECTION.

IF power LESS THAN 8%, THEN verify  
turbine trip and go to AP-TURB.1,  
TURBINE TRIP WITHOUT RX TRIP  
REQUIRED.

2 Check Reactor Power - LESS  
THAN 50%

Trip the reactor and go to E-0,  
REACTOR TRIP OR SAFETY INJECTION.

|      |                          |                       |
|------|--------------------------|-----------------------|
| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

\*\*\*\*\*

CAUTION

- o TURBINE LOAD DECREASE SHOULD BE COMPLETED AS QUICKLY AS POSSIBLE WHILE MINIMIZING THE AMOUNT OF STEAM DUMP OPERATION.
- o EXCESSIVE BACK PRESSURE MAY RESULT IN SEVERE TURBINE BLADE VIBRATION. MINIMIZE TIME OUTSIDE THE SATISFACTORY OPERATING REGION.

\*\*\*\*\*

\* 3 Check Condenser Indications:

a. Turbine back pressure - EACH CONDENSER WITHIN THE SATISFACTORY OPERATING REGION OF FIG-13.0, FIGURE BACK PRESSURE

a. IF back pressure is in the DO NOT OPERATE region for > 5 minutes, THEN perform the following:

- 1) Trip the turbine and go to AP-TURB.1, TURBINE TRIP WITHOUT RX TRIP REQUIRED.

IF in the AVOID region, THEN adjust turbine load to return to the SATISFACTORY OPERATING REGION.

b. Condenser vacuum - STABLE OR IMPROVING

b. WHILE continuing with this procedure, decrease turbine load to stabilize condenser vacuum. (Refer to AP-TURB.5, RAPID LOAD REDUCTION)

IF vacuum can NOT be stabilized, THEN perform the following:

- 1) Decrease turbine load to less than 15 MW.
- 2) Trip turbine.
- 3) Go to AP-TURB.1, TURBINE TRIP WITHOUT RX TRIP REQUIRED.

## STEP

## ACTION/EXPECTED RESPONSE

## RESPONSE NOT OBTAINED

## \* 4 Monitor RCS Tavg:

- o Tavg - GREATER THAN 545°F
- o Tavg - LESS THAN 566°F

Verify control rods responding in AUTO.

IF NOT, THEN place rods to MANUAL and adjust control rods to restore Tavg within limits.

IF Tavg is outside limits AND can NOT be controlled, THEN trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.

## 5 Check Rod Control:

- o Rods in AUTO
- o Control rods stepping to control Tavg

Ensure rods in manual and adjust rods to control Tavg and minimize condenser steam dump.

## \* 6 Monitor SG level - GREATER THAN 20%

IF feed flow less than steam flow, THEN trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION/

## 7 Monitor S/G Level Control:

- o S/G levels - TRENDING TO 52%
- o MFW regulating valves - CONTROLLING IN AUTO

Perform the following:

a. IF MFP suction pressure and flow are low, THEN perform the following:

- o Verify standby condensate pump starts.

- o Verify condensate bypass valve opens.

- o Close trim valve to control pressure.

b. IF S/G level NOT controlling in AUTO, THEN take manual control of the MFW regulating valves.

| STEP | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED  |
|------|---|--|
| 8    | Verify Tavg - TRENDING TO TREF  | <p><u>IF</u> Tavg greater than Tref, <u>THEN</u> restore Tavg to Tref by one or more of the following:</p> <ul style="list-style-type: none"> <li>• Insert control rods</li> <li>• RCS boration</li> </ul> <p><u>IF</u> Tavg less than Tref, <u>THEN</u> restore Tavg to Tref by one or more of the following:</p> <ul style="list-style-type: none"> <li>• Withdraw control rods</li> <li>• Reduce turbine load</li> <li>• Dilution of RCS</li> </ul> |
| 9    | Isolate S/G Blowdowns To The Affected Condenser:  |  |
|      | o <u>IF</u> CW Pump A off, <u>THEN</u> close V-3175E  |  |
|      | o <u>IF</u> CW Pump B off, <u>THEN</u> close V-3178E  |  |
| 10   | Dispatch AO To Align The Circulating Water System For One Pump Operation (Refer to T-8A, STARTUP AND SHUTDOWN A AND B CIRCULATING WATER PUMPS). |  |

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED |
|------|--|-----------------------|
| 11   | Determine If Load Reduction<br>Can Be Stopped:<br><br>a. Monitor Condenser Indications:<br><br>o Condenser back pressure -<br>EACH CONDENSER WITHIN THE<br>SATISFACTORY OPERATING REGION<br>OF FIG-13.0, FIGURE BACK<br>PRESSURE<br><br>o Vacuum - STABLE OR IMPROVING | a. Return to Step 3.  |

|      |                          |                       |
|------|--------------------------|-----------------------|
| 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)

**\*12** Establish Stable Plant Conditions:

a. PRZR pressure - TRENDING TO 2235 PSIG IN AUTO

a. 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.

b. PRZR level - TRENDING TO PROGRAM IN AUTO CONTROL

b. Perform the following:

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

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

c. Rod insertion limit alarms - EXTINGUISHED

c. Borate and withdraw control rods to clear insertion limit alarms.

d. NIS PR  $\Delta I$  - WITHIN  $\pm 5\%$  OF TARGET VALUE

d. Perform one or more of the following to restore  $\Delta I$  to within limits:

- Borate RCS
- Dilute RCS
- Restore control rods to desired position

This Step continued on the next page.

| STEP | ACTION/EXPECTED RESPONSE               | RESPONSE NOT OBTAINED   |
|------|--|---|
|      | (Step 12 continued from previous page) |   |
| e.   | Steam dump valves - CLOSED             | e. Perform the following: <ul style="list-style-type: none"><li>1) Ensure proper operation of steam dump control system.</li><li>2) <u>IF</u> either of the following occurs, <u>THEN</u> refer to AP-TURB.4, LOSS OF CONDENSER VACUUM<ul style="list-style-type: none"><li>o Condensate temperature greater than 100°F (PPCS point ID T2053)</li></ul></li></ul> <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"><li>o Condenser vacuum degrading (PPCS top menu condenser backpressure)</li></ul> |

| STEP | ACTION/EXPECTED RESPONSE                                 | RESPONSE NOT OBTAINED  |
|------|--|--|
| 13   | Establish Control Systems 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 heater breaker - CLOSED                |  |
| o    | PRZR backup heater 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)   |  | 1) Ensure steam dump valves closed   |
| 2)   |  | 2) Reset steam dump  |
| h.   | Verify rods in AUTO                                      | h. Place rods in AUTO, if desired.   |

EOP:

AP-CW.1

TITLE:

LOSS OF A CIRC WATER PUMP

REV: 11

PAGE 11 of 11

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

14 Evaluate MCB Annunciator  
Status (Refer to AR  
Procedures)

15 Evaluate Status Of Affected  
CW Pump:

- a. Dispatch AO to locally check CW  
pump and breaker
- b. Notify electricians

16 Perform Notifications:

- a. Notify higher supervision
- b. Request Turbine System Engineer  
evaluate effect of backpressure  
transient on the turbine.

17 Refer To O-5.1, LOAD  
REDUCTION, For Additional  
Guidance

18 Return To Procedure Or  
Guidance In Effect

-END-

|                 |                                     |                        |
|-----------------|-------------------------------------|------------------------|
| EOP:<br>AP-CW.1 | TITLE:<br>LOSS OF A CIRC WATER PUMP | REV: 11<br>PAGE 1 of 1 |
|-----------------|-------------------------------------|------------------------|

AP-CW.1 APPENDIX LIST

TITLE

- 1) FIGURE BACK PRESSURE (FIG-13.0)

|                   |   |                         |
|-------------------|---|-------------------------|
| EOP:<br>AP-ELEC.1 | TITLE:<br>LOSS OF 12A AND/OR 12B BUSSES | REV: 23<br>PAGE 1 of 33 |
|-------------------|---|-------------------------|

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

  
\_\_\_\_\_  
RESPONSIBLE MANAGER

6-26-2002  
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: \_\_\_\_\_

|                   |   |                         |
|-------------------|---|-------------------------|
| EOP:<br>AP-ELEC.1 | TITLE:<br>LOSS OF 12A AND/OR 12B BUSSES | REV: 23<br>PAGE 2 of 33 |
|-------------------|---|-------------------------|

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

B. ENTRY CONDITIONS/SYMPTOMS

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

- a. Annunciator L-20, 12A XFMR OR 12A BUS TROUBLE, lit, or
- b. Annunciator L-28, 12B XFMR OR 12B BUS TROUBLE, lit.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*

CAUTION

- o IF ANY RADIOACTIVE RELEASE IN PROGRESS, THEN IT SHOULD BE TERMINATED UNTIL SUPPORT CONDITIONS ARE EVALUATED.
- o OBSERVE D/G LOADING LIMITS OF 2300 KW FOR 1/2 HOUR, 2250 KW FOR 2 HOURS, AND 1950 KW FOR CONTINUOUS SERVICE.

\*\*\*\*\*

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

|   |   |
|---|---|
| 1 Check RCS Temperature -<br>GREATER THAN 350°F | Go to AP-ELEC.3, LOSS OF 12A AND/OR<br>12B TRANSFORMER (BELOW 350°F). |
|---|---|

\* 2 Monitor Tavg

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

|                              |   |
|------------------------------|---|
| 3 Verify RCPs - BOTH RUNNING | IF reactor trip breakers closed,<br>THEN manually trip the reactor and<br>go to E-0, REACTOR TRIP OR SAFETY<br>INJECTION. |
|------------------------------|---|

|  |  |
|--|--|
| 4 Verify Emergency D/G<br>Associated With Deenergized<br>Bus(es) - RUNNING | Manually start D/G(s) associated<br>with affected bus. |
|--|--|

- o Bus 12A - D/G A
- o Bus 12B - D/G B

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|------|--|--|
| 5    | Verify Both Trains Of AC<br>Emergency Buses Energized To<br>At Least 420 VOLTS:                    | <u>IF</u> both trains deenergized, <u>THEN</u> go<br>to ECA-0.0, LOSS OF ALL AC POWER,<br>Step 1.  |
|      | <ul style="list-style-type: none"> <li>o Bus 14 and bus 18</li> <li>o Bus 16 and bus 17</li> </ul> | <u>IF</u> one train deenergized, <u>THEN</u><br>perform the following: <ul style="list-style-type: none"> <li>a. Ensure D/G aligned for unit<br/>operation               <ul style="list-style-type: none"> <li>o Mode switch in UNIT</li> <li>o Voltage control selector in<br/>AUTO</li> </ul> </li> <li>b. Check D/G running.               <p><u>IF NOT</u>, <u>THEN</u> perform the<br/>following:</p> <ul style="list-style-type: none"> <li>1) Depress D/G FIELD RESET<br/>pushbutton</li> <li>2) Depress D/G RESET pushbutton</li> <li>3) Start D/G</li> <li>4) <u>IF</u> D/G will <u>NOT</u> start, <u>THEN</u><br/>dispatch AO to locally start<br/>D/G. (Refer to ER/D/G.1,<br/>RESTORING D/Gs)</li> </ul> </li> <li>c. Adjust D/G voltage to<br/>approximately 480V</li> <li>d. Adjust D/G frequency to<br/>approximately 60 Hz.</li> </ul> <p><u>IF</u> only <u>ONE</u> safeguards bus is<br/>deenergized, <u>THEN</u> refer to<br/>AP-ELEC.14/16, LOSS OF SAFEGUARDS<br/>BUS 14/16 or AP-ELEC.17/18, LOSS OF<br/>SAFEGUARDS BUS 17/18.</p> |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

6 Verify Service Water System Operation:

a. Check at least one SW pump running in each loop

- A or B Pump in Loop A
- C or D Pump in Loop B

b. SW header pressure - GREATER THAN 40 PSIG IN EACH LOOP

a. Perform the following:

- 1) Manually start pumps as necessary (257 kw each).
- 2) IF adequate cooling can NOT be supplied to a running D/G, THEN perform the following:
  - a) Trip affected D/G(s)
  - b) Immediately depress voltage shutdown pushbutton
- 3) IF no SW pumps can be operated, THEN perform the following:
  - a) Trip the reactor
  - b) Trip BOTH RCPs
  - c) Close letdown isol, AOV-427
  - d) Close excess letdown, HCV-123
  - e) Go to E-0, REACTOR TRIP OR SAFETY INJECTION
- 4) IF only one SW pump can be operated, THEN refer to AP-SW.2, LOSS OF SERVICE WATER.

b. Refer to AP-SW.1, SERVICE WATER LEAK.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

7 Check 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) Trip both RCPs
- 3) Close letdown isol, 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 isol, AOV-427
- 3) Close excess letdown, HCV-123
- 4) Pull stop BOTH CCW pumps
- 5) Go to step 8

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

b. Start second CCW pump (122 kw).

EOP:

TITLE:

REV: 23

AP-ELEC.1

LOSS OF 12A AND/OR 12B BUSSES

PAGE 7 of 33

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

8 Verify charging pump status -  
AT LEAST ONE RUNNING

Isolate letdown flowpaths:  
a. Close letdown isol, AOV-427  
b. Close excess letdown, HCV-123  
c. Close Loop A cold leg to excess  
letdown Hx, AOV-310

9 Verify Annunciator H-16,  
INSTRUMENT AIR COMP -  
EXTINGUISHED

Dispatch A0 to locally reset and  
start adequate air compressors. IF  
electric air compressor(s) can NOT  
be restored, THEN start diesel air  
compressor. (Refer to ATT-11.2,  
ATTACHMENT DIESEL AIR COMPRESSOR).

IF IA can NOT be established, THEN  
refer to AP-IA.1, LOSS OF  
INSTRUMENT AIR.

10 Verify Bus 11A And 11B Normal  
Feed Breakers - CLOSED

Go to Step 22.

11 Check MFW Regulating Valves -  
RESTORING S/G LEVEL TO 52% IN  
AUTO

Perform the following:  
a. Place affected S/Gs MFW  
regulating valves in MANUAL  
b. Restore S/G level to 52%

IF S/G level can NOT be controlled  
manually, THEN refer to AP-FW.1,  
ABNORMAL MAIN FEEDWATER FLOW.

EOP:

AP-ELEC.1

TITLE:

LOSS OF 12A AND/OR 12B BUSES

REV: 23

PAGE 8 of 33

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

12 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) Increase boric acid flow as necessary to maintain required concentration.

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

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

13 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

2) Continue with Step 14. WHEN VCT level greater than 20%, THEN do Step 13b.

b. Align charging pumps to VCT

o LCV-112C open

o LCV-112B closed

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.

14 Check CVCS Operation:

a. Charging pumps - AT LEAST ONE RUNNING

a. Perform the following:

- 1) IF all seal cooling has been lost to any RCP, THEN close seal injection to affected RCP(s)
  - RCP A, V-300A
  - RCP B, V-300B
- 2) Start one charging pump (75 kw).
- 3) IF no charging pumps can be operated, THEN refer to AP-CVCS.3, LOSS OF ALL CHARGING FLOW.

This Step continued on the next page.

| STEP   | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|--|--|--|
|  | (Step 14 continued from previous page)   |  |
| b. Check letdown indications:  | <ul style="list-style-type: none"> <li>o Check PRZR level - GREATER THAN 13%</li> <li>o Letdown flow - APPROXIMATELY 40 gpm (60 gpm if AOV-202 OPEN)</li> <li>o Letdown flow - STABLE</li> </ul> | b. Perform the following:  |
|  |  | <ul style="list-style-type: none"> <li>1) Close letdown isolation, AOV-427.</li> <li>2) Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202)</li> <li>3) Close letdown isolation, AOV-371</li> <li>4) <u>IF</u> seal injection in service, <u>THEN</u> close charging flow control valve, HCV-142 <u>WHILE</u> adjusting charging pump speed to maintain: <ul style="list-style-type: none"> <li>• RCP labyrinth seal D/P between 15 inches and 80 inches</li> <li>• PRZR level at program</li> </ul> </li> <li>5) <u>IF</u> PRZR level greater than 13%, <u>THEN</u> go to Step 15. <u>IF NOT</u>, <u>THEN</u> continue with Step 16. <u>WHEN</u> PRZR level greater than 13%, <u>THEN</u> do Steps 15 and 16.</li> </ul> |
| c. Adjust charging pump speed and HCV-142 to restore PRZR level and labyrinth seal D/P |  |  |
| d. Go to Step 16   |  |  |

| STEP | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED  |
|------|---|--|
| 15   | Establish Normal Letdown:<br>(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)  |
| 16   | Verify PRZR Heaters Restored: <ul style="list-style-type: none"> <li>o PRZR proportional heater breaker - CLOSED</li> <li>o PRZR backup heater breaker - RESET/IN AUTO</li> </ul> | <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"> <li>a. Reset and close PRZR proportional heater breaker if necessary.</li> <li>b. Reset PRZR backup heater breaker and return to AUTO if necessary.</li> </ul> <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> |

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|------|--|--|
| 17   | Verify Normal Rod Control Restored:                                |  |
| a.   | Annunciator C-5, PPCS ROD SEQUENCE OR ROD DEVIATION - EXTINGUISHED | <p>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.</p> <p><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.</p> |
| b.   | Annunciator E-28, POWER RANGE ROD DROP ROD STOP - EXTINGUISHED     | <p>b. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Place rods in MANUAL.</li> <li>2) Reset NIS rod drop rod stop signals (at NIS racks) as necessary.</li> </ol>   |
| c.   | Annunciator F-15, RCS TAVG DEV 4°F - EXTINGUISHED                  | c. Go to step 18.  |
| d.   | Place rods in AUTO if desired                                      |  |

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED   |
|------|--|---|
|      | <p><u>NOTE:</u> With PRZR pressure controller 431K in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3).</p> |   |
| 18   | Establish Stable Plant Conditions:   |   |
| a.   | Check Tav <sub>g</sub> - TRENDING TO TREF  | <p>a. <u>IF</u> Tav<sub>g</sub> greater than Tref, <u>THEN</u> restore Tav<sub>g</sub> to Tref by one or more of the following:</p> <ul style="list-style-type: none"> <li>• Insert control rods</li> <li>• RCS boration</li> </ul> <p><u>IF</u> Tav<sub>g</sub> less than Tref, <u>THEN</u> restore Tav<sub>g</sub> to Tref by one or more of the following:</p> <ul style="list-style-type: none"> <li>• Withdraw control rods</li> <li>• Reduce turbine load</li> <li>• Dilution of RCS</li> </ul> |
| b.   | Check PRZR pressure - TRENDING TO 2235 PSIG IN AUTO  | <p>b. Control PRZR pressure by one of the following:</p> <ul style="list-style-type: none"> <li>• 431K in MANUAL</li> <li>• Manual control of PRZR heaters and sprays</li> </ul> <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>   |
| c.   | Check PRZR level - TRENDING TO PROGRAM IN AUTO CONTROL   | <p>c. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Place affected charging pumps in MANUAL</li> <li>2) Adjust charging pump speed to restore PRZR level to program</li> </ol> <p><u>IF</u> PRZR level can <u>NOT</u> be controlled manually, <u>THEN</u> refer to AP-RCS.1, REACTOR COOLANT LEAK.</p>   |

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|
|------|--------------------------|-----------------------|

\*\*\*\*\*

CAUTION

ANYTIME EMERGENCY D/GS ARE THE ONLY SOURCE OF AC POWER TO THE PLANT,  
PERSONNEL SHOULD BE ASSIGNED TO MAINTAIN SURVEILLANCE OF THE D/GS.

\*\*\*\*\*

19 Restore Normal Electric System Alignment:

- |  |   |
|--|---|
| <p>a. Verify circuit 767 and/or 751 - AVAILABLE</p> <p>b. Restore power to non-faulted Buses 12A and/or 12B (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)</p> <p>c. Verify all AC bus normal feed breakers - CLOSED</p> <ul style="list-style-type: none"> <li>• Bus 13</li> <li>• Bus 14</li> <li>• Bus 15</li> <li>• Bus 16</li> <li>• Bus 17</li> <li>• Bus 18</li> </ul> <p>d. Stop any unloaded emergency D/G and place in standby (Refer to T-27.4, DIESEL GENERATOR OPERATION)</p> | <p>a. Continue with Step 20. <u>WHEN</u> offsite power available, <u>THEN</u> do Steps 19b, c and d.</p> <p>c. Restore all AC busses and MCCs to normal power supply (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)</p> |
|--|---|

| STEP  | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED                |
|---|--------------------------|--------------------------------------|
| 20 Check CNMT Recirc Fans - AT<br>LEAST 2 RUNNING |                          | Establish 2 CNMT recirc fans running |

| STEP | ACTION/EXPECTED RESPONSE                                 | RESPONSE NOT OBTAINED  |
|------|--|--|
| 21   | Establish Control Systems In Auto:                       |  |
| a.   | Verify 431K in AUTO                                      | Place 431K in AUTO, if desired.  |
| b.   | Verify PRZR spray valves in AUTO                         | Place PRZR spray valves in AUTO, if desired.   |
| c.   | Verify PRZR heaters restored:                            | Restore PRZR heaters, if desired.  |
|      | o PRZR proportional heaters breaker - CLOSED             |  |
|      | o PRZR backup heaters breaker - RESET, IN AUTO           |  |
| d.   | Verify charging pumps                                    | Perform the following:   |
|      | o 2 charging pumps running                               | 1) <u>IF</u> all seal cooling has been lost, <u>THEN</u> ensure seal injection isolated to affected RCPs |
|      | o One charging pump in AUTO                              | • RCP A, V-300A<br>• RCP B, V-300B   |
|      |  | 2) Establish 2 charging pumps running (75 kw each).  |
|      |  | 3) Place one charging pump in AUTO, if desired.  |
| e.   | Verify MFW regulating valves in AUTO                     | Place MFW regulating valves in AUTO, if desired.   |
| f.   | Restore EH controls                                      |  |
|      | 1) Place in OP PAN, IMP OUT                              |  |
|      | 2) Select load rate to 10%/hour                          |  |
|      | 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                                      | Place Rods in AUTO, if desired.  |
| i.   | Go to Step 38  |  |

|      |                          |                       |
|------|--------------------------|-----------------------|
| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

NOTE:

- o Temperatures in the loop with the stopped RCP will not be indicative of true Tavg and ΔT values.
- o Attempts to restore offsite power should continue (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER.)

22 Check Secondary Heat Sink Status:

a. Any main feed pump - RUNNING

a. Perform the following:

- 1) Verify MDAFW pumps running as necessary.
- 2) Verify TDAFW pump running if necessary.
- 3) Adjust AFW pump flow to restore S/G level to 52%.
- 4) Go to Step 23.

b. Verify MFW regulating valves - RESTORING S/G LEVEL TO 52%

b. Perform the following:

- 1) Place affected S/G(s) MFW regulating valve in MANUAL.
- 2) Restore S/G level to 52%.

IF S/G level can NOT be controlled manually, THEN refer to AP-FW.1, ABNORMAL MAIN FEEDWATER FLOW.



23 Check TDAFW Pump Status:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>a. TDAFW pump - RUNNING</li> <li>b. Check S/G status <ul style="list-style-type: none"> <li>o At least one S/G level - GREATER THAN 17%</li> </ul> </li> <li style="text-align: center;">-OR-</li> <li>o Both MDAFW pumps - OPERABLE</li> <li>c. Pull stop TDAFW pump steam supply valves <ul style="list-style-type: none"> <li>• MOV-3504A</li> <li>• MOV-3505A</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>a. Go to Step 24.</li> <li>b. Go to Step 24.</li> </ul> |
|---|--|

NOTE: Use of ARV associated with the running RCP is preferred. |

24 Establish RCS Temperature Control:

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>a. Verify condenser available: <ul style="list-style-type: none"> <li>o Any MSIV - OPEN</li> <li>o Annunciator G-15, STEAM DUMP ARMED - LIT</li> </ul> </li> <li>b. Adjust condenser steam dump controller HC-484 to stabilize RCS temperature</li> <li>c. Place steam dump mode selector switch to MANUAL</li> </ul> | <ul style="list-style-type: none"> <li>a. Perform the following: <ol style="list-style-type: none"> <li>1) Adjust S/G ARV controllers to stabilize RCS temperature.</li> <li>2) Go to Step 25.</li> </ol> </li> </ul> |
|--|---|

| STEP   | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED   |
|--|--|---|
| 25 Restore Non-Safeguards Buses As Follows:                            |  |   |
| a. Verify Bus 13 and 15 - ENERGIZED                                    |  | a. <u>IF</u> offsite power available, <u>THEN</u> attempt to restore offsite power and normal feed to Bus 13/15 (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER).   |
|  |  | <u>IF</u> offsite power is <u>NOT</u> available, <u>THEN</u> perform the following:   |
|  |  | <ul style="list-style-type: none"> <li>o Close Bus 13 to Bus 14 tie breaker</li> <li>o Close Bus 15 to Bus 16 tie breaker</li> </ul>  |
| b. Verify MCC A - ENERGIZED  |  | b. Perform the following: <ol style="list-style-type: none"> <li>1) Ensure the following pumps in PULL STOP: <ul style="list-style-type: none"> <li>• EH pump A</li> <li>• Turning gear oil pump</li> <li>• HP seal oil backup pump</li> </ul> </li> <li>2) Close MCC A supply breaker from bus 13.</li> <li>3) Start HP seal oil backup pump.</li> </ol> |
| c. Verify MCC B - ENERGIZED  |  | c. Perform the following: <ol style="list-style-type: none"> <li>1) Ensure EH pump B in PULL STOP.</li> <li>2) Close MCC B supply breaker from bus 15.</li> </ol>   |
| d. Verify annunciator J-8, 480V MCC SUPPLY BREAKER TRIP - EXTINGUISHED |  | d. Restore power to other MCCs as D/G loading permits.  |
| e. Reset control room lighting   |  |   |
| f. Reset MAIN XFMR AUX PWR SUPPLY breakers                             |  |   |
|  | <ul style="list-style-type: none"> <li>• Bus 13</li> <li>• Bus 15</li> </ul> |   |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

26 Verify Instrument Bus D -  
ENERGIZED

Energize MCC B. IF MCC B NOT available, THEN refer to ER-INST.3, INSTRUMENT BUS POWER RESTORATION.

27 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.

|                   |   |                          |
|-------------------|---|--------------------------|
| EOP:<br>AP-ELEC.1 | TITLE:<br>LOSS OF 12A AND/OR 12B BUSSES | REV: 23<br>PAGE 22 of 33 |
|-------------------|---|--------------------------|

| STEP | ACTION/EXPECTED RESPONSE                    | RESPONSE NOT OBTAINED   |
|------|---|---|
| 28   | Check Charging Pump Suction Aligned to VCT: |   |
|      | a. VCT level - GREATER THAN 20%             | a. <u>IF</u> VCT level can <u>NOT</u> be maintained greater than 5%, <u>THEN</u> perform the following: |
|      |   | 1) Ensure charging pump suction aligned to RWST   |
|      |   | o LCV-112B open   |
|      |   | o LCV-112C closed   |
|      |   | 2) Continue with Step 29. <u>WHEN</u> VCT level greater than 20%, <u>THEN</u> do Step 28b.              |
|      | b. Align charging pumps to VCT              |   |
|      | o LCV-112C open                             |   |
|      | o LCV-112B closed                           |   |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

## 29 Check CVCS Operation:

a. Charging pumps - AT LEAST ONE RUNNING

b. Check letdown indications:

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

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

d. Go to Step 31

a. Perform the following:

- 1) Close letdown isolation, AOV-427.
- 2) Start one charging pump (75 kw).
- 3) Establish greater than 20 gpm charging line flow.

b. 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:
  - RCP labyrinth seal D/P between 15 inches and 80 inches
  - PRZR level at program
- 5) IF PRZR level greater than 13%, THEN go to Step 30. IF NOT, THEN continue with Step 32. WHEN PRZR level greater than 13%, THEN do Steps 30 and 31.

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED   |
|------|--|---|
| 30   | Establish Normal Letdown<br>(Refer to ATT-9.0, ATTACHMENT<br>LETDOWN)  | <u>IF</u> normal letdown can <u>NOT</u> be<br>established, <u>THEN</u> establish excess<br>letdown. (Refer to ATT-9.1,<br>ATTACHMENT EXCESS L/D)  |
| 31   | Verify PRZR Heaters Restored: <ul style="list-style-type: none"><li data-bbox="240 659 802 716">o PRZR proportional heater breaker<br/>- CLOSED</li><li data-bbox="240 751 802 810">o PRZR backup heater breaker -<br/>RESET/IN AUTO</li></ul> | <u>IF</u> adequate D/G capacity available<br>for PRZR heaters (400 kw each<br>bank), <u>THEN</u> perform the following: <ul style="list-style-type: none"><li data-bbox="878 722 1446 810">a. Reset and close PRZR<br/>proportional heater breaker if<br/>necessary.</li><li data-bbox="878 848 1446 905">b. Reset PRZR backup heater breaker<br/>and return to AUTO if necessary.</li></ul><br><u>IF</u> adequate D/G capacity <u>NOT</u><br>available, <u>THEN</u> refer to ER-PRZR.1,<br>RESTORATION OF PRZR HEATERS DURING<br>BLACKOUT. |

| STEP | ACTION/EXPECTED RESPONSE                               | RESPONSE NOT OBTAINED   |
|------|--|---|
| 32   | 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 34.  |
|      | b. Verify AMSAC TRIPPED status light - EXTINGUISHED    | b. Reset AMSAC.   |
|      | c. Verify both S/G levels - GREATER THAN 17%           | c. Continue with Step 34. <u>WHEN</u> S/G level greater than 17%, <u>THEN</u> do Steps 32d, e and 33.   |
|      | d. Verify Bus 11A and Bus 11B - AT LEAST ONE ENERGIZED | d. Perform the following:   |
|      |  | 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"> <li>• MOV-3504A</li> <li>• MOV-3505A</li> </ul> 2) Go to Step 33. |
|      | e. Verify the following:                               |   |
|      | 1) TDAFW pump - OFF                                    | 1) <u>IF</u> TDAFW pump <u>NOT</u> required to maintain S/G level, <u>THEN</u> stop pump if desired.  |
|      | 2) TDAFW pump steam supply valve switches in AUTO      | 2) Place TDAFW pump steam supply valve switches in AUTO.  |

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED   |
|------|--|---|
| 33   | Establish Normal AFW Pump Shutdown Alignment:  |   |
|      | <ul style="list-style-type: none"> <li>a. Verify the following: <ul style="list-style-type: none"> <li>o Both S/G levels - GREATER THAN 17% AND STABLE OR INCREASING</li> <li>o Total AFW flow - LESS THAN 200 GPM</li> </ul> </li> <li>b. Close MDAFW pump discharge valves <ul style="list-style-type: none"> <li>• MOV-4007</li> <li>• MOV-4008</li> </ul> </li> <li>c. Place AFW bypass switches to DEF</li> <li>d. Stop all but one MDAFW pump</li> <li>e. Open AFW discharge crossover valves <ul style="list-style-type: none"> <li>• MOV-4000A</li> <li>• MOV-4000B</li> </ul> </li> <li>f. Adjust AFW bypass valves to control S/G levels at 52% <ul style="list-style-type: none"> <li>• AOV-4480</li> <li>• AOV-4481</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>a. Continue with Step 34. <u>WHEN</u> conditions met, <u>THEN</u> do Steps 33b through f.</li> </ul> |

| STEP  | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED |
|---|---|-----------------------|
| <p><u>NOTE:</u> With PRZR pressure controller 431K in manual, PORV-431C will not operate in the automatic mode. (Refer to TR 3.4.3)</p>           |   |                       |
| <p>34 Establish Stable Plant Conditions:</p>  |   |                       |
| <p>a. Check PRZR pressure - TRENDING TO 2235 PSIG IN AUTO</p>   | <p>a. Control PRZR pressure at the desired value by one of the following:</p> <ul style="list-style-type: none"> <li>• 431K in MANUAL</li> <li>• Manual control of PRZR heaters and sprays</li> </ul> <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>  |                       |
| <p>b. Verify charging pumps</p> <ul style="list-style-type: none"> <li>o 2 charging pumps running</li> <li>o One charging pump in AUTO</li> </ul> | <p>b. Perform the following:</p> <ol style="list-style-type: none"> <li>1) <u>IF</u> all seal cooling has been lost to any RCP, <u>THEN</u> isolate seal injection to affected RCP(s). <ul style="list-style-type: none"> <li>• RCP A, V-300A</li> <li>• RCP B, V-300B</li> </ul> </li> <li>2) Establish 2 charging pumps running (75 kw each).</li> <li>3) Place one charging pump in AUTO, if desired.</li> </ol> |                       |
| <p>c. Check PRZR level - TRENDING TO PROGRAM IN AUTO CONTROL</p>  | <p>c. Perform the following:</p> <ol style="list-style-type: none"> <li>1) Place affected charging pumps in MANUAL</li> <li>2) Adjust charging pump speed to restore PRZR level to program</li> </ol> <p><u>IF</u> PRZR level can <u>NOT</u> be controlled manually, <u>THEN</u> refer to AP-RCS.1, REACTOR COOLANT LEAK.</p>   |                       |
| <p>d. Check RCS Tavg - STABLE</p>   | <p>d. Control dumping steam to stabilize RCS Tavg.</p>  |                       |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*  
CAUTION  
ANYTIME EMERGENCY D/GS ARE THE ONLY SOURCE OF AC POWER TO THE PLANT,  
PERSONNEL SHOULD BE ASSIGNED TO MAINTAIN SURVEILLANCE OF THE D/GS.  
\*\*\*\*\*

35 Restore Normal Electric System Alignment:

- a. Verify circuit 767 and/or 751 - AVAILABLE
- b. Restore power to non-faulted Buses 12A and/or 12B if necessary (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)
- c. Verify all AC bus normal feed breakers - CLOSED
  - Bus 13
  - Bus 14
  - Bus 15
  - Bus 16
  - Bus 17
  - Bus 18
- d. Stop any unloaded emergency D/G and place in standby (Refer to T-27.4, DIESEL GENERATOR OPERATION)

- a. Continue with Step 36. WHEN offsite power available, THEN do Steps 35b, c and d.
- c. Restore all AC busses and MCCs to normal power supply (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)

| STEP  | ACTION/EXPECTED RESPONSE                        | RESPONSE NOT OBTAINED   |
|---|---|---|
| 36  | Check CNMT Recirc Fans - AT LEAST 2 RUNNING     | Establish 2 CNMT recirc fans running  |
| <p><u>NOTE:</u> Evaluate conditions to determine if turbine should be placed on turning gear.</p> |   |   |
| 37  | Verify Turning Gear Oil Pump - RUNNING          | Perform the following: <ol style="list-style-type: none"> <li>a. Manually start turning gear oil pump (42 kw).</li> <li>b. Break vacuum to accelerate turbine coastdown.</li> <li>c. Continue with Step 38. <u>WHEN</u> shaft stops, <u>THEN</u> dispatch AO to place turbine on turning gear (36 KW).</li> </ol> |
| 38  | Check Status Of DC System Loads:                |   |
|   | a. Verify TURB emergency DC lube oil pump - OFF | a. Manually stop emergency DC lube oil pump.  |
|   | b. Verify TDAFW pump DC oil pump - OFF IN AUTO  | b. Perform the following: <ol style="list-style-type: none"> <li>1) Direct AO to locally check TDAFW AC oil pump running. <u>IF</u> not running, <u>THEN</u> start pump from MCB.</li> <li>2) Stop TDAFW pump DC oil pump.</li> </ol>   |
|   | c. Verify both MFW pump DC oil pumps - OFF      | c. Perform the following: <ol style="list-style-type: none"> <li>1) Ensure associated MFW pump AC oil pump running.</li> <li>2) Stop MFW pump DC oil pump and place in AUTO</li> </ol>  |

EOP:

TITLE:

REV: 23

AP-ELEC.1

LOSS OF 12A AND/OR 12B BUSES

PAGE 30 of 33

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

39 Check Status of Battery  
Chargers:

a. Battery Chargers 1A OR 1A1 -  
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. Battery chargers 1B OR 1B1 -  
ENERGIZED (Annunciator J-15,  
BATTERY CHRGR FAILURE OR PA  
INVERTER TROUBLE, EXTINGUISHED)

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)

| STEP   | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED |
|--|---|-----------------------|
| 40 Restore Equipment Alignment:  |   |                       |
| a. Check CCW pumps - ONLY ONE RUNNING  | a. <u>IF</u> two CCW pumps running, <u>THEN</u> manually stop one pump.   |                       |
| b. Check radiation monitoring systems:<br>o CNMT vent sample pump - RUNNING<br>o Plant vent sample pump - RUNNING<br>o All area and process monitors operating as required | b. Restore sample pumps and radiation monitors.   |                       |
| c. Dispatch AO to verify proper operation of seal oil system   |   |                       |
| d. Verify motor fire pump breaker - CLOSED   | d. Close motor fire pump breaker.   |                       |
| e. Verify annunciator L-1, AUX BLDG VENT SYSTEM CONTROL PANEL - EXTINGUISHED   | e. <u>IF</u> bus 11A or 11B energized, <u>THEN</u> dispatch AO to restore AUX BLDG ventilation (Refer to T-35A, AUX AND INTERMEDIATE BUILDING VENTILATION STARTUP AND SHUTDOWN) |                       |
| f. Verify MCC G - ENERGIZED  | f. Manually close breaker.  |                       |
| g. Verify control board valve alignment - NORMAL (Refer to O-6.13, DAILY SURVEILLANCE LOG)   | g. Manually align valves as necessary.  |                       |
| h. Verify adequate Rx head cooling:  |   |                       |
| 1) Verify at least one control rod shroud fan - RUNNING  | 1) Manually start one fan as power supply permits (45 kw).  |                       |
| 2) Verify one Rx compartment cooling fan - RUNNING   | 2) Manually start one fan as power supply permits (23 kw).  |                       |
| i. Dispatch AO to ensure one waste gas compressor in service   |   |                       |
| This Step continued on the next page.  |   |                       |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

(Step 40 continued from previous page)

j. Dispatch A0 to restore SFP cooling

k. Verify adequate electric driven air compressors - RUNNING

l. IF diesel air compressor supplying instrument air, THEN secure diesel air compressors. (Refer to T-2F, BACKUP AIR SUPPLY)

k. Go to Step 41.

41 Reset UV Relay Targets On Undervoltage Cabinets

- Bus 14
- Bus 16
- Bus 17
- Bus 18

42 Evaluate MCB Annunciator Status (Refer to AR Procedures)

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

43 Notify Higher Supervision

EOP:

AP-ELEC.1

TITLE:

LOSS OF 12A AND/OR 12B BUSSES

REV: 23

PAGE 33 of 33

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

44 Return To Procedure Or  
Guidance In Effect

-END-

|                   |   |                        |
|-------------------|---|------------------------|
| EOP:<br>AP-ELEC.1 | TITLE:<br>LOSS OF 12A AND/OR 12B BUSSES | REV: 23<br>PAGE 1 of 1 |
|-------------------|---|------------------------|

AP-ELEC. 1 APPENDIX LIST

TITLE

- 1) ATTACHMENT NC (ATT-13.0)
- 2) ATTACHMENT D/G STOP (ATT-8.1)
- 3) ATTACHMENT TRANSFER BATTERY TO TSC (ATT-24.0)
- 4) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2) |
- 5) ATTACHMENT EXCESS L/D (ATT-9.1) |
- 6) ATTACHMENT LETDOWN (ATT-9.0) |

|                   |  |                         |
|-------------------|--|-------------------------|
| EOP:<br>AP-ELEC.2 | TITLE:<br>SAFEGUARD BUSES LOW VOLTAGE OR SYSTEM LOW<br>FREQUENCY | REV: 10<br>PAGE 1 of 15 |
|-------------------|--|-------------------------|

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23



RESPONSIBLE MANAGER

6-26-2002

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: \_\_\_\_\_

|                   |  |                         |
|-------------------|--|-------------------------|
| EOP:<br>AP-ELEC.2 | TITLE:<br>SAFEGUARD BUSES LOW VOLTAGE OR SYSTEM LOW<br>FREQUENCY | REV: 10<br>PAGE 2 of 15 |
|-------------------|--|-------------------------|

A. PURPOSE - This procedure provides actions to be taken if AC Emergency bus (14, 16, 17, and 18) voltage decreases to less than 420 V, or if system frequency decreases to less than 59.9 Hz.

B. ENTRY CONDITIONS/SYMPTOMS

2. SYMPTOMS - The symptoms of AC EMERGENCY BUSES LOW VOLTAGE OR SYSTEM LOW FREQUENCY are;

- a. Any AC Emergency bus voltmeters Bus 14, 16, 17, or 18, less than 420 V.
- b. Power Control notifies Ginna Control Room that system frequency is less than 59.9 Hz.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*

CAUTION

- o THE DIESELS SHOULD NOT BE OPERATED AT IDLE OR MINIMUM LOAD FOR EXTENDED PERIODS OF TIME.
- o IF THE DIESELS ARE SHUT DOWN, THEY SHOULD BE PREPARED FOR RESTART.

\*\*\*\*\*

NOTE: IF circuit 767 or 751 is available with voltage approximately 34 KV and frequency greater than 59.9 Hz, THEN refer to 0-6.9.2, ESTABLISHING AND/OR TRANSFERRING OFFSITE POWER TO BUS 12A/12B to go to 100/0 or 0/100 lineup.

1 Check Safeguards Bus Voltages:

- Safeguards busses 14, 16, 17 and 18 voltage - GREATER THAN 420 VOLTS

IF any safeguards bus voltage less than 420 volts, THEN, start both emergency D/Gs and continue to monitor voltage.

IF any safeguards bus voltage decreases to less than 414 volts, THEN go to Step 4.

2 Check With Power Control To Verify System Frequency - GREATER THAN 59.9 HZ

IF system frequency less than 59.9 Hz, THEN, start both emergency D/Gs and continue to monitor frequency.

IF system frequency decreases to less than 58.5 Hz, THEN go to Step 4.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

3 Establish Monitoring Of -  
SAFEGUARDS BUS VOLTAGE/SYSTEM  
FREQUENCY, AND GO TO STEP 13.

4 Check Status Of Operating  
D/Gs:

a. Unit/parallel operation selector  
- IN UNIT POSITION

b. Voltage control - IN AUTO

c. Voltage - APPROXIMATELY 480 VOLTS

d. Frequency - APPROXIMATELY 60 HZ

a. Place D/G unit/parallel  
operation selector in UNIT  
position.

b. Place voltage control in AUTO.

c. Adjust auto voltage control  
rheostat to obtain 480 volts.

d. Adjust D/G governor control to  
raise or lower D/G speed to  
obtain 60 Hz.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*

CAUTION

- o OBSERVE D/G LOADING LIMITS OF 2300 KW FOR ½ HOURS, 2250 KW FOR 2 HOURS, AND 1950 KW FOR CONTINUOUS SERVICE.
- o ROTATING ELECTRICAL EQUIPMENT NOT REQUIRED FOR SAFE OPERATION OF THE PLANT SHOULD BE STOPPED BEFORE TRANSFERRING THE ASSOCIATED SAFEGUARDS BUS.

\*\*\*\*\*

5 Complete Transfer Of Safeguards Buses To The Emergency D/Gs And Restoration Of Required Equipment As Follows:

- a. Transfer Instrument Bus B to its maintenance supply (Refer to ER-INST.3).
- b. Bus 14 transfer:
  - 1) Open Bus 14 normal feed 480V breaker
  - 2) Verify D/G "A" Bus 14 supply breaker closes
  - 3) Check and restore equipment lost during bus transfer:
    - o Charging pumps
    - o PRZR htrs
    - o RHR pump
    - o MCCs
    - o CNMT Recirc fan coolers
    - o CCW pump
    - o Aux FW pump

This Step continued on the next page.

| STEP | ACTION/EXPECTED RESPONSE                                    | RESPONSE NOT OBTAINED |
|------|---|-----------------------|
|      | (Step 5 continued from previous page)                       |                       |
|      | c. Bus 16 transfer:   |                       |
|      | 1) Open Bus 16 normal feed 480V<br>breaker                  |                       |
|      | 2) Verify D/G B Bus 16 supply<br>breaker closes             |                       |
|      | 3) Check and restore equipment<br>lost during bus transfer: |                       |
|      | o Charging pumps  |                       |
|      | o PRZR backup htrs  |                       |
|      | o RHR pump  |                       |
|      | o MCCs  |                       |
|      | o CNMT Recirc fan coolers                                   |                       |
|      | o CCW pump  |                       |
|      | o Aux FW pump   |                       |
|      | d. Bus 17 transfer:   |                       |
|      | 1) Open Bus 17 normal feed 480V<br>breaker                  |                       |
|      | 2) Verify D/G "B" Bus 17 supply<br>breaker closes           |                       |
|      | 3) Check and restore equipment<br>lost during bus transfer: |                       |
|      | o SW pumps  |                       |
|      | o MCC G   |                       |
|      | o Motor Fire pump   |                       |
|      | This Step continued on the next page.                       |                       |

| STEP | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED |
|------|---|-----------------------|
|      | (Step 5 continued from previous page)   |                       |
|      | e. Bus 18 transfer:   |                       |
|      | 1) Open Bus 18 normal feed 480V<br>breaker  |                       |
|      | 2) Verify D/G "A" Bus 18 supply<br>breaker closes                                 |                       |
|      | 3) Check and restore equipment<br>lost during bus transfer:                       |                       |
|      | o SW pumps  |                       |
|      | o MCC G   |                       |
|      | f. Transfer Instrument Bus B back<br>to its normal supply (Refer to<br>ER-INST.3) |                       |

| STEP | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED  |
|------|---|--|
| 6    | Verify Status Of Equipment Required For Current Plant Conditions: | <u>IF</u> required equipment <u>NOT</u> operating, <u>THEN</u> start equipment as necessary. |
|      | o Charging pumps - OPERATING AS REQUIRED                          |  |
|      | o SW pumps - OPERATING AS REQUIRED                                |  |
|      | o CCW pumps - OPERATING AS REQUIRED                               |  |
|      | o PRZR heaters - OPERATING AS REQUIRED                            |  |
|      | o RHR pumps - OPERATING AS REQUIRED                               |  |
|      | o MCCs - ALL ENERGIZED  |  |
|      | o CNMT Recirc fan coolers - OPERATING AS REQUIRED                 |  |
|      | o Motor fire pump breaker - CLOSED AS REQUIRED                    |  |
|      | o Aux FW pumps - OPERATING AS REQUIRED                            |  |
|      | o SFP cooling pump A or B - OPERATING AS REQUIRED                 |  |
|      | o Discharge canal sample pump - OPERATING                         |  |

EOP:

AP-ELEC.2

TITLE:

SAFEGUARD BUSES LOW VOLTAGE OR SYSTEM LOW  
FREQUENCY

REV: 10

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

7 Check D/G Operation  
Periodically:

- o D/G voltage - AT APPROXIMATELY  
480V
- o D/G frequency - AT APPROXIMATELY  
60 Hz

IF D/G voltage/frequency NOT as  
desired, THEN adjust D/G  
voltage/frequency to obtain desired  
values.

8 Establish Monitoring of D/Gs:

- o Take hourly log readings on  
running D/G(s) per T-27.4,  
DIESEL GENERATOR OPERATION

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

9 Notify Higher Supervision

10 Establish Conditions To  
Return Safeguards Buses To  
Normal Power Supplies:

- o Verify circuit 767 and/or 751  
available with voltage  
approximately 34 KV
- o System frequency greater than  
59.9 Hz
- o Cause of degraded condition  
known and corrected

Return to Step 7.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*  
CAUTION  
 ROTATING ELECTRICAL EQUIPMENT NOT REQUIRED FOR SAFE OPERATION OF THE PLANT  
 SHOULD BE STOPPED BEFORE TRANSFERRING THE ASSOCIATED SAFEGUARDS BUS.  
 \*\*\*\*\*

11 Remove D/G A From Service And Restore Required Equipment As Follows:

a. Transfer instrument Bus B to its maintenance supply (Refer to ER-INST.3)

b. Bus 14 transfer:

1) Manually hold closed Bus 14 normal feed 480V bkr switch

2) Open D/G A Bus 14 supply breaker

3) Verify Bus 14 normal feed 480V bkr closes

3) IF normal feed bkr fails to close, THEN ensure D/G supply bkr closes back in and investigate.

4) Check and restore equipment lost during bus transfer:

- o Charging pumps
- o PRZR htrs
- o RHR pumps
- o MCCs
- o CNMT Recirc fan coolers
- o CCW pump
- o Aux FW

This Step continued on the next page.

| STEP | ACTION/EXPECTED RESPONSE  | RESPONSE NOT OBTAINED  |
|------|---|--|
|      | (Step 11 continued from previous page)  |  |
|      | c. Bus 18 transfer:   |  |
|      | 1) Manually hold closed Bus 18 normal feed 480V bkr switch                              |  |
|      | 2) Open D/G A Bus 18 supply breaker   |  |
|      | 3) Verify Bus 18 normal feed 480V bkr closes  | 3) <u>IF</u> normal feed bkr fails to close, <u>THEN</u> ensure D/G supply bkr closes back in and investigate. |
|      | 4) Check and restore equipment lost during bus transfer:                                |  |
|      | o SW pumps  |  |
|      | o MCC G   |  |
|      | d. Stop D/G A <u>AND</u> align for auto standby (Refer to ATT-8.1, ATTACHMENT D/G STOP) |  |
|      | e. Transfer Instrument Bus B back to its normal supply (Refer to ER-INST.3)             |  |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\*\*\*\*\*  
CAUTION  
ROTATING ELECTRICAL EQUIPMENT NOT REQUIRED FOR SAFE OPERATION OF THE PLANT  
SHOULD BE STOPPED BEFORE TRANSFERRING THE ASSOCIATED SAFEGUARDS BUS.  
\*\*\*\*\*

12 Remove D/G B From Service And  
Restore Required Equipment As  
Follows:

a. Bus 16 transfer:

1) Manually hold closed Bus 16  
normal feed 480V bkr switch

2) Open D/G B Bus 16 supply  
breaker

3) Verify Bus 16 normal feed  
480V bkr closes

3) IF normal feed bkr fails to  
close, THEN ensure D/G bkr  
closes back in and  
investigate.

4) Check and restore equipment  
lost during bus transfer:

- o Charging pumps
- o PRZR backup htrs
- o RHR pump
- o MCCs
- o CNMT Recirc fan coolers
- o CCW pump
- o Aux FW pump

This Step continued on the next page.

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED   |
|------|--|---|
|      | (Step 12 continued from previous page)   |   |
|      | b. Bus 17 transfer:  |   |
|      | 1) Manually hold closed Bus 17 normal feed 480V bkr switch                       |   |
|      | 2) Open D/G B Bus 17 supply breaker  |   |
|      | 3) Verify Bus 17 normal feed 480V bkr closes                                     | 3) <u>IF</u> normal feed bkr fails to close, <u>THEN</u> ensure D/G bkr closes back in and investigate. |
|      | 4) Check and restore equipment lost during bus transfer:                         |   |
|      | o SW pumps   |   |
|      | o MCC G  |   |
|      | o Motor fire pump  |   |
|      | c. Stop D/G B and align for auto standby (Refer to ATT-8.1, ATTACHMENT D/G STOP) |   |

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|------|--|--|
| 13   | Verify Status Of Equipment<br>Required For Current Plant<br>Conditions:  | <u>IF</u> required equipment <u>NOT</u><br>operating, <u>THEN</u> start equipment. |
|      | <ul style="list-style-type: none"> <li>o Charging pumps - OPERATING AS<br/>               REQUIRED</li> </ul>          |  |
|      | <ul style="list-style-type: none"> <li>o SW pumps - OPERATING AS REQUIRED</li> </ul>                                   |  |
|      | <ul style="list-style-type: none"> <li>o CCW pumps - OPERATING AS REQUIRED</li> </ul>                                  |  |
|      | <ul style="list-style-type: none"> <li>o PRZR heaters - OPERATING AS<br/>               REQUIRED</li> </ul>            |  |
|      | <ul style="list-style-type: none"> <li>o RHR pumps - OPERATING AS REQUIRED</li> </ul>                                  |  |
|      | <ul style="list-style-type: none"> <li>o MCCs - ALL ENERGIZED</li> </ul>   |  |
|      | <ul style="list-style-type: none"> <li>o CNMT Recirc fan coolers -<br/>               OPERATING AS REQUIRED</li> </ul> |  |
|      | <ul style="list-style-type: none"> <li>o Motor fire pump breaker - CLOSED<br/>               AS REQUIRED</li> </ul>    |  |
|      | <ul style="list-style-type: none"> <li>o Aux Feed pumps - OPERATING AS<br/>               REQUIRED</li> </ul>          |  |
|      | <ul style="list-style-type: none"> <li>o SFP cooling pump A or B -<br/>               OPERATING AS REQUIRED</li> </ul> |  |
|      | <ul style="list-style-type: none"> <li>o Discharge canal sample pump -<br/>               OPERATING</li> </ul>         |  |

| STEP | ACTION/EXPECTED RESPONSE   | RESPONSE NOT OBTAINED  |
|------|--|--|
| 14   | Verify Safeguards Bus<br>Voltage/System Frequency<br>Normal:   | <u>IF</u> safeguards bus voltage less than<br>420 volts, <u>THEN</u> return to Step 1. |
|      | <ul style="list-style-type: none"> <li>o All safeguards busses voltage -<br/>               GREATER THAN 420 VOLTS</li> </ul>  | <u>IF</u> system frequency less than<br>59.9 Hz, <u>THEN</u> return to Step 2.         |
|      | <ul style="list-style-type: none"> <li>o Check with Power Control to<br/>               verify system frequency -<br/>               GREATER THAN 59.9 HZ</li> </ul> |  |
| 15   | Evaluate MCB Annunciator<br>Status (Refer to AR<br>Procedures)   |  |
| 16   | Notify Higher Supervision  |  |
| 17   | Establish Further Guidance:  |  |
|      | <ul style="list-style-type: none"> <li>o Return to procedure in effect or<br/>               operating procedures</li> </ul>   |  |

-END-

|                   |  |                        |
|-------------------|--|------------------------|
| EOP:<br>AP-ELEC.2 | TITLE:<br>SAFEGUARD BUSES LOW VOLTAGE OR SYSTEM LOW<br>FREQUENCY | REV: 10<br>PAGE 1 of 1 |
|-------------------|--|------------------------|

AP-ELEC.2 APPENDIX LIST

TITLE

- 1) ATTACHMENT D/G STOP (ATT-8.1)