

EOP: AP-RCS.2	TITLE: LOSS OF REACTOR COOLANT FLOW	REV: 10 PAGE 1 of 7
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

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RESPONSIBLE MANAGER

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EFFECTIVE DATE

CATEGORY 1.0

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

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A. PURPOSE - This procedure provides actions required to stabilize plant conditions following a loss of reactor coolant flow.

B. ENTRY CONDITIONS/SYMPTOMS

1. SYMPTOMS - The symptoms of LOSS OF REACTOR COOLANT FLOW are:

- a. Annunciator A-17, MOTOR OFF RCP CCWP, lit, or
- b. Annunciator B-29, RCP BREAKER CHANNEL ALERT, lit, or
- c. Low RCS flow indicated in either or both loops and verified by more than one indication, or
- d. Steam flow rapidly decreasing in one loop and rapidly increasing in the other loop.
- e. Annunciator B-27, (28), RCS Loop A(B) Lo Flow Channel Alert.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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CAUTION

IF, AT ANY TIME DURING THIS PROCEDURE, A REACTOR TRIP OR SI OCCURS, E-0, REACTOR TRIP OR SAFETY INJECTION, SHALL BE PERFORMED.  
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1 Check RCS flows:

- a. Verify at least one loop operating:
  - o One RCP running
  - o Flow greater than 91% in one loop
- b. Verify two loops operating:
  - o Both RCPs running
  - o Flow greater than 91% in both loops
- c. Return to procedure and step in effect

- a. IF reactor trip breakers closed, THEN trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.
  - 1) IF reactor trip breakers open, verify natural circulation per Attachment NC AND go to Step 2.
- b. IF power greater than 8%, THEN trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.
  - 1) IF power less than 8%, THEN go to step 2.

2 Verify ROD CONTROL BANK SELECTOR In MANUAL

Place ROD CONTROL BANK SELECTOR switch in MANUAL.



STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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CAUTION  
IF ONLY ONE RCP IS LOST, THEN A DECREASE (SHRINK) IN IDLE S/G LEVEL COUPLED WITH AN INCREASE (SWELL) IN OPERATING S/G LEVEL SHOULD BE ANTICIPATED.  
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3 Monitor S/G Levels - TRENDING TO 52%

Restore narrow range level to 52%.

IF S/G level can NOT be restored, THEN trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Temperatures in the idle loop may not be indicative of true Tav<sub>g</sub> and ΔT values and may affect automatic control systems operation. Operating loop values should be used for control.

4 Establish Stable Plant Conditions:

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|--|--|
| a. Tav <sub>g</sub> - TRENDING TO TREF   | a. Insert control rods or, if necessary decrease turbine load to match Tav <sub>g</sub> of the operating loop to Tref.   |
| b. PRZR pressure - TRENDING TO 2235 PSIG | b. Verify proper operation of PRZR heaters and spray or take manual control of PRZR pressure controller 431K. <u>IF</u> pressure can <u>NOT</u> be controlled, <u>THEN</u> refer to AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE.                        |
| c. PRZR level - TRENDING TO PROGRAM      | c. Verify proper operation of charging pump speed controllers <u>OR</u> take manual control of speed controllers to control PRZR level. <u>IF</u> letdown isolation has occurred, <u>THEN</u> place Letdown Loop B Cold Leg to RHX AOV-427 to close. |
| d. Check S/G levels - TRENDING TO 52%    | d. Control feed flow as necessary to restore both S/G levels to 52%.   |
| e. Steam dump valves - CLOSED            | e. Ensure proper operation of steam dump control system.   |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

5 Check Letdown Status

- a. Normal OR Excess Letdown in service.
- b. GO TO Step 7.

a. GO TO Step 6.

6 Establish Normal Letdown:

- a. Establish charging line flow to REGEN Hx - GREATER THAN 20 GPM
- b. Verify the following switches in CLOSE:
  - Letdown orifice valve (AOV-200A, AOV-200B, and AOV-202)
  - Loop B cold leg to REGEN Hx AOV-427
- c. Place letdown controllers in MANUAL at 40% open
  - TCV-130
  - PCV-135
- d. Open AOV-427
- e. Open letdown orifice valves as necessary
- f. Place TCV-130 in AUTO at 105°F
- g. Place PCV-135 in AUTO at 250 psig
- h. Adjust charging pump speed and HCV-142 as necessary

Perform the following steps in sequence to establish excess letdown:

- o Place excess letdown divert valve, AOV-312, to NORMAL
- o Ensure CCW from excess letdown open, AOV-745
- o Ensure RCP seal return isolation valve open, MOV-313
- o Open excess letdown isolation valve, AOV-310
- o Slowly open HCV-123 to maintain excess letdown temperature less than 195°F and pressure less than 100 psig



STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

SHUTDOWN MARGIN REQUIREMENTS SHOULD BE VERIFIED (REFER TO O-3.1, BORON CONCENTRATION FOR XENON FREE ALL RODS IN MOST REACTIVE ROD STUCK OUT SHUTDOWN MARGIN).

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7 Check Reactor Status:	Initiate plant shutdown (Refer to appropriate section of O-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN).
o Reactor Trip Breakers open	

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

8 Notify Higher Supervision

9 Return To Procedure Or Guidance In Effect

-END-

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AP-RCS.2 APPENDIX LIST

TITLE

- 1) FIGURE MIN SUBCOOLING (FIG-1.0)
- 2) ATTACHMENT NC (ATT-13.0)