

# CONTROLLED COPY

THREE MILE ISLAND NUCLEAR STATION  
UNIT #2 EMERGENCY PROCEDURE 2203-1.7  
NUCLEAR SERVICES RIVER WATER FAILURE

Revision 2  
2203-1.7  
02/03/77

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Unit 1 Staff Recommends Approval

Approval ALP Date       
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval NA Date       
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

ALP Date       
Chairman of PORC

PORC comments of      included  
(date)

By      Date     

Unit 2 PORC Recommends Approval

     Date       
Chairman of PORC

PORC comments of      included  
(date)

By      Date     

Approved [Signature] Date 2-3-77  
Unit Superintendent

THREE MILE ISLAND NUCLEAR STATION  
UNIT #2 PLANT EMERGENCY PROCEDURE 2203-1.7  
NUCLEAR SERVICES RIVER WATER FAILURE

1.0 SYMPTOMS

- 1.1 "NSRW Header Pressure Low" alarm @ 20 psig decreasing on annunciators 8.A5 or 8.C5.
- 1.2 "2A/2B or 2C/2D NSRW Pump Trip" alarm on annunciator 3.B4 or 8.D4.
- 1.3 NSRW Pump Discharge Indicators on Panel 3 indicator low discharge pressure.

2.0 IMMEDIATE ACTION

A. Automatic Action

1. The standby NSRW pump in the operating header will start if the running NSRW pump tripped and power is available.
2. The NSRW selfcleaning strainer automatically backwashes on high  $\Delta P$ .

B. Manual Action

1. Verify the standby pump starts, if not manually start the standby pump.
2. If the standby NSRW pump in the operating header cannot be started
  - a. Start a NSRW pump in the nonoperating header.
  - b. Shift NSCCW, ICCH and DHCCW Coolers from the affected NSRW header to the operating NSRW header.
3. If NSRW is completely lost (both NSRW headers are out of service)

- a. Reduce plant load, to 153.
- b. Trip the reactor if CRD stator temperatures read  $180^{\circ}\text{F}$ .
- c. Trip the reactor and stop the reactor coolant pumps, if the RC pump motor stator temperatures exceed  $150^{\circ}\text{C}$ .
- d. Stop letdown flow by closing MS-V376.
- e. Stop SG hot draining if in progress.
- f. Reduce heat load on the NSCCW system as follows
  - 1) Isolate NSCCW to RC waste evaporator by locally closing MS-V32.

### 3.0 FOLLOW-UP ACTION

1. Verify the following valves on the operating header are fully open.
  - a. NSRW pump discharge valve associated with the operating pump; NR-V2A, 2B, 2C or 2D.
  - b. NSRW header isolation valves; NR-V4A + NR-V5A or NR-V4B + NR-V5B.
  - c. ICCW cooler inlet valves; NR-V51A or 51B.
  - d. NSCCW cooler inlet valves; NR-V6A or 6B if valves are not open, open manually.
2. Place NSRW self-cleaning strainer in the operating header in operation.
3. As NSCCW and ICCW temperatures increase, the CRD stator temperatures and RC pump stator and motor bearing temperatures will increase.



4. Shutdown non-essential equipment served by the NSCCN system as operating conditions permit (e.g. spent fuel coolers, waste gas compressors and instrument air compressors).
5. The makeup pumps must be stopped if any of the below limiting conditions are reached, if two of the three makeup pumps become inoperable, the reactor must be tripped.
  - a. Radial bearing temperature exceeds  $170^{\circ}\text{F}$ .
  - b. Pump gear bearing temperature exceeds  $165^{\circ}\text{F}$ .
  - c. Thrust bearing temperature exceeds  $170^{\circ}\text{F}$ .
  - d. Motor stator temperature exceeds  $125^{\circ}\text{C}$ .
  - e. Motor bearing temperature exceeds  $190^{\circ}\text{F}$ .
6. When the plant has reached 15% power fill the pressurizer to the high end of the normal operating band and shutdown the makeup pumps to avoid reaching limiting conditions on the makeup pumps.

CAUTION: Do not perform any operations which would cause a change in pressurizer level without starting a makeup pump.

CAUTION: The makeup pumps are limited to two successive starts, each, after which the motor stator temperature must be reduced to  $15^{\circ}\text{F}$  below operating temperature before restart is possible.

7. If the Reactor is tripped, maintain the plant in the Hot Shutdown to preclude continuous use of the makeup pumps. Add boron as required to achieve Hot Shutdown Boration and fill the pressurizer to the high end of the normal band. Stop the makeup pumps and restart as necessary to maintain pressurizer level.

- a. After steady state temperature has been reached in the NSCCW System and all makeup pumps are stopped, the NSCCW pumps may be stopped to prevent adding pump heat to the NSCCW System.

CAUTION: Prior to restarting a makeup pump NSCCW flow must be established.

8. If "NSRW Self-Cleaning Strainer High  $\Delta P$ " alarm failed to clear, proceed to the River Water Pump House and accomplish the following:
  - a. Start a NSRW pump in the affected header.
  - b. Verify high  $\Delta P$  on the local  $\Delta P$  gage.
  - c. Verify the strainer is backwashing and the backwash valve is open.
  - d. Backwash until high  $\Delta P$  alarm clears.
  - e. If the NSRW self-cleaning strainer is not backwashing properly, manually initiate backwash and open the backwash valve.
  - f. If the high  $\Delta P$  alarm still fails to clear, stop the NSRW pump in the affected header and refer to corrective maintenance procedures for the NSRW self-cleaning strainer (Zurn Ind. Manual 52.00).
9. If NSRW prelube pumps started due to low normal lubrication pressure, proceed to the River Water Pump House and clean the strainer in the normal lubrication line. Refer to Syron Jackson Cuno Filter Manual 97.00.