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2202-2.7
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# THREE MILE ISLAND NUCLEAR STATION

## EMERGENCY PROCEDURE 2202-2.7
## HIGH CATION CONDUCTIVITY AND/OR SODIUM IN THE CONDENSATE AND/OR FEEDWATER SYSTEM

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| 24.0 | | | 49.0 | | | 74.0 | | |
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Unit 1 Staff Recommends Approval

Approval NA Date —

Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval NA Date —

Cognizant Dept. Head

Unit 1 PORC Recommends Approval

NA Date —

Chairman of PORC

Unit 2 PORC Recommends Approval

RP Warren Date 2/2/79

V- Chairman of PORC

Unit 1 Superintendent Approval

NA Date —

Unit 2 Superintendent Approval

[signature] Date 2/4/79

Manager Generation Quality Assurance Approval NA Date —

TMI 1B-A Rev 8/77

THREE MILE ISLAND NUCLEAR STATION

EMERGENCY PROCEDURE 2202-2.7

HIGH CATION CONDUCTIVITY AND/OR SODIUM IN THE

CONDENSATE AND/OR FEEDWATER SYSTEM

1.0 SYMPTOMS

1.1 Any or all of the following Control Room Alarms

a. Panel 17, annunciator A.3 - "Cond. Polish. Sys. Trouble"

b. Panel 17, annunciator E.6 - "secondary Sampl. Sys. Trouble"

c. Panel 17, annunciator F.6 - "Cond./FW Chemistry Trouble"

1.2 The Control Room conductivity recorder indicates an increasing conductivity.

1.3 Increasing conductivity indication on recorders SS-CR-3153 and SS-CR-3154 at panel 310.

1.4 Condensate Polishing Control Panel 304 conductivity recorder indicates an increasing conductivity.

1.5 Sodium analyzer at condensate pump discharge, condensate booster pump discharge or final feedwater points are reading 5 ppb or greater.

2.0 IMMEDIATE ACTION

Automatic - None

2.1 Manual

2.1.1 Change the polisher with the most service time.

2.1.2 If conductivity is $\geq$ 1.0 umho, determine which side of the condenser is leaking as indicated by the conductivity recorders in chemistry lab, reduce power to 50%, and isolate the affected side by:

1. Stopping the pumps on the affected side.
2. Close C.W. Cross-Connect (CW-V3, CW-V19).
3. Close CW-V41A(B)
4. Close CW-V11A(B)

2.1.3 If sodium value at condensate pump discharge analyzer is 5 ppb or greater, determine which side of the condenser is leaking and isolate the affected side per 2.1.2. The following time schedule should be observed:

1. If Na 5-10 ppb, isolate within 24 hr.
2. If Na 10-20 ppb, isolate within 12 hr.
3. If Na greater than 20 ppb, isolate immediately.

2.1.4 Monitor Control Room Conductivity Recorded on Panel 17 point #3 (SS-6) - Feedwater Inlet to "A" OTSG point #4 (SS-7) - Feedwater Inlet to "B" OTSG If conductivity reaches:

a. 0.3-0.5 umhos, shutdown should be initiated within 2 weeks if uncorrected.
b. 0.5-1.0 umhos, shutdown should be initiated within 24 hrs. if uncorrected.
c. 1.0-1.5 umhos, shutdown should be initiated within 12 hrs. if uncorrected.
d.. 1.5-2.0 umhos, shutdown should be initiated within 6 hrs. if uncorrected.
*e. 2.0 umhos, shutdown should be initiated immediately.
*f. 5.0 umhos, Trip Turbine, Trip the reactor.

*NOTE: It is assumed that these indications are not due to instrument malfunction. This can be qualitatively confirmed by a similar conductivity increase at point #1 (SS-2) Condensate pump discharge, or point #2 (SS-2) Condensate pump discharge, or point #2 (SS-3) Condensate Polisher Effluent.

2.1.5 If sodium value at analyzer connected to final feedwater sample point (SS-6 or SS-7) exceeds 5 ppb shutdown must be initiated according to the following schedule:

*1. If Na 5-10 ppb for two weeks initiate normal shutdown.

*2. If Na 10-20 ppb for 24 hr. initiate normal shutdown.

*3. If Na greater than 20 ppb. initiate normal shutdown.

*NOTE: A rough check of the analyzer calibration for the analyzer monitoring final feedwater during steady-operation can be made by analyzing a sample from either MSR belly drain sample point for sodium and dividing the result by 11. If this value agrees within 15-25% of final feedwater value, the instrument may be indicating correct values.

3.0 FOLLOW UP ACTION

3.1 If Control Room Alarm 17.A.3, "Condensate Polishing Sys. Trouble" is alarming (it is initiated by any alarm at Condensate Polishing Control Panel 304) and the alarm at panel 304 is due to High Conductivity, complete the Manual Action Required per the alarm responses for panel 304. Check A1, A2, A4, A8, A12, A14, A16, A18 and A20.

3.2 If Control Room alarm 17.E16 "Secondary Sampling System Trouble" or 17.F.6 "Condensate/Feedwater Chemistry Trouble" is alarming (Both are initiated by an alarm condition at panel 310 in the Secondary Sample Room) and the alarm at panel 310 is due to High Cond/FW conductivity, complete the Manual Action Required per the alarm responses for panel 310. Check A12, A14, A15, A16, A17, A18, A20 and B12.