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THREE MILE ISLAND NUCLEAR STATION
UNIT #2 EMERGENCY PROCEDURE 2202-1.1
REACTOR TRIP

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Unit 1 Staff Recommends Approval

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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

D P Jarrett Date 10/25/78

V- Chairman of PORC

Unit 1 Superintendent Approval

NA Date —

Unit 2 Superintendent Approval

J J Colitz Jr Date 10/25/78

Manager Generation Quality Assurance Approval NA

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THREE MILE ISLAND NUCLEAR STATION

UNIT #2 EMERGENCY PROCEDURE 2202-1.1

REACTOR TRIP

1.0 SYMPTOMS

1.1 Reactor trip may be due to any of the following:

a. Nuclear power > 105.5% of rated power.

b. Nuclear power > 1.05 times reactor coolant flow (%) minus power imbalance reduction.

c. Nuclear Power > 50.9% of rated power during operation with one R.C. Pump operating per loop.

d. Loss of two Reactor Coolant Pumps in one reactor coolant loop.

e. Reactor coolant pressure > 2355 psig.

f. Reactor coolant pressure < 1900 psig.

g. Reactor coolant pressure < $(13.00\ T_{out} - 5887)$

h. Reactor coolant outlet temperature > $619^{o}F$.

i. Reactor building pressure > 4 psig.

j. Manual reactor trip actuation.

1.2 Individual and group "In Limit" lights actuate.

1.3 Rapid decrease in neutron level as indicated by the Nuclear Instrumentation.

1.4 Main turbine master trip alarm energized.

1.5 Rapid decrease in Unit Load.

2.0 IMMEDIATE ACTION

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2.1 Automatic Action

a. All rods insert (except Group 8)

b. Turbine trip, stop valves close

c. Generator breakers open

d. Turbine by-pass valves open

e. Source range nuclear instrumentation high voltage energizes at 5 X 10^{-10} amps on N1-3 or N1-4.

2.2 Manual Action

a. Manually TRIP the reactor

b. Verify all "in-limit" lights are actuated (except group 8)

c. Verify that turbine has tripped and generator breakers are open - if turbine has NOT tripped - manually TRIP the turbine, start lift pumps & turning gear oil pump.

d. CLOSE letdown isolation valve MU-V376.

e. START second make-up pump. Open MU-V-16B as necessary to maintain 100" in PZR.

f. Verify turbine bypass control valves are maintaining header pressure at 1010 psig.

g. If any feedwater stations are in hand, run stations back to maintain OTSG at 30".

h. Verify PZR Htrs are off @ 80" in PZR.

i. If PZR level gets to 20" open DH-V5B and start 3rd make-up pump and open MU-V16C/D to increase PZR level.

j. If any of the following ICS stations are in Hand (Steam Generator/Reactor Demand, either Feedwater Demand, Main or Startup Feedwater Valve Demand, Feedpump Speed, Reactor Master, and/or Diamond) runback the appropriate ICS stations.

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3.0 FOLLOW-UP ACTION

3.1 Announce-on page system - Reactor Trip

3.2 Initiate emergency boration per 2203-1.1 (Loss of Boron) if reactor power is not below 10% in 1 minute.

3.3 Monitor make-up tank level and maintain level greater than 55" by using Waste Transfer Pumps (WDL-P5A/B) and feeding from an RCBT with boron concentration greater or equal to RCS concentration.

3.4 Verify that the pressurizer heaters and spray have returned RCS pressure to normal operating pressure of 2155 psig.

3.5 Reduce pressurizer level setpoint to 100" (25%).

3.6 Verify normal electrical lineup, i.e., no substation or in-plant distribution breakers are open (except generator breakers).

3.7 Check that all RMS channels are normal and that no unplanned or uncontrolled radioactive release is in progress.

3.8 Compute shutdown margin calculations per 2103-1.9 (Reactivity Balance Calculations). If shutdown margin is less than 1%, boron should be added to the RCS.

3.9 If reactor start-up is not intended within four hours raise OTSG level to 97-99% on the operating range using the feedwater valve bypass and tube sheet drains for level control.

3.10 Fill out a Reactor Trip report.

3.11 Notify H.P./Chemistry to sample R.C. Letdown for Dose Equivalent Iodine between 2 and 6 hours after power change of greater than 15% within one hour period per Surveillance Procedure #2304-302.

TMI DOCUMENTS

DOCUMENT NO: TM-029

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Wilda R. Mullinix, NRC