STARTUP TEST PROCEDURE 30

RECIRCULATION SYSTEM

1. PURPOSE

A. To obtain recirculation system performance data under different operational conditions, such as pump trip, flow coastdown, pump restart, and flow induced vibration.

B. To verify that no recirculation system cavitation will occur in the operating region of the power-flow map.

C. To verify that during the trip of one recirculation pump, the feedwater control system can satisfactorily control water level without a resulting turbine trip and/or scram.

D. To record and verify acceptable performance of the recirculation two pump circuit trip system.

2. CRITERIA

Level 1

A. The two pump drive flow coastdown transient during the first 3 seconds must be equal to or faster than that specified on Figure 14.2-7 of the FSAR.

Level 2

A. The water level, APRM and transients of simulated heat flux, pressure, drive and core flow for the one pump trip shall not exceed the predicted values.

B. The reactor water level margin to avoid a high level trip shall be greater than or equal to 3.0 inches during the one pump trip.

C. The simulated heat flux (TPM) margin to avoid a scram shall be greater than or equal to 5.0 percent during the one pump trip.

D. The recirculation system cavitation runback feature shall be adjusted such that a flow runback (transfer of recirc. pump power supplies from 60 Hz to 15 Hz) occurs prior to any observable cavitation in the Recirculation System.

E. During recirculation pump restart(s) the scram trip avoidance margins must be at least the following:

1. For APRM, greater than or equal to 7.5%.

2. For simulated heat flux, greater than or equal to 5.0%.

F. If the level 1 criteria for the two pump trip coastdown transient is met, the data shall be analyzed within two weeks to ensure compatibility with the safety analysis.

3. RESULTS

Test Condition 3.

Recirculation System performance data was taken at this test condition. No criteria were applicable to this test section.

Other test sections to be performed at this test condition are 1 and 2 recirculation pump trips and restarts, recirculation pump runback verification and jet pump and flow control valve cavitation interlock verification.