PBAPS

LIST OF FIGURES

SAFETY LIMIT	LIMITING SAFETY SYSTEM SETTING

2.1.A (Cont'd)

In the event of the operation with a maximum fraction of limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows.

$$S \leq (0.66\,W + 54\% - 0.66\,\Delta W)\left(\frac{FRP}{MFLPD}\right)$$

where,

FRP = fraction of rated thermal power (3293 MWt)

MFLPD = maximum fraction of limiting power density where the limiting power density is 13.4 KW/ft for all 8x8 fuel.

The ratio of FRP to MFLPD shall be set equal to 1.0 unless the actual operating value is less than the design value of 1.0, in which case the actual operating value will be used.

2. APRM--When the reactor mode switch is in the STARTUP position, the APRM scram shall be set at less than or equal to 15 percent of rated power.

3. IRM--The IRM scram shall be set at less than or equal to 120/125 of full scale.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.6.F RECIRCULATION PUMPS	4.6.F RECIRCULATION PUMPS
1. Following one-pump operation, the discharge valve of the low speed pump may not be opened unless the speed of the faster pump is less than 50% of its rated speed.	1. Establish a baseline APRM and LPRM neutron flux noise value for the regions for which monitoring is required (Specification 3.6.F.6) within 2 hours of entering the region for which monitoring is required unless baselining has previously been performed in the region since the last refueling outage.
2. The requirements applicable to single loop operation as identified in sections 1.1.A, 2.1.A, 2.1.B, 3.5.I & 3.5.K shall be in effect within 24 hours following the removal of one recirculation loop from service, or the unit placed in the Hot Shutdown conditions.	
3. Whenever the reactor is in the startup or run modes, two reactor coolant system recirculation loops shall be in operation, except as specified in 3.6.F.4, 3.6.F.5, and 3.6.F.6 below, with: a. Total core flow greater than or equal to 45% of rated core flow, or; b. Thermal Power less than or equal to the limit specified in Figure 3.6.5.	
4. One reactor coolant system recirculation loop may be inoperable, provided the Thermal Power is less than or equal to the limit specified in Figure 3.6.5.	
5. With no reactor coolant system recirculation loops in operation, immediately initiate action to reduce Thermal Power to less than or equal to the limit specified in Figure 3.6.5 and if a recirculation loop cannot be returned to service initiate measures to place the unit in Hot Shutdown within the next 12 hours.	

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.6.F RECIRCULATION PUMPS	4.6.F RECIRCULATION PUMPS
6. With two reactor coolant system recirculation loops in operation and total core flow less than 45% of rated core flow and Thermal Power greater than the limit specified in Figure 3.6.5, or with one reactor coolant system recirculation loop not in operation and the Thermal Power greater than the limit specified in Figure 3.6.5	INTENTIONALLY LEFT BLANK
a. Determine the APRM and LPRM noise levels:	
1) At least once per 8 hours, and	
2) Within 30 minutes after the completion of a Thermal Power increase of at least 5% of Rated Thermal Power.	
b. With the APRM or LPRM neutron flux noise levels greater than three times their established baseline noise levels, immediately initiate corrective action to restore the noise levels to within the required limits within 2 hours, or reduce Thermal Power to less than or equal to the limit specified in Figure 3.6.5. Detector levels A and C of one LPRM string per core octant plus detectors A and C of one LPRM string in the center of the core should be monitored.	

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.6.G STRUCTURAL INTEGRITY	4.6.G STRUCTURAL INTEGRITY
The structural integrity of of the primary system boundary shall be maintained at the the level required by the original acceptance standards throughout the life of the station. The reactor shall be maintained in a Cold Shutdown condition until each indication of a defect has been investigated and evaluated.	The non-destructive inspections listed in Table 4.6.1 shall be performed as specified. The results obtained from compliance with the specficiation will be evaluated after 5 years and the conclusions of this evaluation will be reviewed with the NRC.

3.6.F & 4.6.F BASES

Requiring the discharge valve of the lower speed loop to remain closed until the speed of faster pump is below 50% of its rated speed provides assurance when going from one to two pump operation that excessive vibration of the jet pump risers will not occur.

Operation with one recirculation loop in service is permitted. In such instances, the designated adjustments for APRM rod block and scram setpoints, RBM setpoint, MCPR fuel cladding integrity safety limit, MCPR operating limits, and MAPLHGR limits are required.

Thermal power and core flow limitations are prescribed in accordance with General Electric Service Information Letter No. 380, rev. 1, "BWR Core Thermal Hydraulic Stability," dated 2/10/84.

Neutron flux noise limits are established to ensure early detection of limit cycle neutron flux oscillations. BWR cores typically operate with neutron flux noise caused by random boiling and flow noise. Typical neutron flux noise levels of 1 to 12% of rated power (peak-to-peak) have been reported for the range of low to high recirculation loop flow during both single and dual recirculation loop operation. Neutron flux noise levels significantly larger than these values are considered in the thermal/mechancial fuel design and are found to be of negligible consequence, and in compliance with stability licensing criteria. In addition, stability tests at operating BWR's have demonstrated that when stability related neutron flux limit cycle oscillations occur they result in peak-to-peak neutron flux limit cycles 5 to 10 times the typical values. Therefore, actions taken to reduce neutron flux noise levels exceeding three (3) times the typical value are sufficient to ensure early detection of limit cycle neutron flux oscillations.

Data to establish baseline APRM and LPRM neutron flux noise values is obtained at or below the power specified in Figure 3.6.5 for use in monitoring noise levels during operation in the region for which monitoring is required.

FIGURE 3.6.5

THERMAL POWER LIMITS OF SPECIFICATIONS 3.6.F.3, 3.6.F.4, 3.6.F.5 and 3.6.F.6