(4) Azimuthal Power Tilt (T_q)

When operating above 70% of rated power,

(a) The azimuthal power tilt (T_q) shall not exceed 0.10 whenever the CEA's are at or above the Long Term Insertion Limit and F_R^T is being monitored with the incore detectors.

(b) The azimuthal power tilt (T_q) shall not exceed 0.03 whenever the provisions of 2.10.4(4)(a) do NOT allow F_R^T to be monitored with the incore detectors. With the indicated azimuthal power tilt determined to be >0.03 but <0.10, correct the power tilt within two hours or determine within the next 6 hours and at least once per subsequent 8 hours, that the total integrated radial peaking factor, F_R^T, is within the limit of Specification 2.10.4(2) or reduce power to less than 70% of rated power within 8 hours of confirming $T_q > 0.03$.

(c) With the indicated power tilt determined to be ≥ 0.10, power operation may proceed up to 2 hours provided F_R^T does not exceed the power limits of the F_R^T and the Core Power Limitations Figure provided in the COLR, or be in at least hot standby within 6 hours. Subsequent operation for the purpose of measurement to identify the cause of the tilt is allowable provided the power level is restricted to 20% of the maximum allowable thermal power level for the existing reactor coolant pump combination.

The Incore Detector Monitoring system provides a direct measure of the peaking factors and the alarms which have been established for the individual incore detector segments ensure that the peak linear heat rates will be continuously maintained within the allowable limits of the Allowable Peak Linear Heat Rate vs. Burnup Figure provided in the COLR. The setpoints for these alarms include allowances, set in the conservative directions. If the plant computer fails, the incore detector alarms become inoperable. The provisions of Section 2.10.4(1)(b) are intended to address this situation and assure safe operation of the reactor for up to 7 days.

Calibration of the ex-core detector input to the APD calculator is required to eliminate ASI uncertainties due to instrument drift and axially nonuniform detector exposure. If the recalibration is not performed in the period specified, the prescribed steps will assure safe operation of the reactor.

Total Integrated Radial Peaking Factor (F_R^T) and Azimuthal Power Tilt (T_q)

The limitation of T_q is provided to ensure that the assumptions used in the analysis for establishing the Linear Heat Rate and Local Power Density - High LCO's and LSSS setpoints remain valid during operation at the various allowable CEA group insertion limits. The limitations of F_R^T and T_q are provided to ensure that the assumptions used in the analysis establishing the DNB Margin LCO and Thermal Margin/Low Pressure LSSS setpoints remain valid during operation at the various allowable CEA group insertion limits. If F_R^T or T_q exceed their basic limitations, operation may continue under the additional restrictions imposed by the action statements since these additional restrictions provide adequate assurance that the assumptions used in establishing the Linear Heat Rate, Thermal Margin/Low Pressure and Local Power Density - High LCO's and LSSS setpoints remain valid. An azimuthal power tilt >0.10 is not expected and if it should occur, subsequent operation would be restricted to only those operations required to identify the cause of this unexpected tilt.

The value of T_q that must be used in the equation $F_R^T = F_R(1 + T_q)$ is the measured tilt.

The surveillance requirements for verifying that F_R^T and T_q are within their limits provide assurance that the actual values of F_R^T and T_q do not exceed the assumed values. Verifying F_R^T after each fuel loading prior to exceeding 70% of rated power provides additional assurance that the core was properly loaded.

DNBR Margin During Power Operation Above 15% of Rated Power

The selection of limiting safety system settings and reactor operating limits is such that:

1. No specified acceptable fuel design limits will be exceeded as a result of the design basis anticipated operational occurrences, and

2. The consequences of the design basis postulated accidents will be no more severe than the predicted acceptable consequences of the accident analysis in Section 14.