



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NORTHEAST NUCLEAR ENERGY COMPANY
THE CONNECTICUT LIGHT AND POWER COMPANY
THE WESTERN MASSACHUSETTS ELECTRIC COMPANY
DOCKET NO. 50-336
MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 99
License No. DPR-65

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northeast Nuclear Energy Company, et al. (the licensee), dated February 6, 1985 as supplemented June 5 and June 11, 1985, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-65 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 99, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Edward J. Butcher, Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 19, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 99

FACILITY OPERATING LICENSE NO. DPR-65

DOCKET NO. 50-336

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are provided to maintain document completeness.

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3/4.2 POWER DISTRIBUTION LIMITS

LINEAR HEAT RATE

LIMITING CONDITION FOR OPERATION

3.2.1 The linear heat rate shall not exceed the limits shown on Figure 3.2-1.

APPLICABILITY: MODE 1.

ACTION:

During operation with the linear heat rate being monitored by the Incore Detector Monitoring System, comply with the following ACTION:

With the linear heat rate exceeding its limit, as indicated by four or more coincident incore channels, within 15 minutes initiate corrective action to reduce the linear heat rate to within the limits and either:

- a. Restore the linear heat rate to within its limits within 1 hour, or
- b. Be in at least HOT STANDBY within the next 6 hours.

During operation with the linear heat rate being monitored by the Excore Detector Monitoring System, comply with the following ACTIONS:

With the linear heat rate exceeding its limit, as indicated by the AXIAL SHAPE INDEX being outside of the power dependent limits on the Power Ratio Recorder and with the THERMAL POWER:

- a. Above 100% of the allowable power level determined by Specification 4.2.1.2.c, within 15 minutes either restore the AXIAL SHAPE INDEX to within the allowable limits as required per Technical Specification 3.2.2 or reduce THERMAL POWER to \leq 100% of the allowable power level determined by Specification 4.2.1.2.c.
- b. $<$ 100% of the allowable power level determined by Specification 4.2.1.2.c, either restore the AXIAL SHAPE INDEX to within the allowable limits as required per Technical Specification 3.2.2 within 1 hour from initially exceeding the linear heat rate limit or be in HOT STANDBY within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.1.1 The linear heat rate shall be determined to be within its limits by continuously monitoring the core power distribution with either the excore detector monitoring system or with the incore detector monitoring system.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS (Continued)

4.2.1.2 Excore Detector Monitoring System - The excore detector monitoring system may be used for monitoring the core power distribution by:

- a. Verifying at least once per 12 hours that the full length CEAs are withdrawn to and maintained at or beyond the Long Term Steady State Insertion Limits of Specification 3.1.3.6.
- b. Verifying at least once per 31 days that the AXIAL SHAPE INDEX alarm setpoints are adjusted to within the allowable limits as required per Technical Specification 3.2.2.
- c. Verifying at least once per 31 days that the AXIAL SHAPE INDEX is maintained within the allowable limits as required per Technical Specification 3.2.2, where 100 percent of the allowable power represents the maximum THERMAL POWER allowed by the existing Reactor Coolant Pump Combination.

4.2.1.3 Incore Detector Monitoring System - The incore detector monitoring system may be used for monitoring the core power distribution by verifying that the incore detector Local Power Density alarms:

- a. Are adjusted to satisfy the requirements of the core power distribution map which shall be updated at least once per 31 days.
- b. Have their alarm setpoint adjusted to less than or equal to the limits shown on Figure 3.2-1 when the following factors are appropriately included in the setting of these alarms:
 1. Flux peaking augmentation factors as shown in Figure 4.2-1,
 2. A measurement-calculational uncertainty factor of 1.07,
 3. An engineering uncertainty factor of 1.03,
 4. A linear heat rate uncertainty factor of 1.01 due to axial fuel densification and thermal expansion, and
 5. A THERMAL POWER measurement uncertainty factor of 1.02.

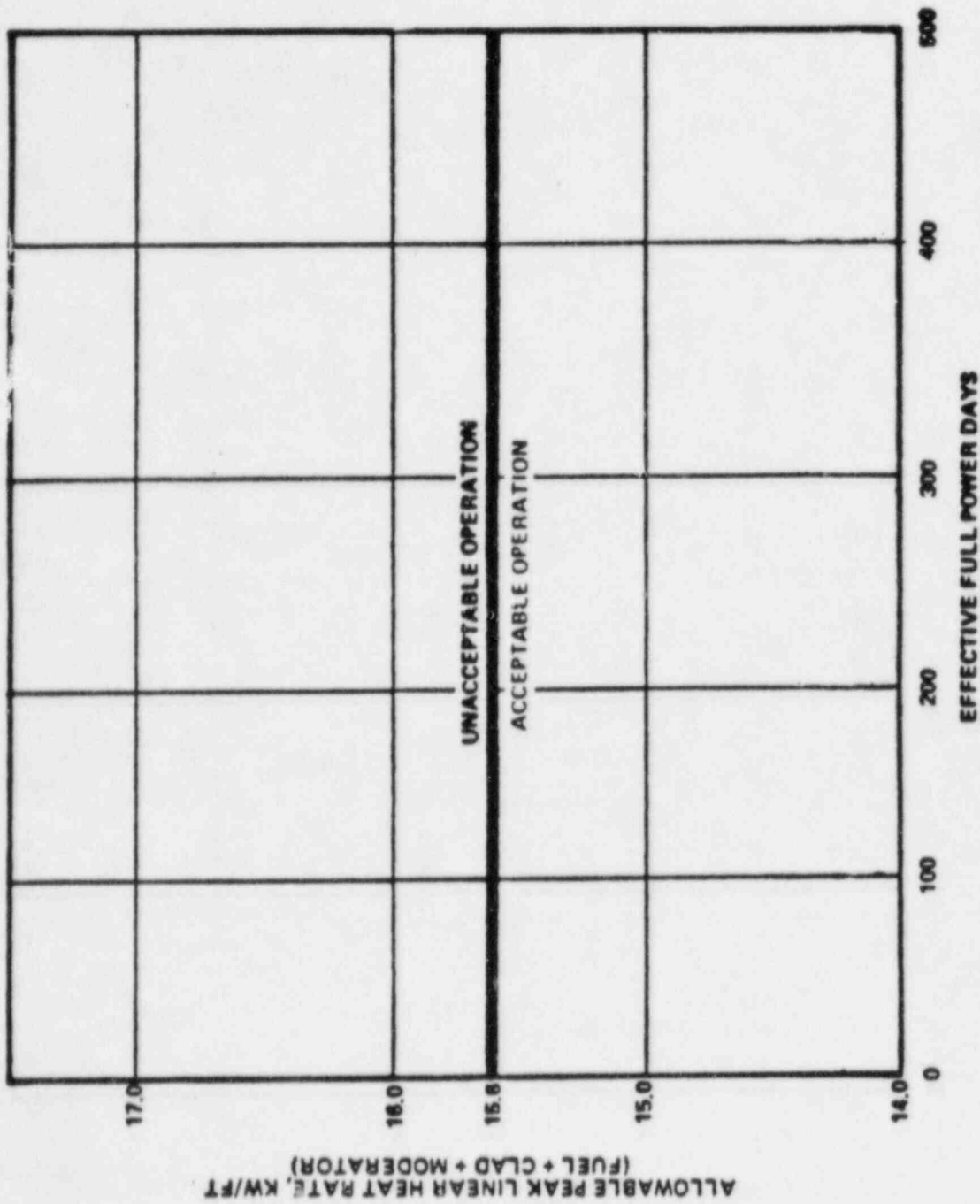


Figure 3.2-1 Allowable Peak Linear Heat Rate vs Burnup

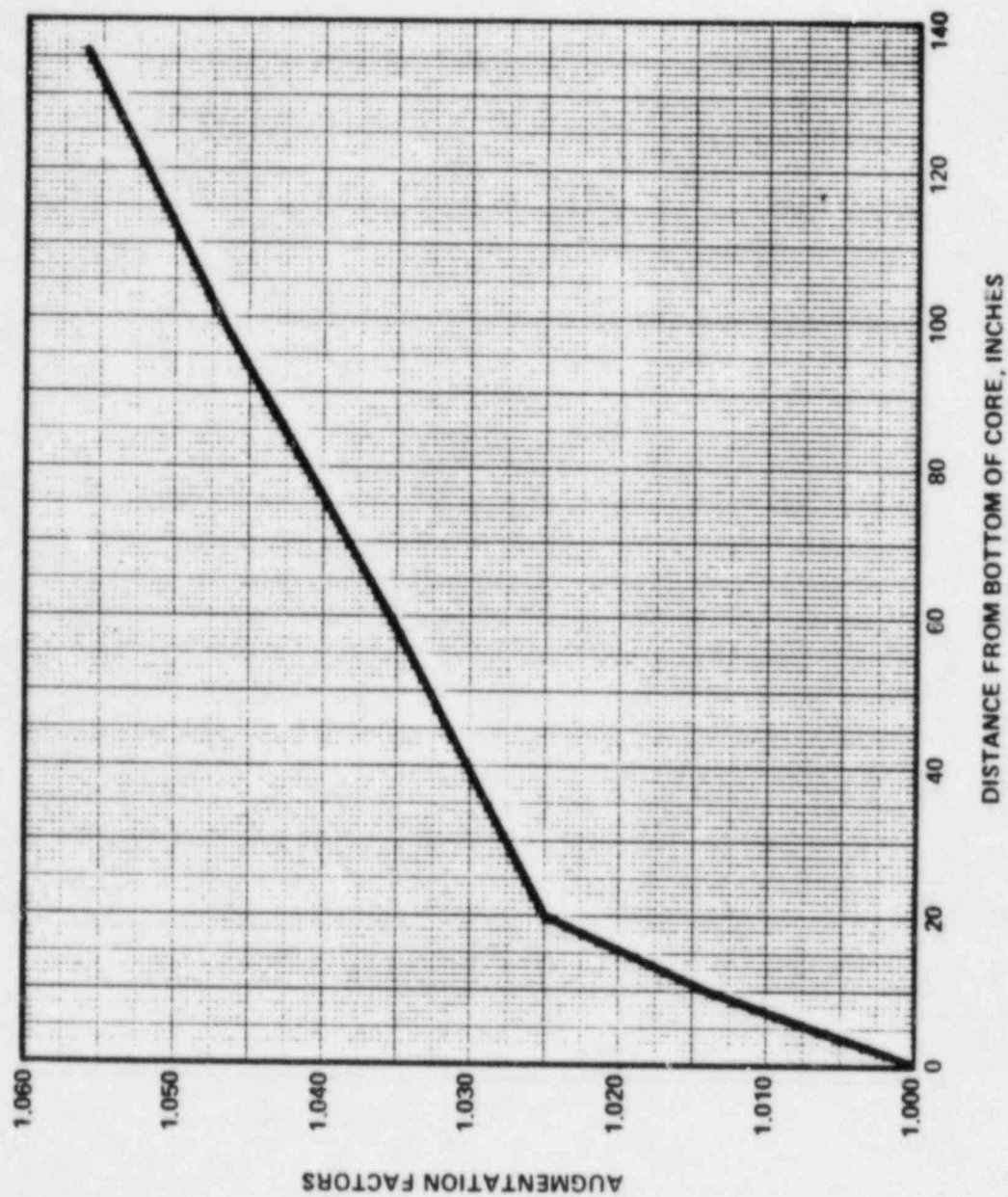


FIGURE 4.2-1 Augmentation Factors vs Distance From Bottom of Core

POWER DISTRIBUTION LIMITS

TOTAL PLANAR RADIAL PEAKING FACTOR - F_{xy}^T

LIMITING CONDITION FOR OPERATION

3.2.2 Meet either of 3.2.2.1 or 3.2.2.2.

3.2.2.1 The calculated value of F_{xy}^T , defined as $F_{xy}^T = F_{xy} (1+T_q)$, shall be limited to ≤ 1.62 with the AXIAL SHAPE INDEX alarm setpoints adjusted consistent with the limits shown on Figure 3.2-2a, or

3.2.2.2 The calculated value of F_{xy}^T , defined as $F_{xy}^T = F_{xy} (1+T_q)$, shall be limited to ≤ 1.719 with the AXIAL SHAPE INDEX alarm setpoints adjusted consistent with the limits shown on Figure 3.2-2b.

APPLICABILITY: MODE 1*.

ACTION:

- a. With $F_{xy}^T > 1.62$ and the AXIAL SHAPE INDEX alarm setpoints adjusted consistent with the limits shown on Figure 3.2-2a, within 6 hours either:
 - 1) Reduce THERMAL POWER to bring the combination of THERMAL POWER and F_{xy}^T to within the limits of Figure 3.2-3a and withdraw the full length CEAs to or beyond the Long Term Steady State Insertion Limit of Specification 3.1.3.6, or
 - 2) Apply the limits of Specification 3.2.2.2 and Figure 3.2-3b and within 72 hours adjust the AXIAL SHAPE INDEX alarm setpoints consistent with the limits shown on Figure 3.2-2b, or
 - 3) Be in at least HOT STANDBY.
- b. With $F_{xy}^T > 1.719$ and the AXIAL SHAPE INDEX alarm setpoints adjusted consistent with the limits shown on Figure 3.2-2b, within 6 hours either:
 - 1) Reduce THERMAL POWER to bring the combination of THERMAL POWER and F_{xy}^T to within the limits of Figure 3.2-3b and withdraw the full length CEAs to or beyond the Long Term Steady State Insertion Limit of Specification 3.1.3.6, or
 - 2) Be in at least HOT STANDBY.

*See Special Test Exception 3.10.2.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS

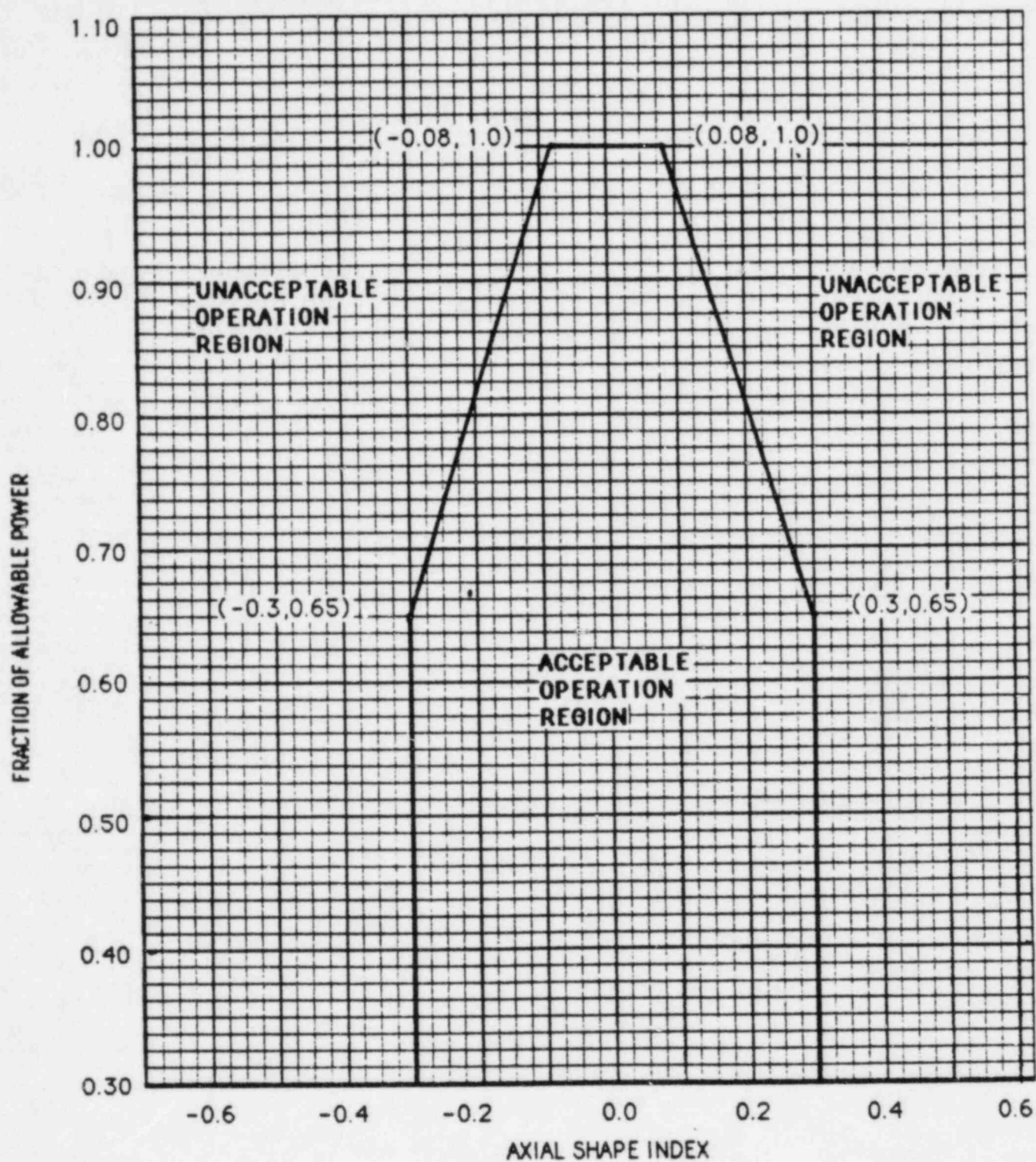
4.2.2.1 The provisions of Specification 4.0.4 are not applicable.

4.2.2.2 F_{xy}^T shall be calculated by the expression $F_{xy}^T = F_{xy} (1+T_q)$ and F_{xy}^T shall be determined to be within its limit at the following intervals:

- a. Prior to operation above 70 percent of RATED THERMAL POWER after each fuel loading,
- b. At least once per 31 days of accumulated operation in MODE 1, and
- c. Within four hours if the AZIMUTHAL POWER TILT (T_q) is > 0.02 .

4.2.2.3 F_{xy} shall be determined each time a calculation of F_{xy}^T is required by using the incore detectors to obtain a power distribution map with all full length CEAs at or above the Long Term Steady State Insertion Limit for the existing Reactor Coolant Pump combination. This determination shall be limited to core planes between 15% and 85% of full core height inclusive and shall exclude regions influenced by grid effects.

4.2.2.4 T_q shall be determined each time a calculation of F_{xy}^T is required and the value of T_q used to determine F_{xy}^T shall be measured value of T_q .



**FIGURE 3.2-2a AXIAL SHAPE INDEX vs FRACTION OF ALLOWABLE POWER LEVEL
per Specification 4.2.1.2c**

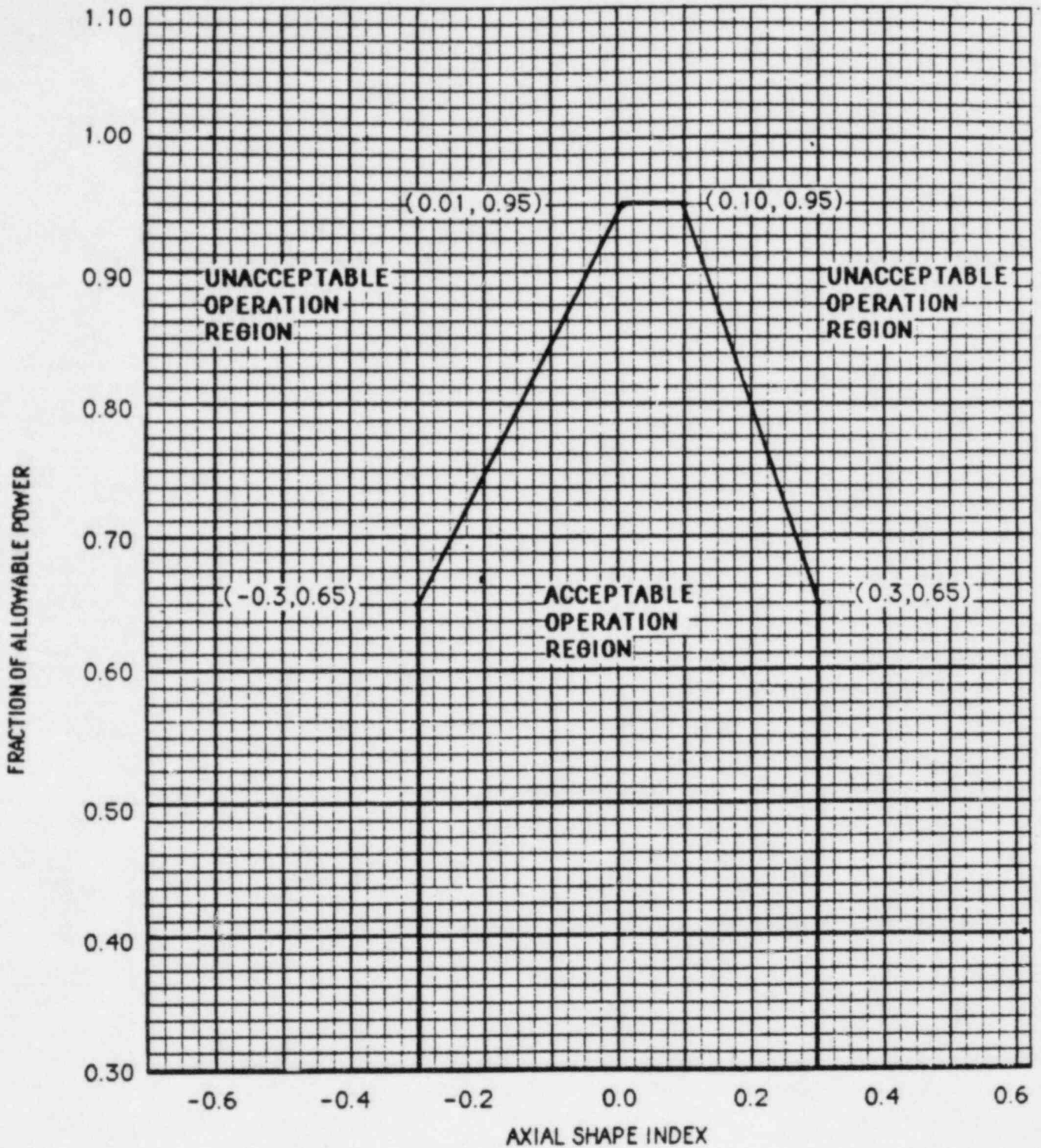
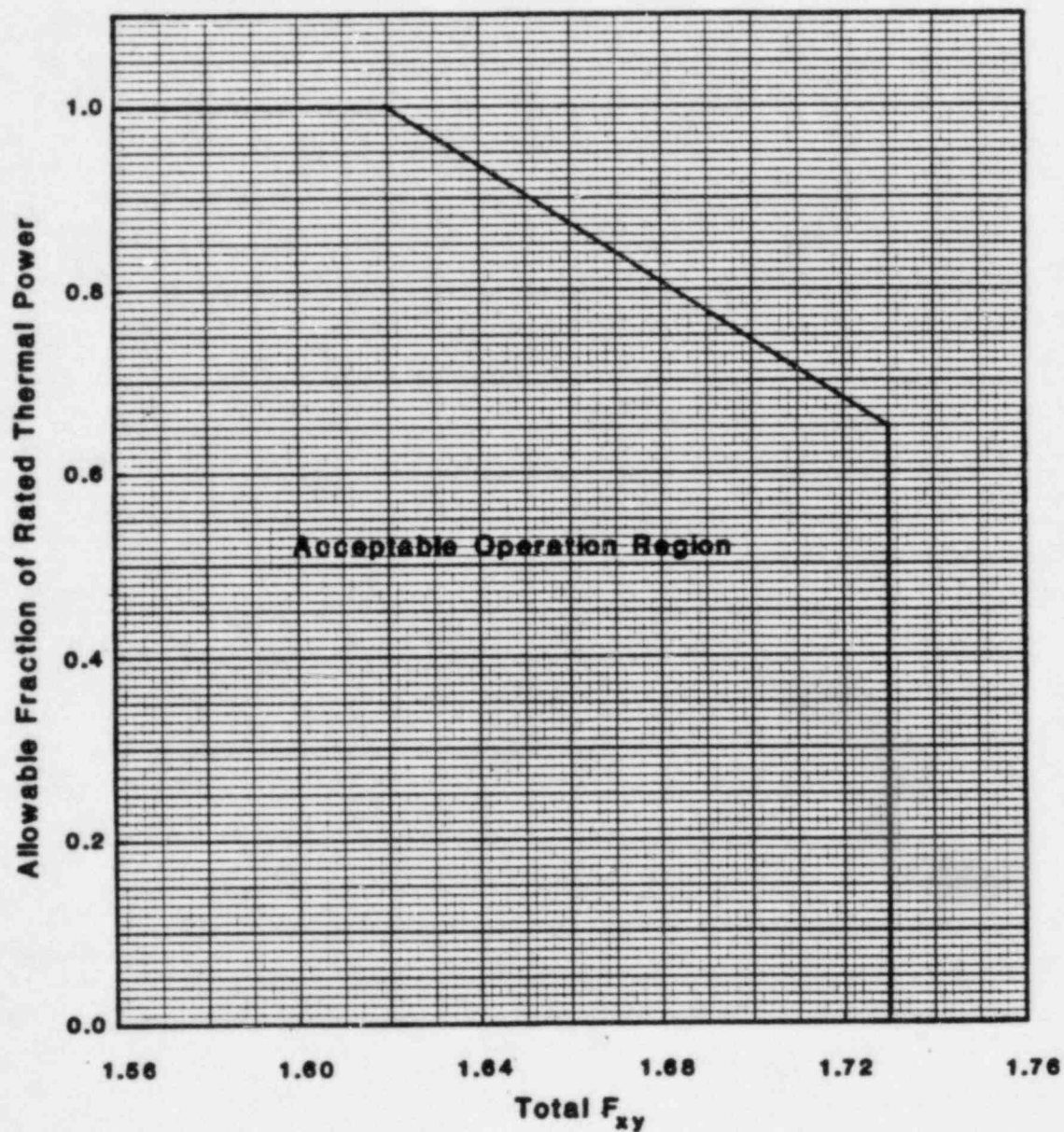


FIGURE 3.2-2b AXIAL SHAPE INDEX vs FRACTION OF ALLOWABLE POWER LEVEL |
per Specification 4.2.1.2c

FIGURE 3.2-3a Total Radial Peaking Factor vs Allowable Fraction of Rated Thermal Power



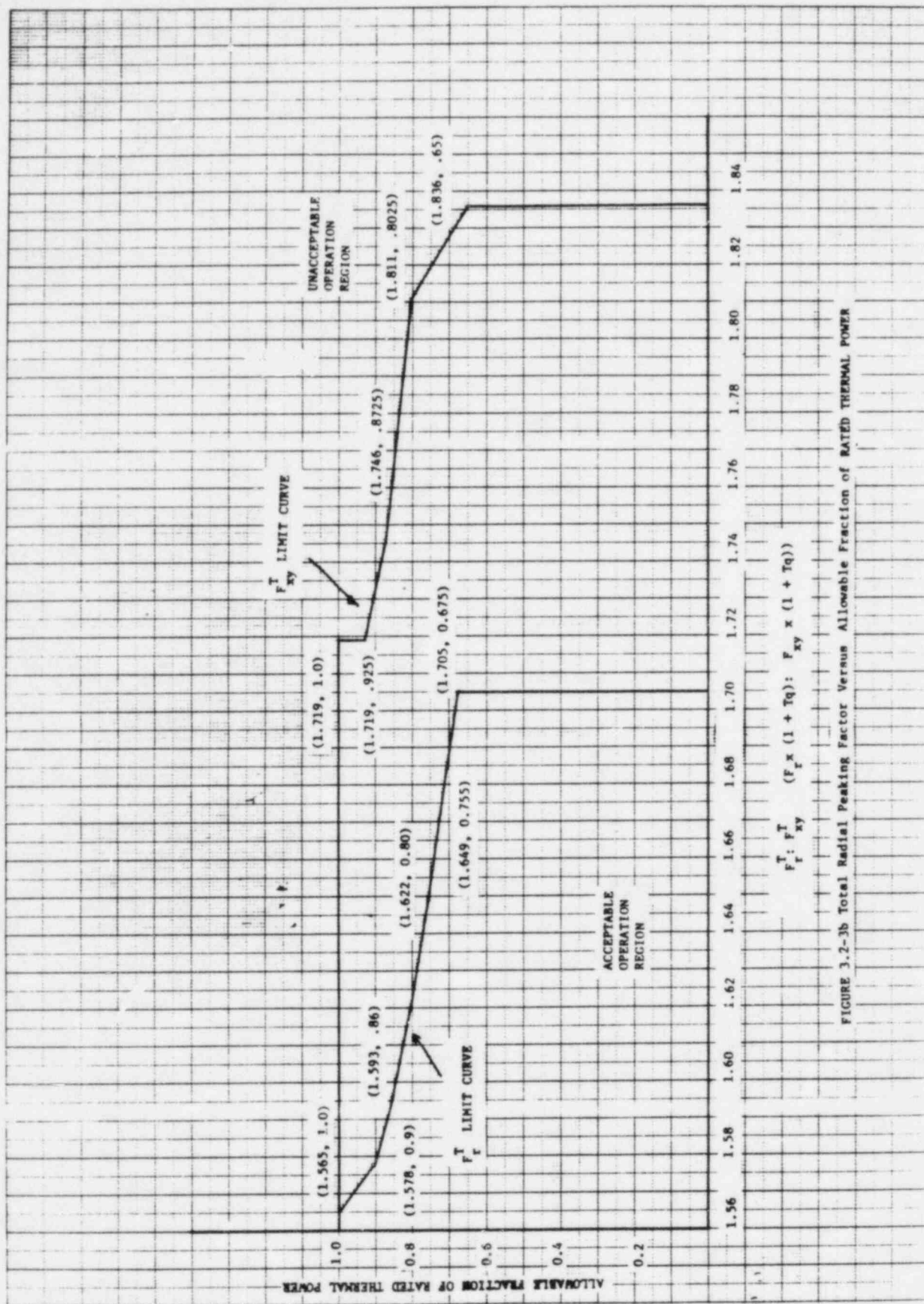


FIGURE 3.2-3b Total Radial Peaking Factor Versus Allowable Fraction of Rated Thermal Power

POWER DISTRIBUTION LIMITS

TOTAL INTEGRATED RADIAL PEAKING FACTOR - F_r^T

LIMITING CONDITION FOR OPERATION

3.2.3 The calculated value of F_r^T , defined as $F_r^T = F_r(1+T_q)$ shall be limited to ≤ 1.565 .

APPLICABILITY: MODE 1*.

ACTION:

With $F_r^T > 1.565$, within 6 hours either:

- a. Reduce THERMAL POWER to bring the combination of THERMAL POWER and F_r^T to within the limits of Figure 3.2-3b and withdraw the full length CEAs to or beyond the Long Term Steady State Insertion Limits of Specification 3.1.3.6; or
- b. Be in at least HOT STANDBY.

SURVEILLANCE REQUIREMENTS

4.2.3.1 The provisions of Specification 4.0.4 are not applicable.

4.2.3.2 F_r^T shall be calculated by the expression $F_r^T = F_r(1+T_q)$ and F_r^T shall be determined to be within its limit at the following intervals:

- a. Prior to operation above 70 percent of RATED THERMAL POWER after each fuel loading,
- b. At least once per 31 days of accumulated operation in MODE 1, and
- c. Within four hours if the AZIMUTHAL POWER TILT (T_q) is > 0.020 .

4.2.3.3 F_r shall be determined each time a calculation of F_r^T is required by using the incore detectors to obtain a power distribution map with all full length CEAs at or above the Long Term Steady State Insertion Limit for the existing Reactor Coolant Pump Combination.

4.2.3.4 T_q shall be determined each time a calculation of F_r^T is required and the value of T_q used to determine F_r^T shall be the measured value of T_q .

*See Special Text Exception 3.10.2.

POWER DISTRIBUTION LIMITS

AZIMUTHAL POWER TILT - T_q

LIMITING CONDITION FOR OPERATION

3.2.4 The AZIMUTHAL POWER TILT (T_q) shall not exceed 0.02.

APPLICABILITY: MODE 1 above 50% of RATED THERMAL POWER*.

ACTION:

- a. With the indicated AZIMUTHAL POWER TILT determined to be > 0.02 but ≤ 0.10 , either correct the power tilt within two hours or determine within the next 2 hours and at least once per subsequent 8 hours, that the TOTAL PLANAR RADIAL PEAKING FACTOR (F_{xy}^T) and the TOTAL INTEGRATED RADIAL PEAKING FACTOR (F_r^T) are within the limits of Specifications 3.2.2 and 3.2.3.
- b. With the indicated AZIMUTHAL POWER TILT determined to be > 0.10 , operation may proceed for up to 2 hours provided that the TOTAL INTEGRATED RADIAL PEAKING FACTOR (F_r^T) and TOTAL PLANAR RADIAL PEAKING FACTOR (F_{xy}^T) are within the limits of Specifications 3.2.2 and 3.2.3. Subsequent operation for the purpose of measurement and to identify the cause of the tilt is allowable provided the THERMAL POWER level is restricted to $< 20\%$ of the maximum allowable THERMAL POWER level for the existing Reactor Coolant Pump combination.

SURVEILLANCE REQUIREMENT

4.2.4.1 The provisions of Specification 4.0.4 are not applicable.

4.2.4.2 The AZIMUTHAL POWER TILT shall be determined to be within the limit by:

- a. Calculating the tilt at least once per 7 days when the Channel High Deviation Alarm is OPERABLE,

* See Special Test Exception 3.10.2.