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

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-263

MONTICELLO NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 44
License No. DPR-22

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Northern States Power Company (the licensee) dated March 7, 1986 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.

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-22 is hereby amended to read as follows:

2 Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 44 , 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 its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Rajender Auluck

Rajender Auluck, Project Manager
BWR Project Directorate #1
Division of BWR Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 27, 1986.

ATTACHMENT TO LICENSE AMENDMENT

PROVISIONAL OPERATING LICENSE NO. DPR-22

DOCKET NO. 50-263

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of changes.

REMOVE	INSERT
v	v
vi	vi
vii	vii
211	211
213	213
214	214
215	215
-	215a
-	215b
-	215c
-	215d
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LIST OF FIGURES

LIST OF TABLES

Amendment No. 30, 37, 39, 44

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.11 REACTOR FUEL ASSEMBLIES	**4.11 REACTOR FUEL ASSEMBLIES**
Applicability	Applicability
The Limiting Conditions for Operation associated with the fuel rods apply to those parameters which monitor the fuel rod operating conditions.	The Surveillance Requirements apply to the parameters which monitor the fuel rod operating conditions.
Objective	Objective
The objective of the Limiting Conditions for Operation is to assure the performance of the fuel rods.	The objective of the Surveillance Requirements is to specify the type and frequency of surveillance to be applied to the fuel rods.
Specifications	Specifications
A. Average Planar Linear Heat Generation Rate (APLHGR)	A. Average Planar Linear Heat Generation Rate (APLHGR)
During power operation, the APLHGR for all core locations shall not exceed the appropriate APLHGR limit for those core locations. The APLHGR limit, which is a function of average planar exposure and fuel type, is the appropriate value from Table 3.11.1 (based on a straight line interpolation between data points), multiplied by the smaller of the two MAPFAC factors determined from Figures 3.11.1 and 3.11.2. If any time during operation it is determined that the limit for APLHGR is being exceeded, action shall be initiated within 15	The APLHGR for each type of fuel as a function of average planar exposure shall be determined daily during reactor operation at $\geq$25% rated thermal power.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
C. Minimum Critical Power Ratio (MCPR) If thermal power is greater than 45%, the MCPR limit is the greater of: 1) MCPR (100) from Table 3.11.2 multiplied by K_P from Figure 3.11.3 or, 2) $MCPR_F$ from Figure 3.11.4. If thermal power is less than or equal to 45%, the MCPR limit is obtained from Figure 3.11.3. If at any time during operation it is determined that the limiting value for MCPR is being exceeded, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. Surveillance and corresponding action shall continue until reactor operations is within the prescribed limits. If the steady state MCPR is not returned to within the prescribed limits within two (2) hours, the reactor shall be brought to the Cold Shutdown condition within 36 hours.	C. Minimum Critical Power Ratio (MCPR) MCPR shall be determined daily during reactor power operation at $\geq$25% rated thermal power and following any change in power level or distribution which has the potential of bringing the core to its operating MCPR Limit.

TABLE 3.11.1
MAXIMUM AVERAGE PLANAR LINEAR HEAT GENERATION RATE vs. EXPOSURE

Exposure	MAPLHGR FOR EACH FUEL TYPE (kw/ft)					
MWD/STU	8DB262 8DB250 8DB219L	8DRB282 8DRB265L	P8DRB265L BP8DRB265L	P8DRB282 BP8DRB282L	P8DRB284LB BP8DRB284LB	P8DRB299L BP8DRB299L
200	11.1	11.2	11.6	11.2	11.4	11.0
1,000	11.3	11.2	11.6	11.2	11.4	11.0
5,000	11.9	11.6	11.8	11.8	11.8	11.6
10,000	12.0	11.7	11.9	11.9	11.9	11.9
15,000	11.9	11.7	11.9	11.8	11.9	11.9
20,000	11.8	11.5	11.8	11.7	11.7	11.8
25,000	11.3	11.3	11.3	11.3	11.4	11.5
30,000	10.2	10.7	10.7	11.1	10.8	10.9
35,000	9.6	10.2	10.2	10.4	10.2	10.3
40,000	8.9	9.6	9.6	9.8	9.5	9.7
45,000	-	-	-	-	8.9	9.0

TABLE 3.11.2

Rated Minimum Critical Power Ratio [MCPR(100)] vs Fuel Type			
Fuel Type	$MCPR_B$ For $\tau ave \leq \tau_B$	MCPR* For $\tau_B < \tau ave < 0.9$ SEC	$MCPR_A$ For $\tau ave = 0.9$ sec
8X8	1.36	*	1.43
P8X8R BP8X8R	1.39	*	1.46

* A linear interpolation between $MCPR_B$ and $MCPR_A$

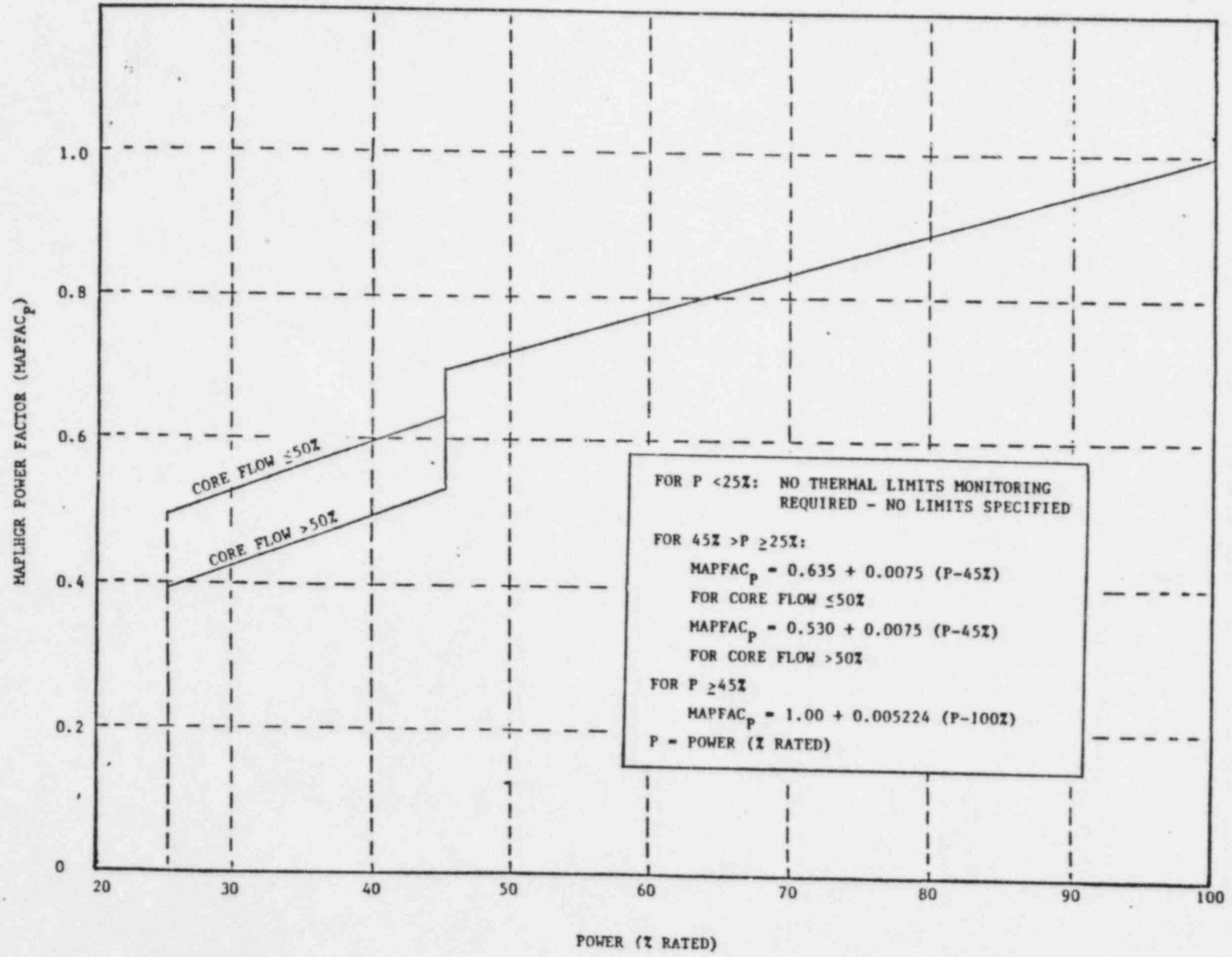

FIGURE 3.11.1 MAPFAC$_P$ LIMITS

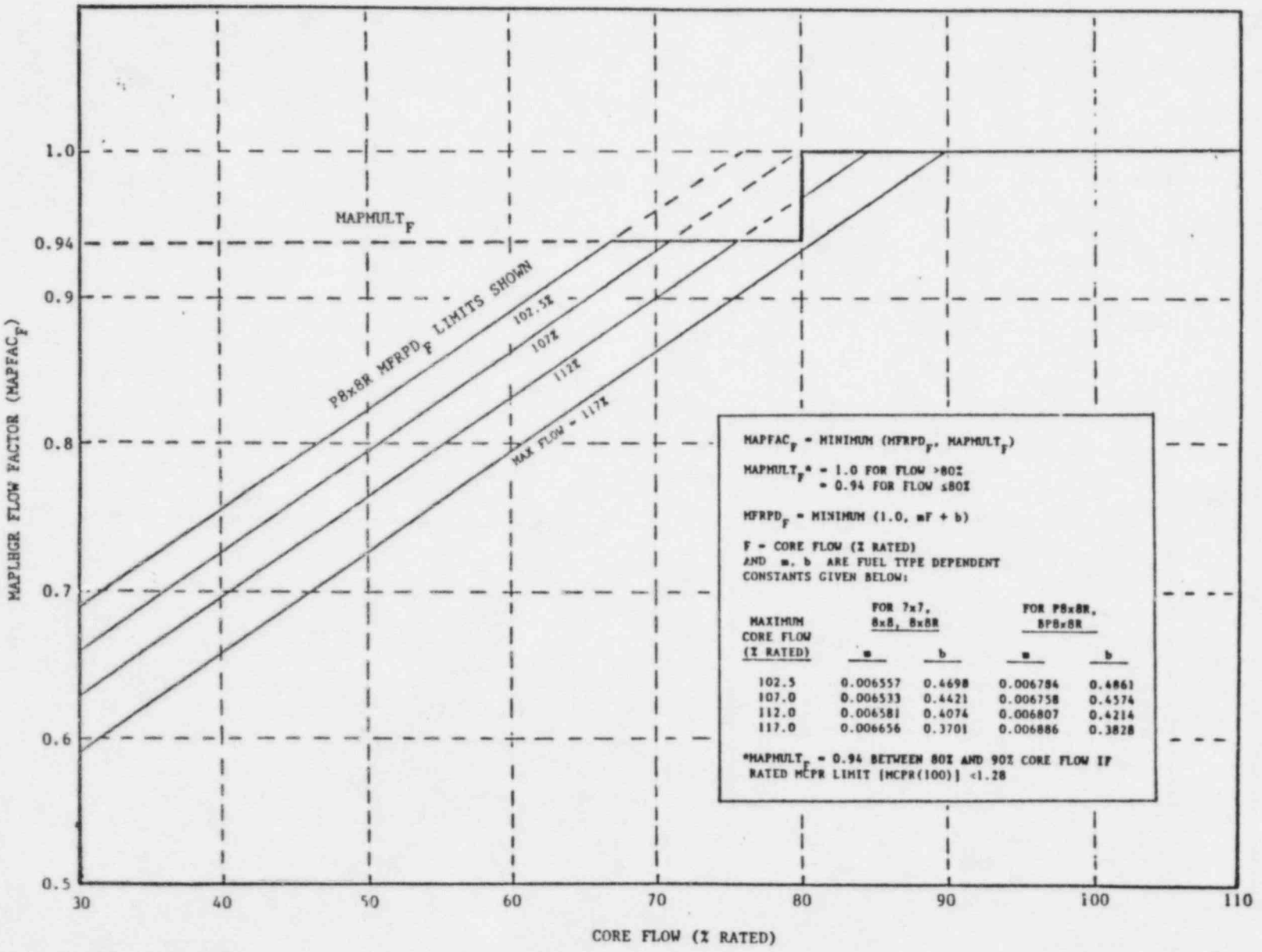

FIGURE 3.11.2 MAPFAC$_F$ LIMITS

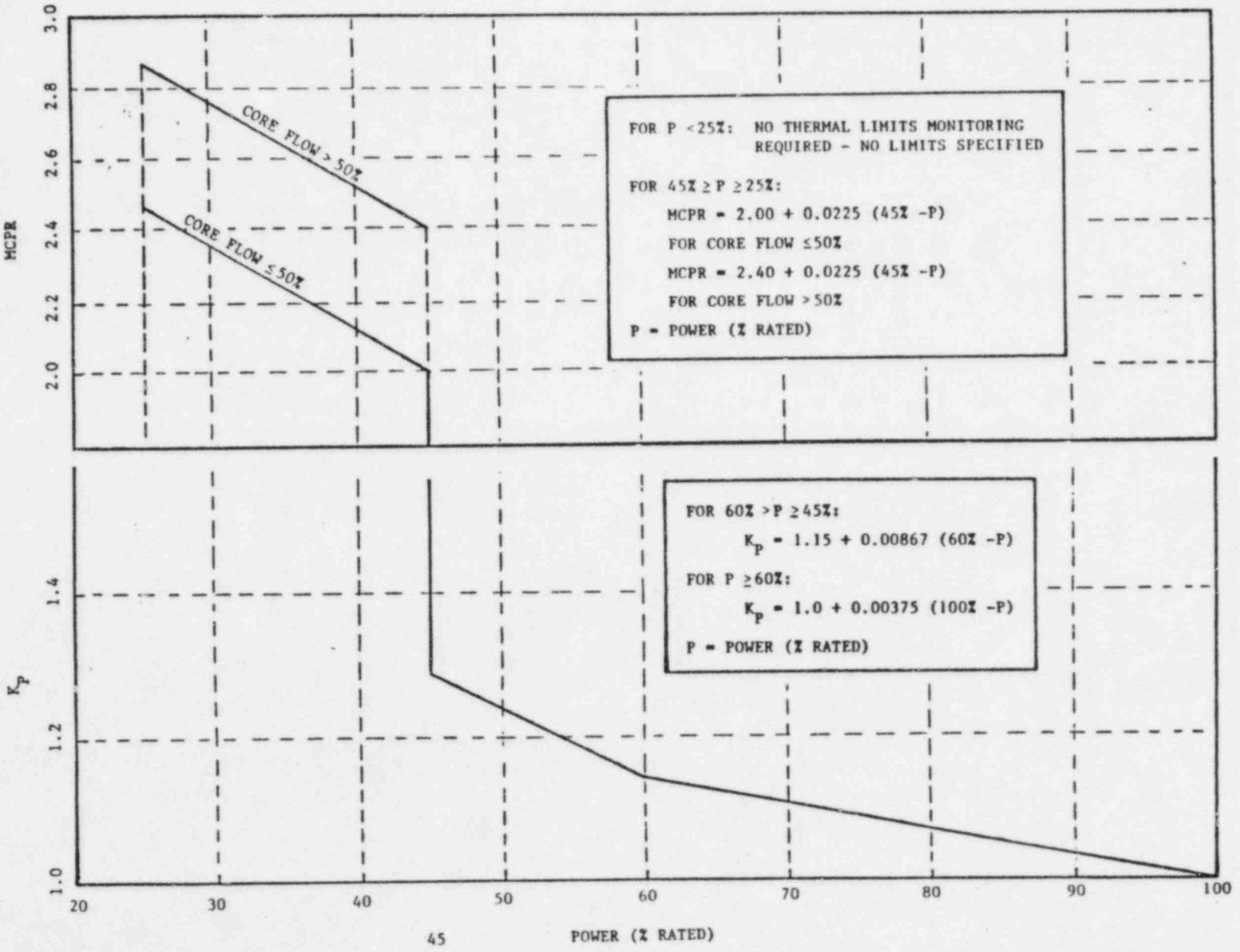

FIGURE 3.11.3 POWER DEPENDENT MCPR LIMITS

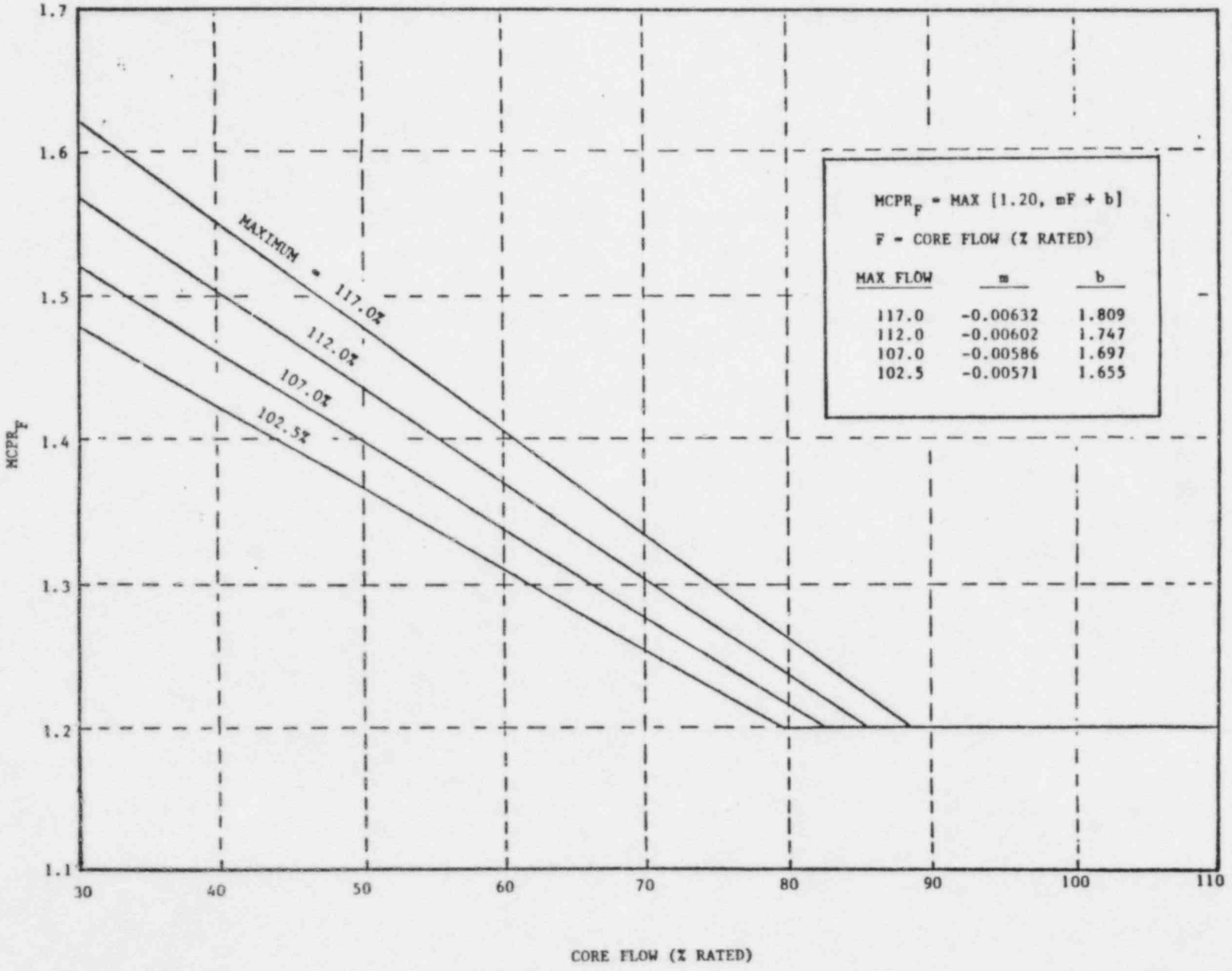

FIGURE 3.11.4 MCPR$_F$ LIMITS

Bases 3.11

A. Average Planar Linear Heat Generation Rate (APLHGR)

This specification assures that the peak cladding temperature following the postulated design bases loss-of-coolant accident will not exceed the limit specified in the 10CFR50, Appendix K.

The peak cladding temperature following a postulated loss-of-coolant accident is primarily a function of the average heat generation rate of all the rods of a fuel assembly at any axial location and is only dependent secondarily on the rod to rod power distribution within an assembly. Since expected local variations in power distribution within a fuel assembly affect the calculated peak cladding temperature by less than $\pm 20^{\circ}$ relative to the peak temperature for a typical fuel design, the limit on the average linear heat generation rate is sufficient to assure that calculated temperatures at rated conditions conform to 10CFR50.46. The limiting value for APLHGR is given by this specification.

The flow dependent correction factor (Figure 3.11.2) applied to the rated condition's APLHGR limits assures that 1) the 2200°F PCT limit would not be exceeded during a LOCA initiated from less than rated core flow conditions and 2) the fuel thermal-mechanical design criteria would be met during abnormal transients initiated from less than rated core flow conditions. The power dependent correction factor (Figure 3.11.1) applied to the rated conditions APLHGR limits assures that the fuel thermal-mechanical design criteria would be met during abnormal transients initiated from all conditions (Reference 1).

Those abnormal operational transients, analyzed in FSAR Section 14.5, which result in an automatic reactor scram are not considered a violation of LCO. Exceeding APLHGR limits in such cases need not be reported.

B. LHGR

This specification assures that the linear heat generation rate in any rod is less than the design linear heat generation.

Those abnormal operational transients, analyzed in FSAR Section 14.5, which result in an automatic reactor scram are not considered a violation of LCO. Exceeding LHGR limits in such cases need not be reported.

C. Minimum Critical Power Ratio (MCPR)

The ECCS evaluation presented in Reference 4 and Reference 6 assumed the steady state MCPR prior to the postulated loss-of-coolant accident to be 1.28 for all fuel types for rated flow. The Rated

Bases Continued

MCPR [MCPR(100)] Limit is determined from the analysis of transients discussed in Bases Sections 2.1 and 2.3. By maintaining an operating MCPR above these limits, the Safety Limit (T.S. 2.1.A) is maintained in the event of the most limiting abnormal operational transient.

Use of GE's new ODYN code Option B will require average scram time to be a factor in determining the MCPR (Reference 7). In order to increase the operating envelope for MCPR below $MCPR_A$ (ODYN code Option A), the cycle average scram time (τave) must be determined (see Bases 3.3.C). If τave is below the adjusted analysis scram time, the $MCPR_B$ Limit can be used. If $\tau ave > \tau_B$ a linear interpolation must be used to determine the appropriate MCPR. For example:

$$MCPR = MCPR_B + \frac{\tau ave - \tau B}{0.9 - \tau_B}(MCPR_A - MCPR_B)$$

$MCPR_A$ and $MCPR_B$ have been determined from the most limiting abnormal operational transients analyses.

The evaluation of a given transient begins with the system initial parameters shown in FSAR Section 14.5 that are input to a GE-core dynamic behavior transient computer program described in References 2 and 3.

At less than 100% of rated flow and power the required MCPR is the larger value of the $MCPR_F$ and $MCPR_P$ at the existing core flow and power state. The required MCPR is a function of flow in order to protect the core from inadvertent core flow increases such that the 99.9% MCPR limit requirement can be assured.

The MCPRs were calculated such that for the maximum core flow rate and the corresponding thermal power along the 105% of rated power/flow control line, the limiting bundle's relative power was adjusted until the MCPR was slightly above the Safety Limit. Using this relative bundle power, the MCPRs were calculated at different points along the 105% of rated power flow control line corresponding to different core flows. The calculated MCPR at a given point of core flow ($MCPR_F$) is defined in Figure 3.11.4 (Reference 1).

For operation above 45% of rated thermal power, the core power dependent MCPR operating limit is the rated MCPR limit, MCPR(100), multiplied by the factor, K_P, given in Figure 3.11.3. For operation below 45% of rated thermal power (turbine control valve fast closure and turbine stop valve closure scrams can be bypassed) MCPR limits are established directly from Figure 3.11.3. This protects the core from plant transients other than core flow increase, including a localized event such as rod withdrawal error (Reference 1).