

CORE OPERATING LIMITS REPORT
FOR
PEACH BOTTOM ATOMIC POWER STATION UNIT 3
RELOAD 7, CYCLE 8

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PB3R7 Core Operating Limits Report

PECO-COLR-PB3R7
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Revision

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INTRODUCTION AND SUMMARY

This report provides the cycle-specific parameter limits for: Average Planar Linear Heat Generation Rate (APLHGR); Minimum Critical Power Ratio (MCPR); Flow Adjustment Factor (K_f); Linear Heat Generation Rate (LHGR); and Rod Block Monitor flow biased upscale setpoints for Peach Bottom Atomic Power Station Unit 3, Cycle 8, Reload 7. These values have been determined using NRC-approved methodology and are established such that all applicable limits of the plant safety analysis are met.

This report is submitted in accordance with Technical Specification 6.9.1.e of Reference (1). Preparation of this report was performed in accordance with PECO Nuclear Group Procedure NP-11F122 (tentative).

APLHGR LIMITS

The limiting APLHGR value for the most limiting lattice (excluding natural uranium) of each fuel type as a function of AVERAGE PLANAR EXPOSURE is given in Figures 1 through 6. Figures 1 through 6 are used when hand calculations are required as specified in Technical Specification 3.5.I. The reduction factors for use during single recirculation loop operation are shown in Table 1.

MCPR LIMITS

The MCPR values for use in Technical Specification 3.5.K for each fuel type are given in Figures 7 and 8 and in Tables 2 and 3. Table 2 is used when the requirement of 4.5.K.2.a is met, when this requirement cannot be met the Operating Limit MCPR values as a function of τ are given in Figures 7 and 8. At times when the surveillance requirement of specification 4.5.K.2 is not performed Table 3 is used. The K_f core flow adjustment factor for use in Technical Specification 3.5.K is given in Figure 9.

ROD BLOCK MONITOR SETPOINTS

The N value for the RBM flow biased upscale setpoints for use in Technical Specification 3.2.C is given in Table 4.

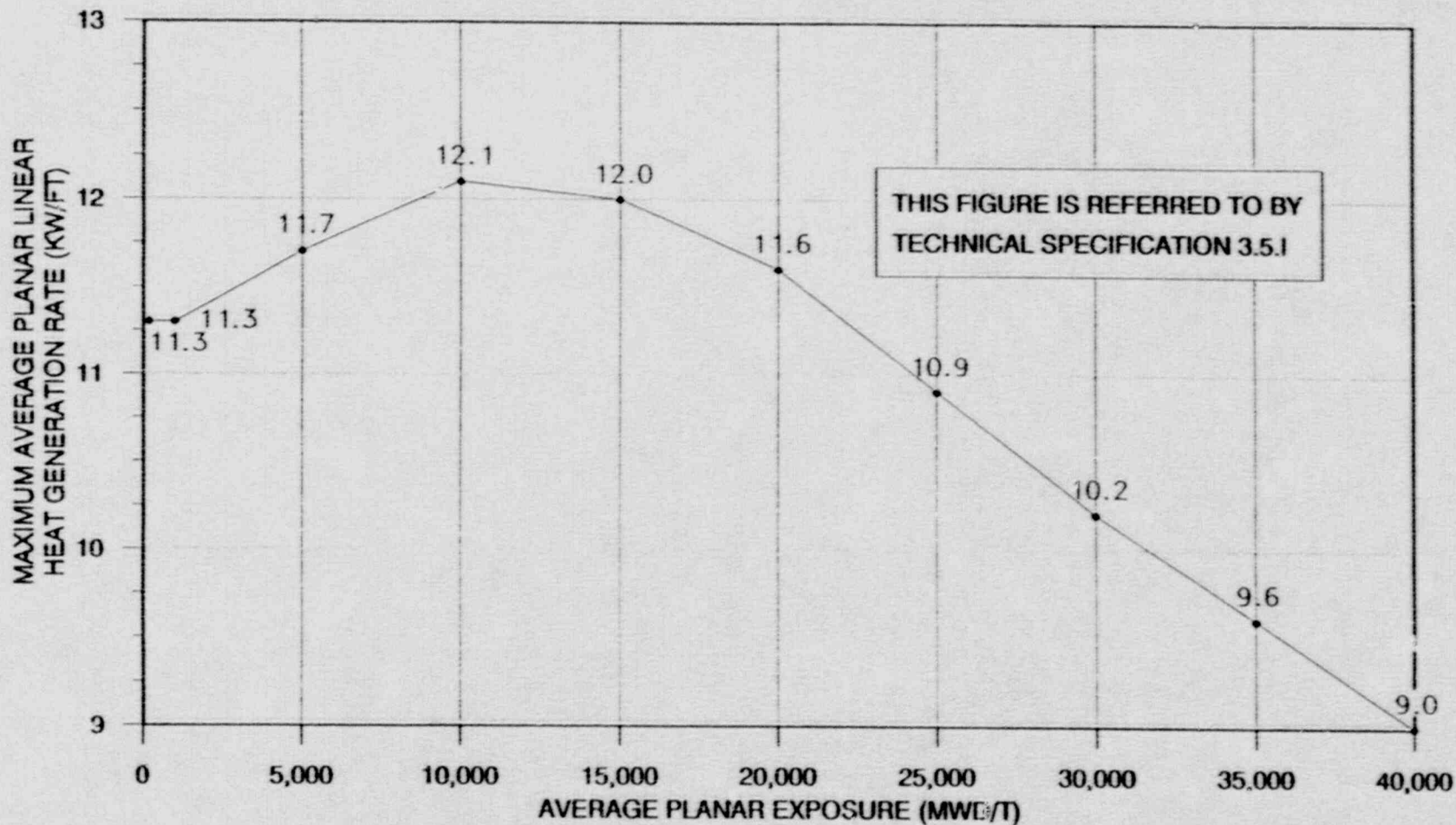
LINEAR HEAT GENERATION RATES

The LHGR value for use in Technical Specification 3.5.J for each fuel type is given in Table 5.

REFERENCES

- 1) "Technical Specifications and Bases for Peach Bottom Atomic Power Station, Unit 3", Docket No. 50-278 Appendix A to License No. DPR-56.

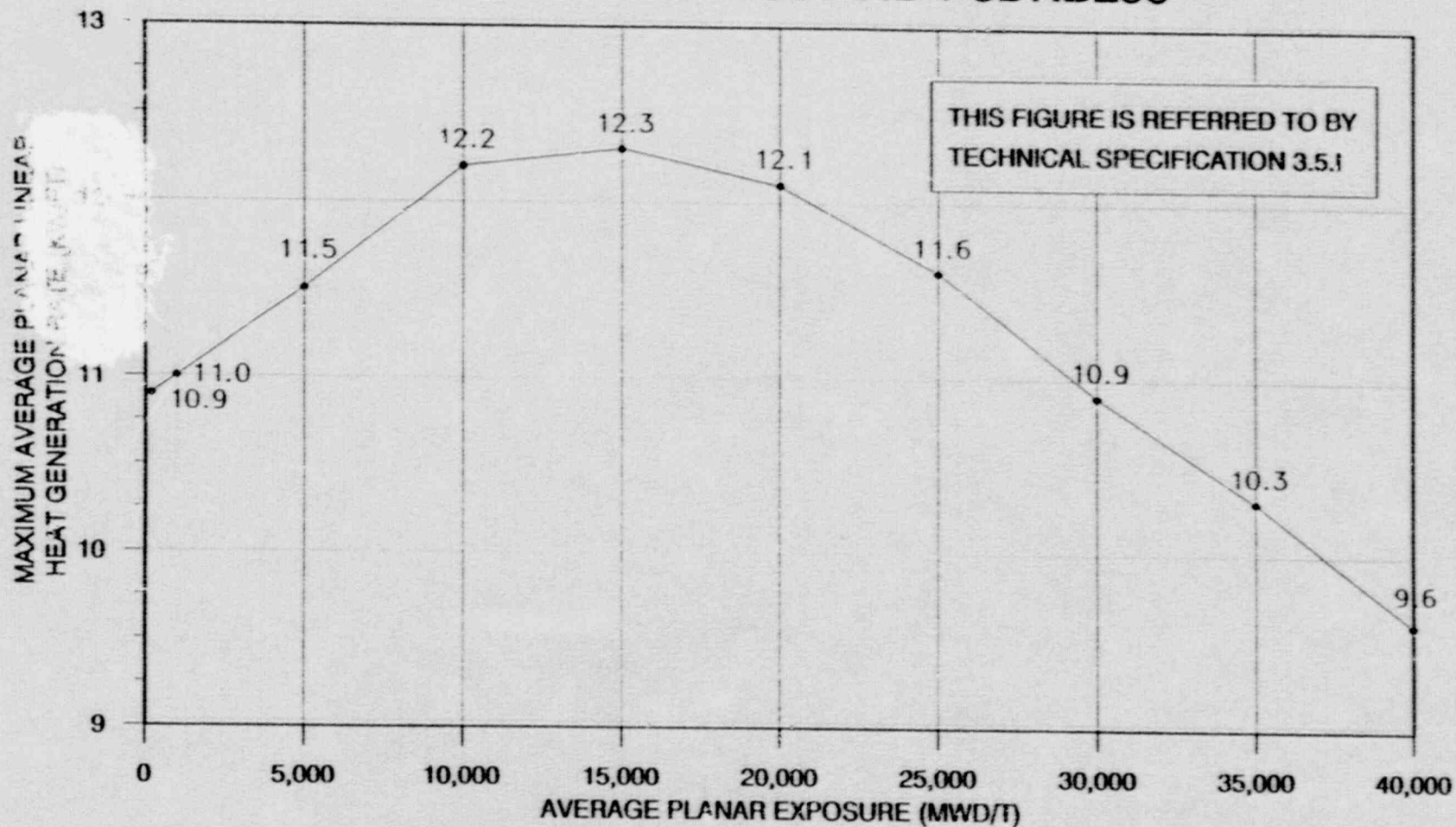
P8X8R FUEL TYPE P8DRB284H



MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE VERSUS AVERAGE PLANAR EXPOSURE

FIGURE 1

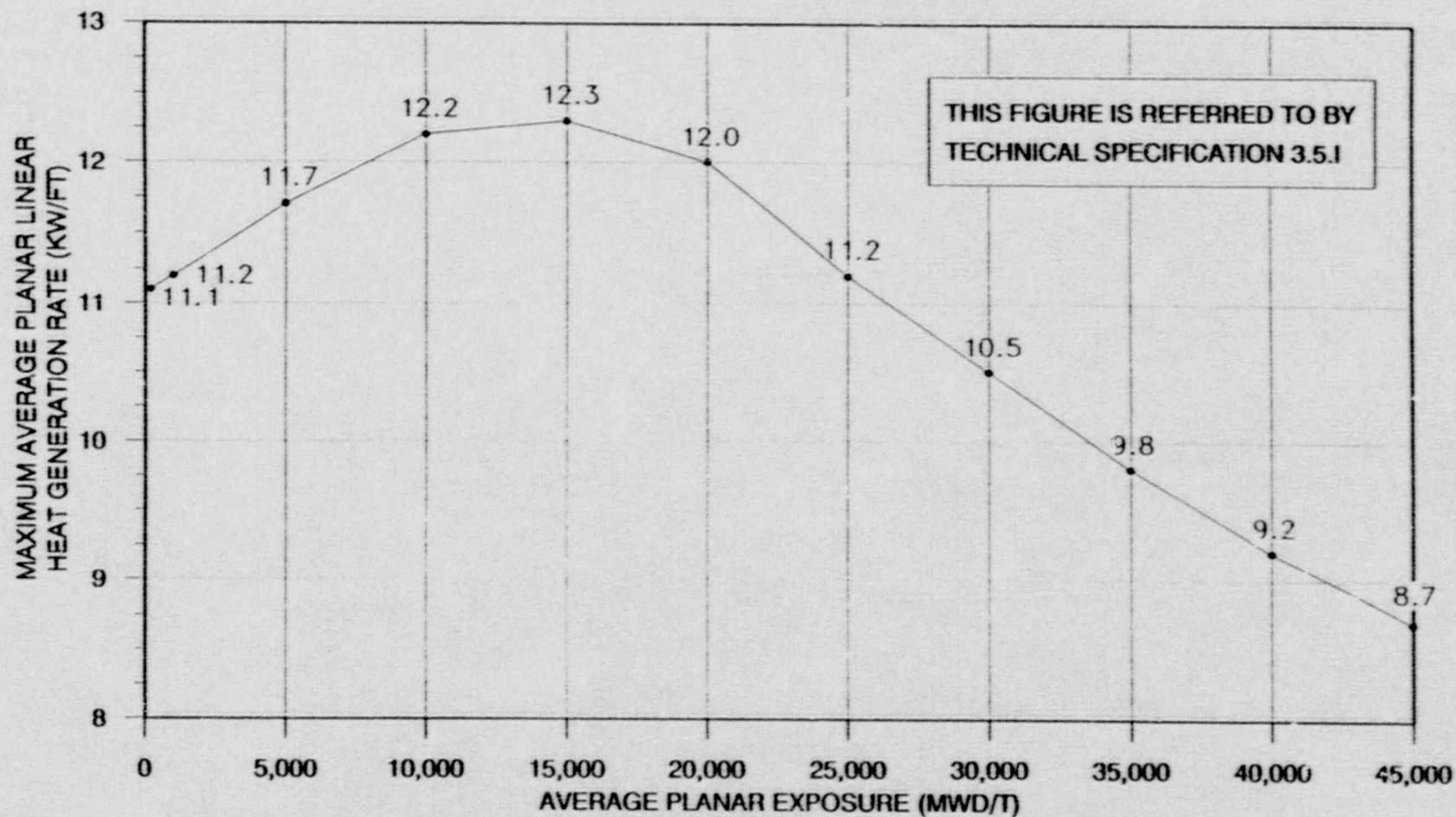
FUEL TYPE BP8DRB299 AND P8DRB299



MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE VERSUS AVERAGE PLANAR EXPOSURE

FIGURE 2

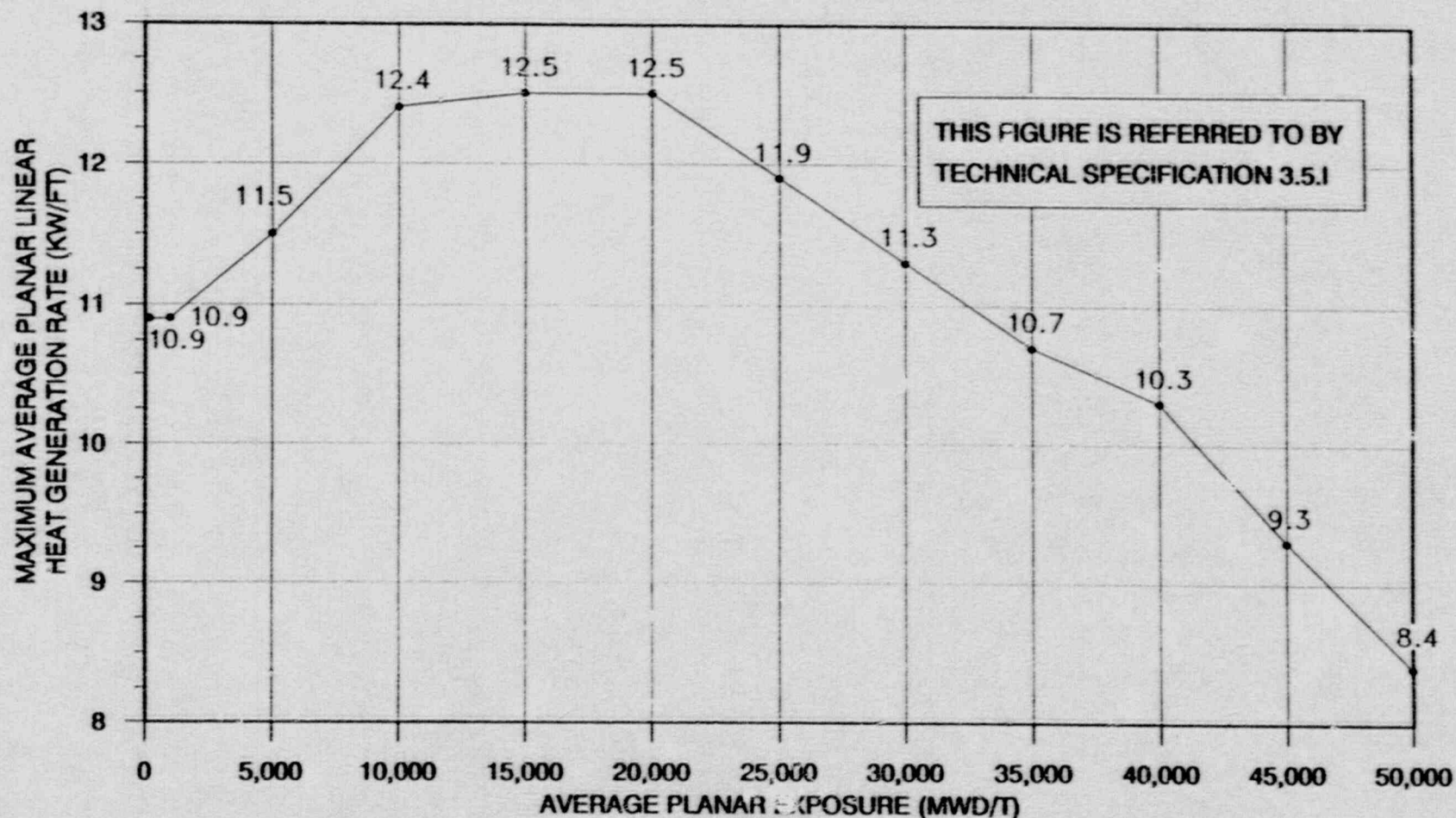
FUEL TYPE BP8DRB299H



MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE VERSUS AVERAGE PLANAR EXPOSURE

FIGURE 3

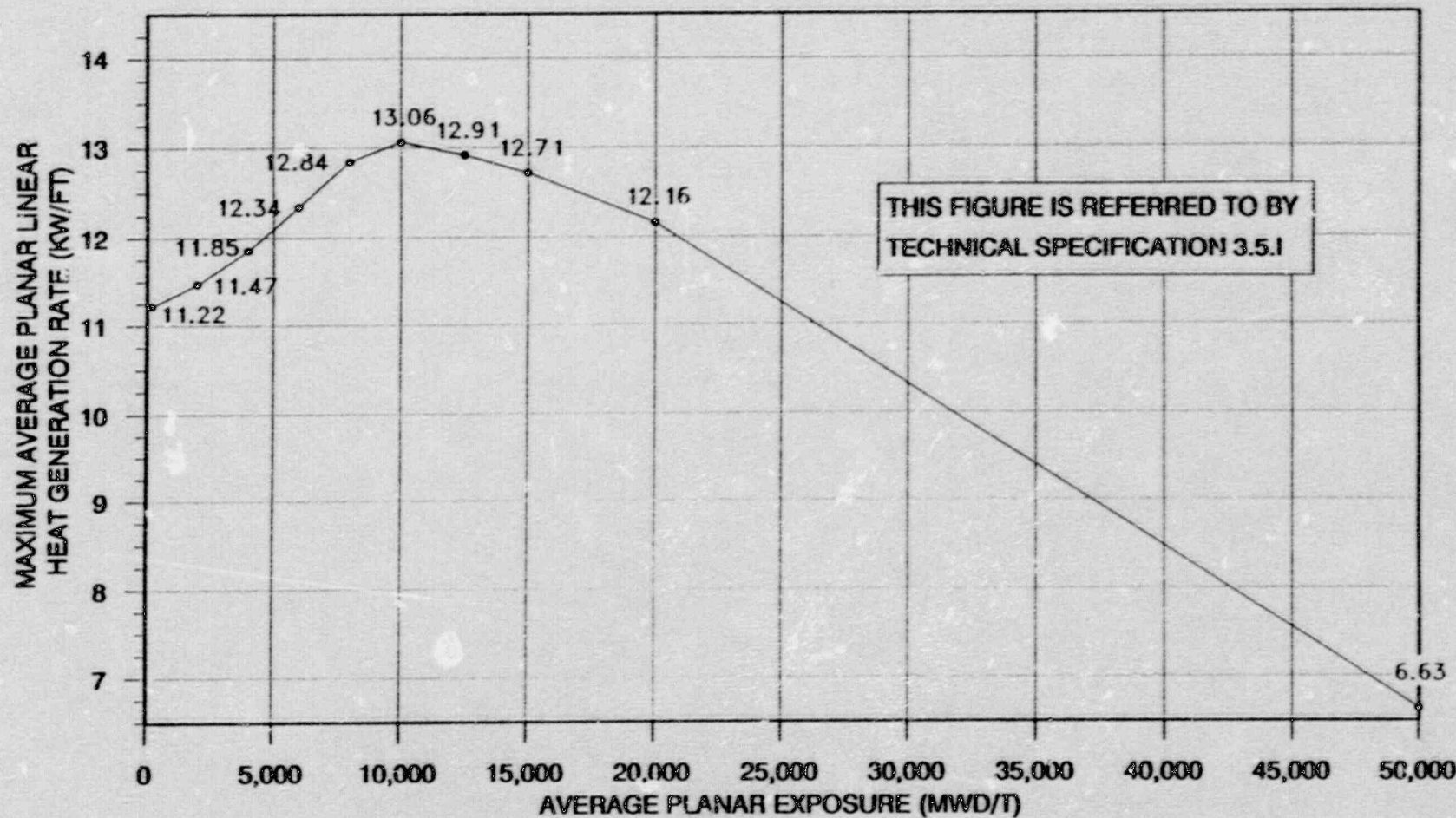
FUEL TYPE P8X8Q LTA



MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE VERSUS AVERAGE PLANAR EXPOSURE

FIGURE 4

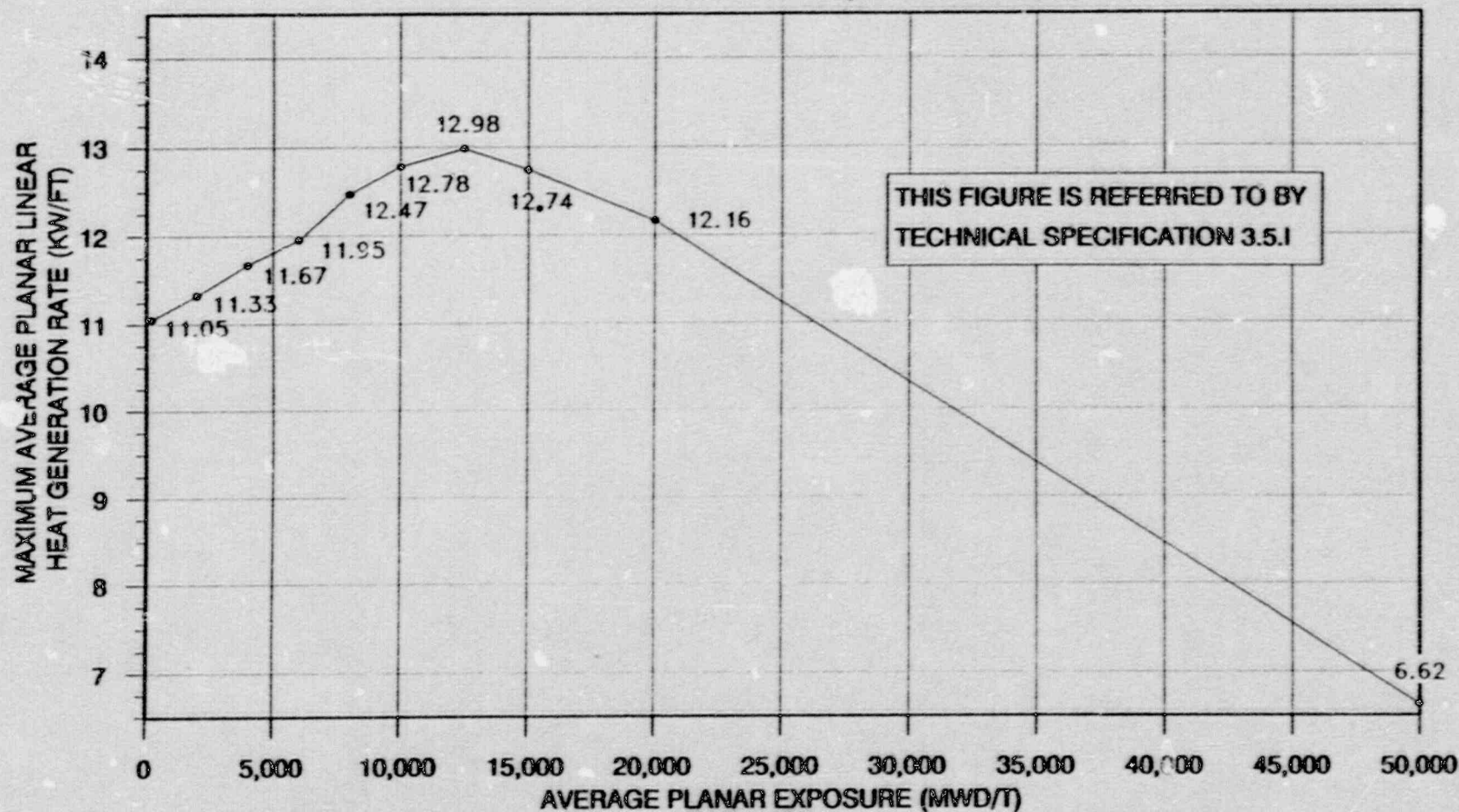
FUEL TYPE BD319A (GE8X8EB)



MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE VERSUS AVERAGE PLANAR EXPOSURE

FIGURE 5

FUEL TYPE BD321A (GE8X8EB)



MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE VERSUS AVERAGE PLANAR EXPOSURE

FIGURE 6

MCPR OPERATING LIMIT VERSUS τ FUEL TYPES BP/P8X8R, LTA, GE8X8EB

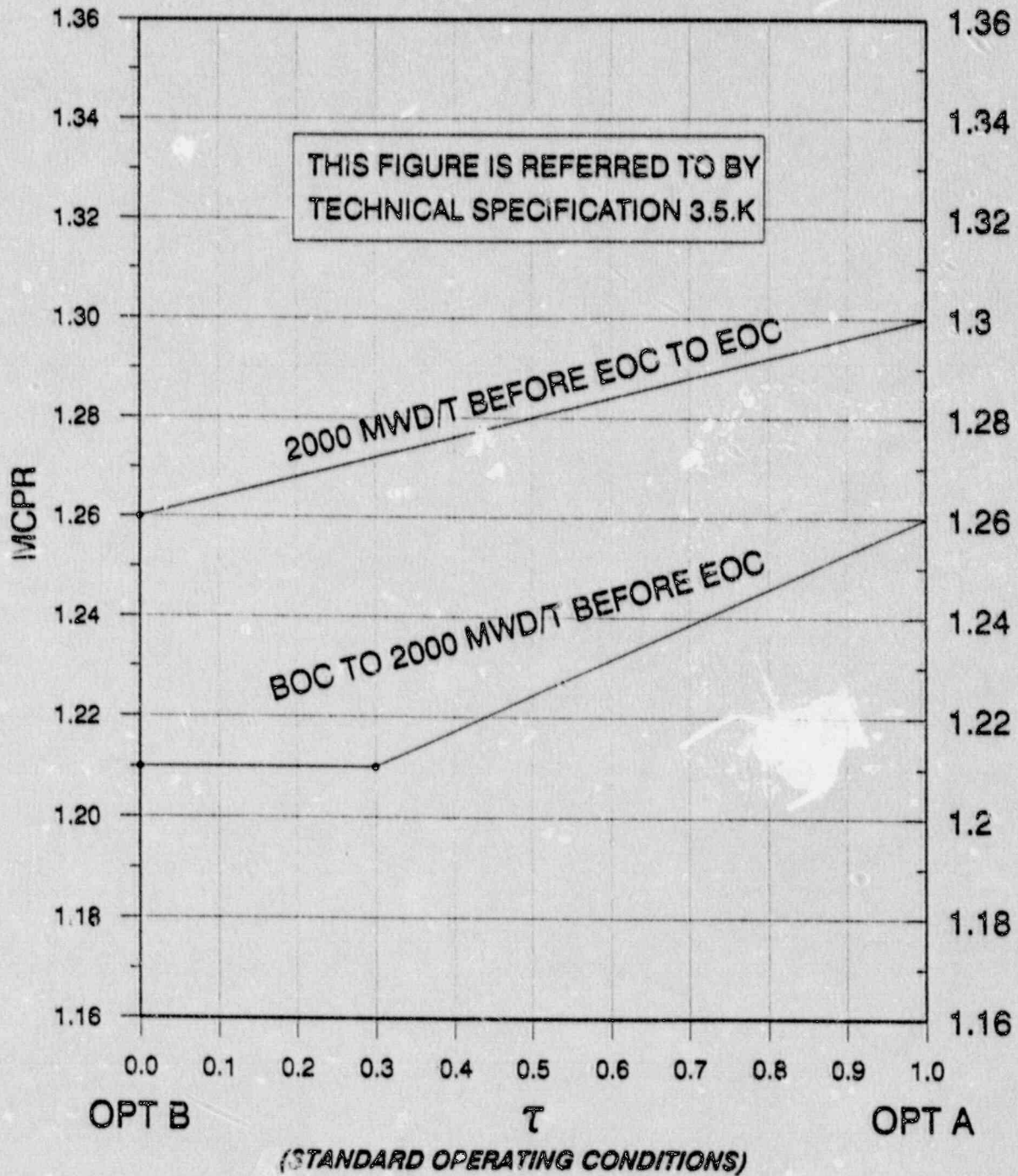


FIGURE 7

MCPR OPERATING LIMIT VERSUS τ

FUEL TYPES BP/P8X8R, LTA, GE8X8EB

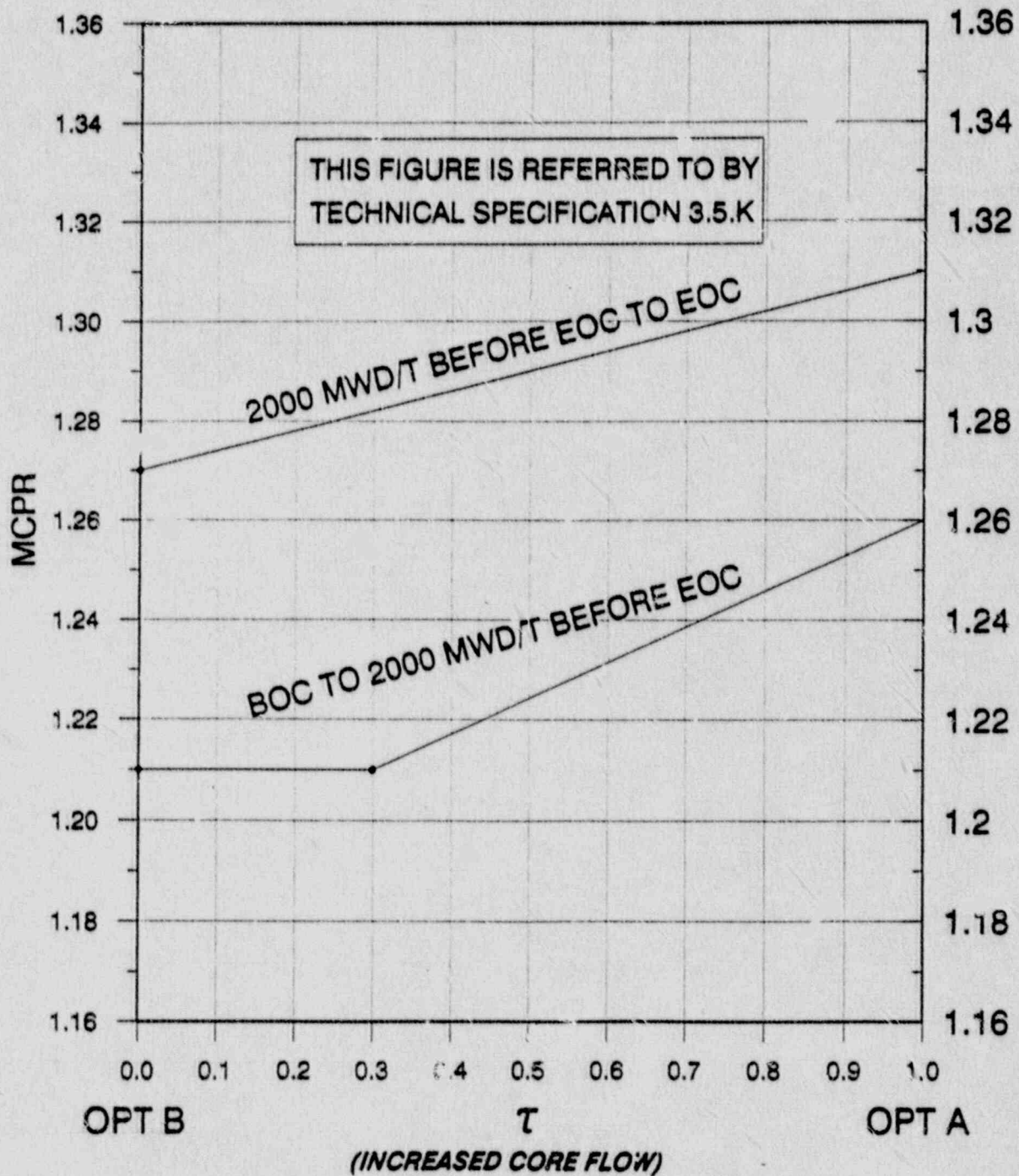


FIGURE 1

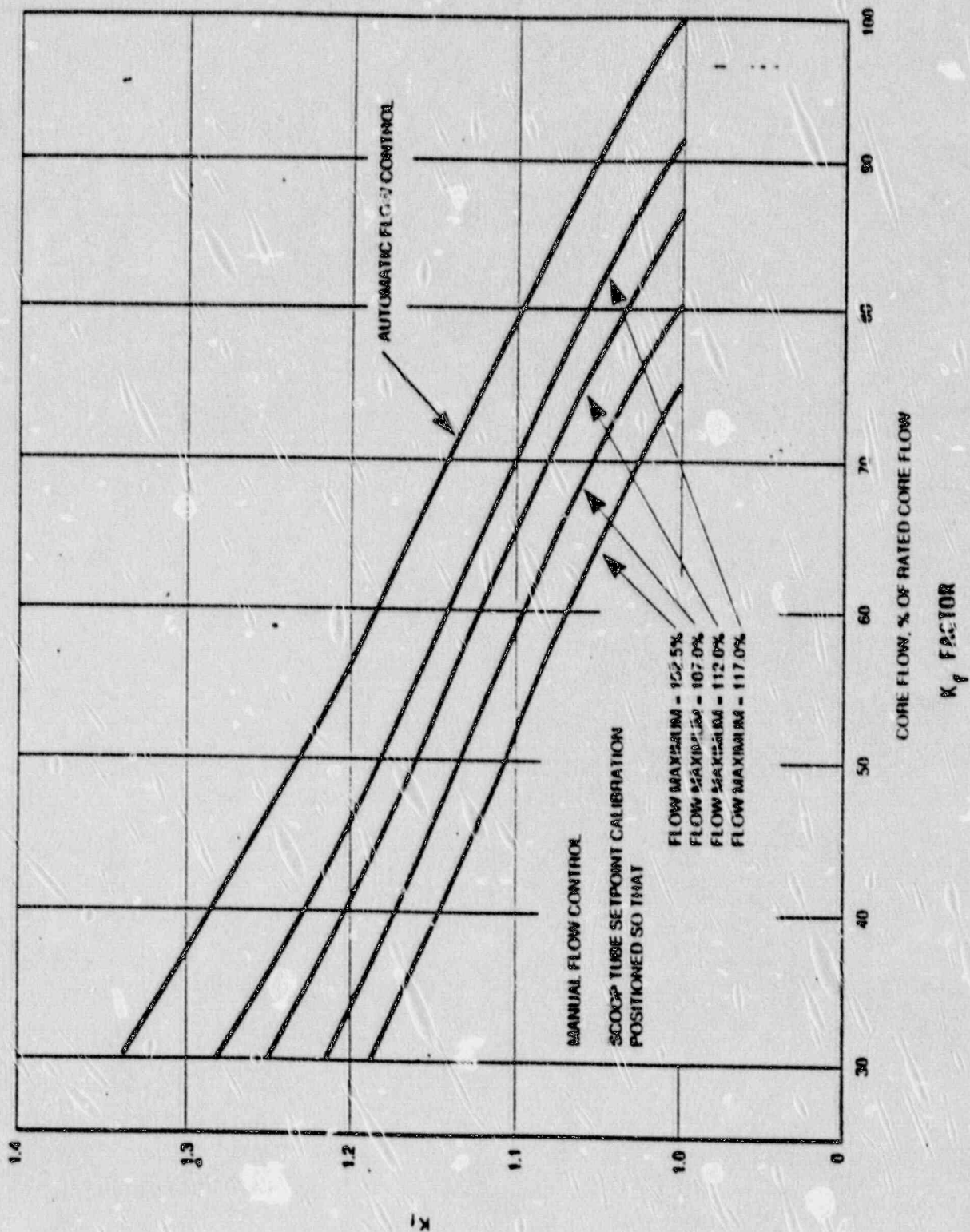


FIGURE 9

TABLE 1

SINGLE LOOP REDUCTION FACTORS

<u>FUEL TYPE</u>	<u>REDUCTION FACTOR</u>
BP/P8X8R	0.81
LTA	0.81
GE8X8EB	0.73

THIS FIGURE IS REFERRED TO BY
TECHNICAL SPECIFICATION 3.5.1

TABLE 2

OPERATING LIMIT MCPR VALUES
FOR VARIOUS CORE EXPOSURES*

FUEL TYPE	MCPR OPERATING LIMIT** FOR INCREMENTAL CYCLE CORE AVERAGE EXPOSURE	
	BOC TO 2000 MWD/T BEFORE EOC	2000 MWD/T BEFORE EOC TO EOC
<u>Standard Operating Conditions</u>		
BP/P8X8R	1.21	1.26
LTA	1.21	1.26
GE8X8EB	1.21	1.26
<u>Increased Core Flow</u>		
BP/P8X8R	1.21	1.27
LTA	1.21	1.27
GE8X8EB	1.21	1.27

* If Technical Specification requirement 4.5.K.2.a is met.

** These values shall be increased by 0.01 for single loop operation.

THIS FIGURE IS REFERRED TO BY
TECHNICAL SPECIFICATION 3.5.K

TABLE 3

OPERATING LIMIT MCPR VALUES
FOR VARIOUS CORE EXPOSURES*

FUEL TYPE	MCPR OPERATING LIMIT** FOR INCREMENTAL CYCLE CORE AVERAGE EXPOSURE	
	BOC TO 2000 MWD/T BEFORE EOC	2000 MWD/T BEFORE EOC TO EOC
<u>Standard Operating Conditions</u>		
BP/P8X8R	1.26	1.30
LTA	1.26	1.30
GE8X8EB	1.26	1.30
<u>Increased Core Flow</u>		
BP/P8X8R	1.26	1.31
LTA	1.26	1.31
GE8X8EB	1.26	1.31

* If Technical Specification Surveillance Requirement 4.5.K.2 is not performed.

** These values shall be increased by 0.01 for single loop operation.

THIS FIGURE IS REFERRED TO BY
TECHNICAL SPECIFICATION 3.5.K

TABLE 4

ROD BLOCK MONITOR SETPOINT

N=107

THIS FIGURE IS REFERRED TO BY
TECHNICAL SPECIFICATION 3.2.C

TABLE 5

DESIGN LINEAR HEAT GENERATION RATE LIMITS

<u>FUEL TYPE</u>	<u>LHGR LIMIT</u>
BP/P8X8R	13.4 KW/ft
LTA	13.4 KW/ft
GE8X8EB	14.4 KW/ft

THIS FIGURE IS REFERRED TO BY
TECHNICAL SPECIFICATION 3.5.J