

RIVER BEND STATION, CYCLE 6

CORE OPERATING LIMITS REPORT (COLR)

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PREPARED BY: Mehad M. Gade KCN 2534
Wai Law KCN 0783 Date: 9/30/94
Sr. Nuclear Safety Engineer

REVIEWED BY: John P. Egan KCN 0304 Date: 9/30/94
Sr. Nuclear Safety Engineer

APPROVED BY: Paul H. Sicard KCN 0976 Date: 10/3/1994
Manager - Safety & Engineering
Analysis

APPROVED BY: T.R. Leavell KCN 0117 Date: 10/4/94
Director, Engineering
River Bend Nuclear Station

APPROVED BY: D.R. DeBorne 0186 Date: 10-5-94
Facilities Review Committee
River Bend Nuclear Station

LIST OF EFFECTIVE PAGES

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SUMMARY OF CHANGES FOR REVISION 1

The COLR was revised to account for the change in the core as loaded configuration made in mid-cycle 6 to replace a leaking fuel bundle. Except for the revision number on each page the only pages effected by this revision are 1, 2, 4, 8 and 19. No core operating limits have changed.

INTRODUCTION AND SUMMARY

This report provides the values of the AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR) limits, the core flow dependent MINIMUM CRITICAL POWER RATIO (MCPR) limits, $MCPR_f$, the thermal power dependent MCPR limits $MCPR_p$, the LINEAR HEAT GENERATION RATE (LHGR) limits, and the REACTOR PROTECTION SYSTEM (RPS) response time for APRM thermal time constant for River Bend Station, Cycle 6 as required by Technical Specification 6.9.3.1. Per Technical Specifications 6.9.3.2 and 6.9.3.3, these values have been determined using NRC-approved methodology and are established such that all applicable limits of the plant safety analysis are met.

TECHNICAL SPECIFICATION 3.2.1

POWER DISTRIBUTION LIMITS

AVERAGE PLANAR LINEAR HEAT GENERATION RATE

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, 2, 3, 4, 5, 6, 7 and 8. These values were determined with the SAFE/REFLOOD LOCA methodology described in GESTAR-II (Reference 1). Core location by fuel type is provided in Figure 11, which is modified from the final core loading pattern in revision zero of this report per reference 3. This is verified as the as loaded core configuration per Reference 5. These figures are used if alternate calculations are required. The limits of these figures shall be reduced to a value of 0.84 times the two recirculation loop operation limit when in single loop operation (Reference 4).

TECHNICAL SPECIFICATION 3.2.3

POWER DISTRIBUTION LIMITS

MINIMUM CRITICAL POWER RATIO

The MCPR limits for use in Technical Specification 3.2.3 for $MCPR_f$ and $MCPR_p$ are shown in Figures 9 and 10. These values were determined with the GEMINI methodology and GEXL-PLUS critical power ratio correlation described in GESTAR-II (Reference 1) and are consistent with a Safety Limit MCPR of 1.07.

TECHNICAL SPECIFICATION 3.2.4

POWER DISTRIBUTION LIMITS

LINEAR HEAT GENERATION RATE

The LHGR limits for use in Technical Specification 3.2.4 are 14.4 kw/ft for GE8x8EB fuel and 13.4 kw/ft for all other fuel types. The GE8x8EB fuel consists of fuel types GE8B-P8SQB322-8GZ-120M-4WR-150-T, GE8B-P8SQB322-9GZ-120M-4WR-150-T, GE8B-P8SQB333-10GZ-120M-4WR-150-T, GE8B-P8SQB331-11GZ-120M-4WR-150-T, GE8B-P8SQB334-10GZ-120M-4WR-150-T, GE8B-P8SQB334-10GZ2-120M-4WR-150-T and GE8B-P8SQB334-11GZ-120M-4WR-150-T. Core location by fuel type is provided in Figure 11.

The higher limit for GE8X8EB fuel is proprietary to GE and does not appear in Reference 1. The NRC SER on the GE8B design (Reference 2) recognizes the change to the LHGR limit, and the proprietary value is found in References 18 and 19 of Reference 2.

TECHNICAL SPECIFICATION TABLES 3.3.1-2 and 4.3.1.1-1

The simulated thermal power time constant for use in
Technical Specification Table 3.3.1-2, Footnote ** is:

6 ± 0.6 seconds.

The maximum simulated thermal power time constant for use in
Technical Specification surveillance Table 4.3.1.1-1 is:

6.6 seconds

REFERENCES

- 1) NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," (latest approved version).
- 2) Letter, C.O. Thomas to J.S. Charnley, "Acceptance for Referencing of Licensing Topical Report," NEDE-24011-P-A-6, Amendment 10, General Electric Standard Application for Reload Fuel, May 28, 1985.
- 3) Letter, Charles J. Paone to Gary Scronce, "River Bend Verified Full Core Loading for Identified Leaker Replacement," GFP-928, File No: G25.4.3, September 27, 1994.
- 4) "Single-Loop Operation Analysis for River Bend Station, Unit 1," NEDO-31441, May 1987.
- 5) Letter, Scott Young to Gary Scronce, "Cycle 6 Mid-Cycle Core Shuffle Core Verification Completion," RXE 94-091, September 29, 1994.

FIGURE 1. MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE (MAPLHGR) VERSUS AVERAGE PLANAR
EXPOSURE BP8SRB299

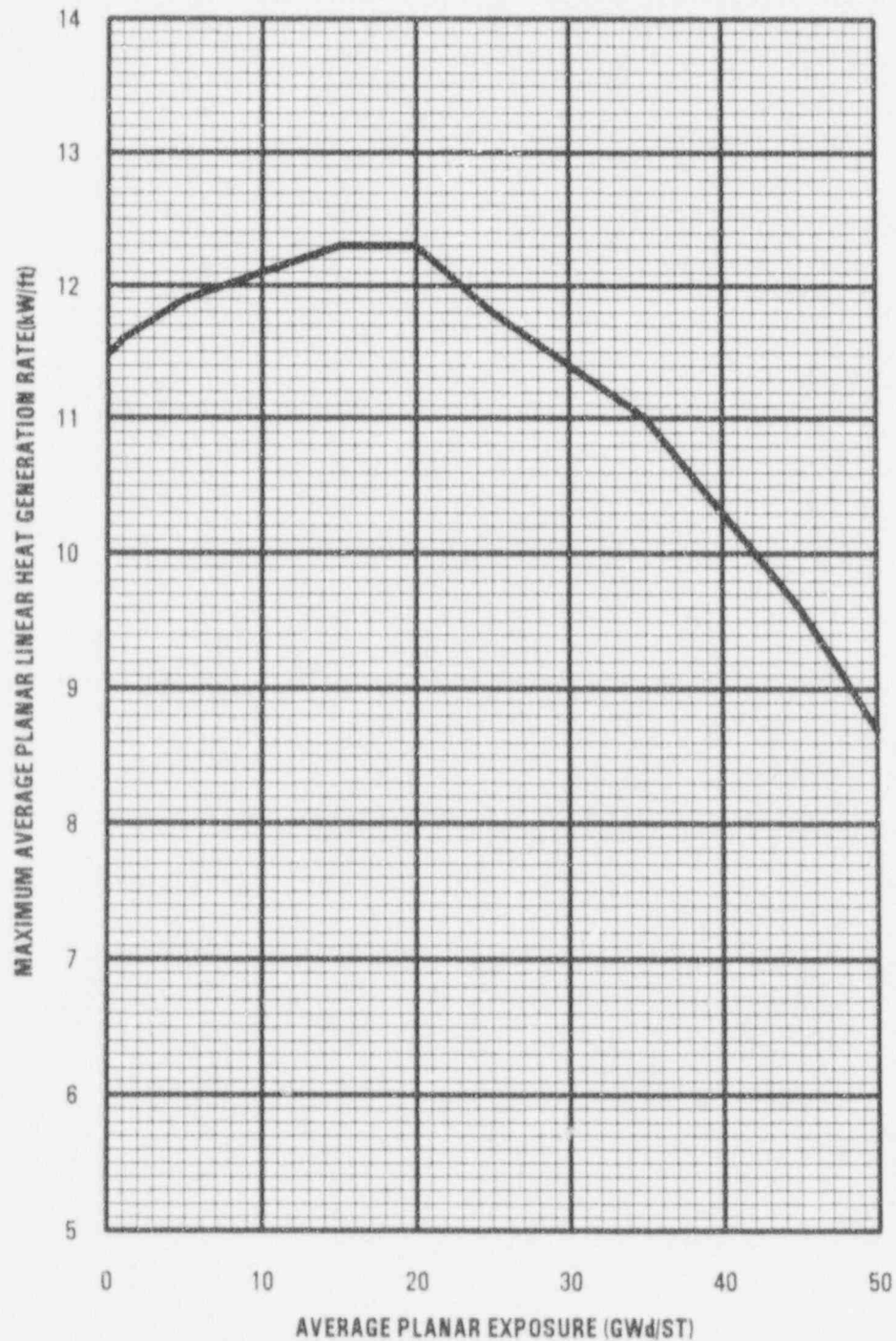


FIGURE 2. MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE (MAPLHGR) VERSUS AVERAGE PLANAR
EXPOSURE GE8B-P8SQB322-8GZ-120-M-4WR-150-T

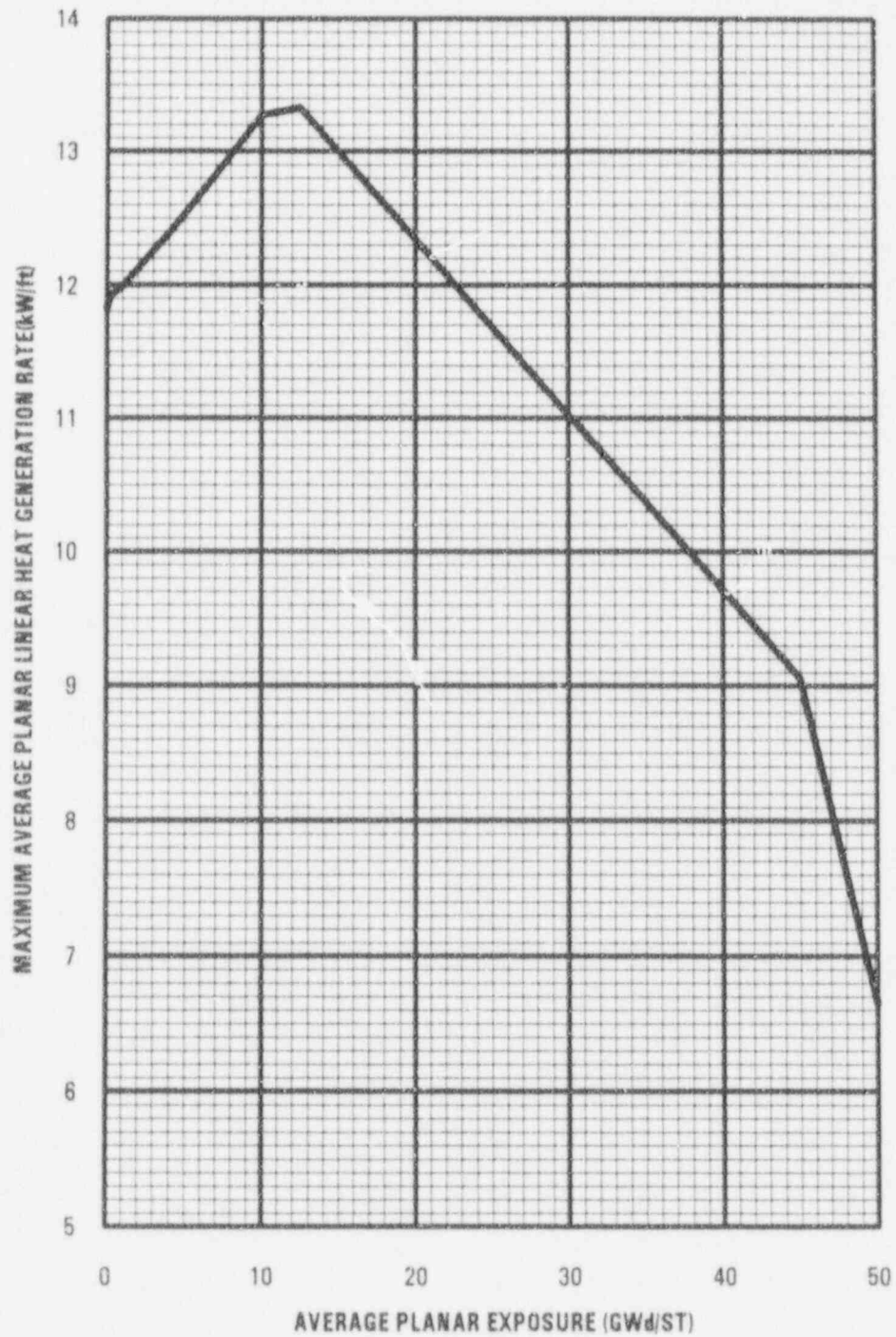


FIGURE 3. MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE (MAPLHGR) VERSUS AVERAGE PLANAR
EXPOSURE GE8B-P8SQB322-9GZ-120-M-4WR-150-T

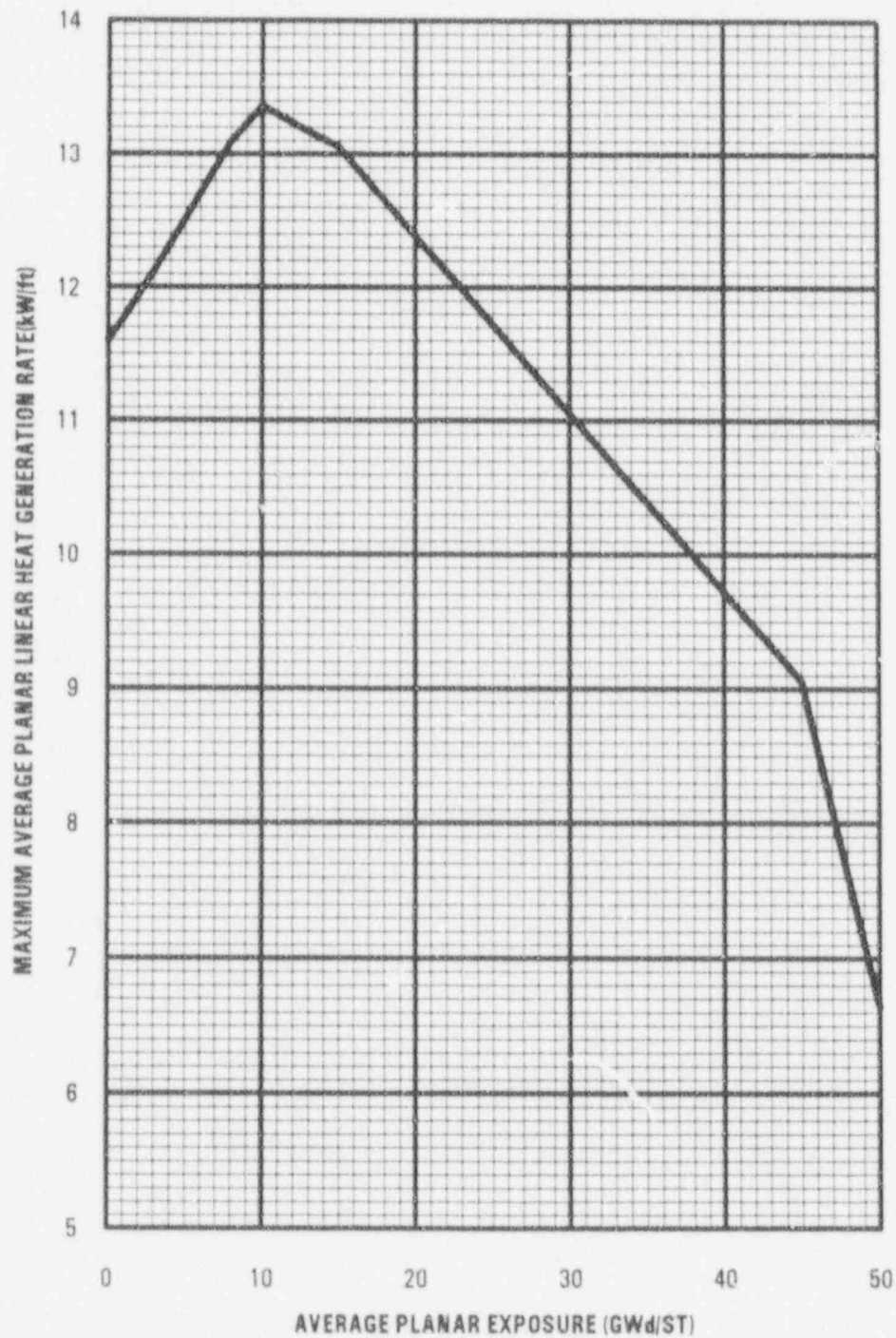


FIGURE 4. MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE (MAPLHGR) VERSUS AVERAGE PLANAR
EXPOSURE GE8B-P8SQB333-10GZ-120-M-4WR-150-T

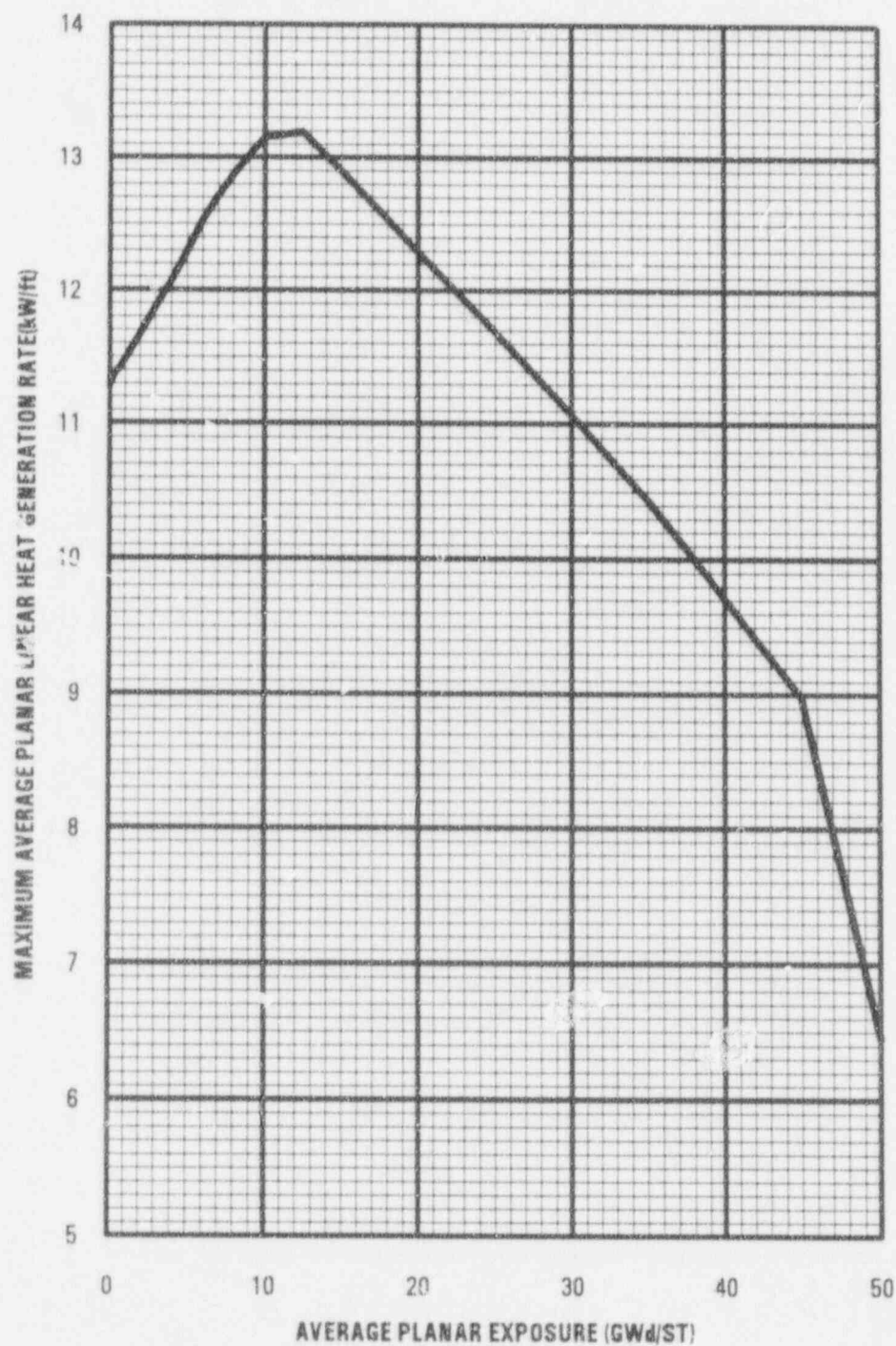


FIGURE 5. MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE (MAPLHGR) VERSUS AVERAGE PLANAR
EXPOSURE GE8B-P8SQB331-11GZ-120-M-4WR-150-T

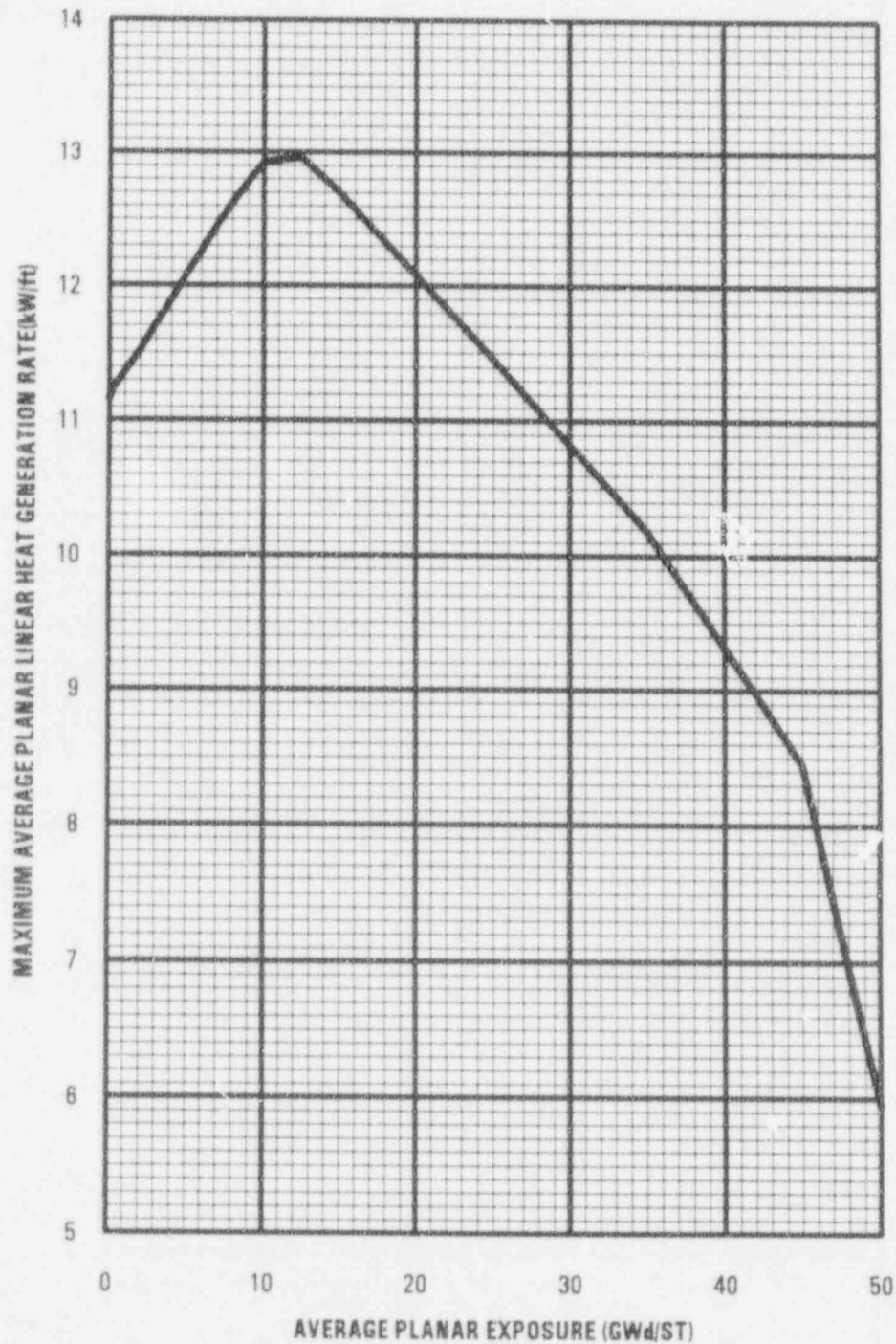


FIGURE 6. MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE (MAPLHGR) VERSUS AVERAGE PLANAR
EXPOSURE GE8B-P8SQB334-10GZ-120-M-4WR-150-T

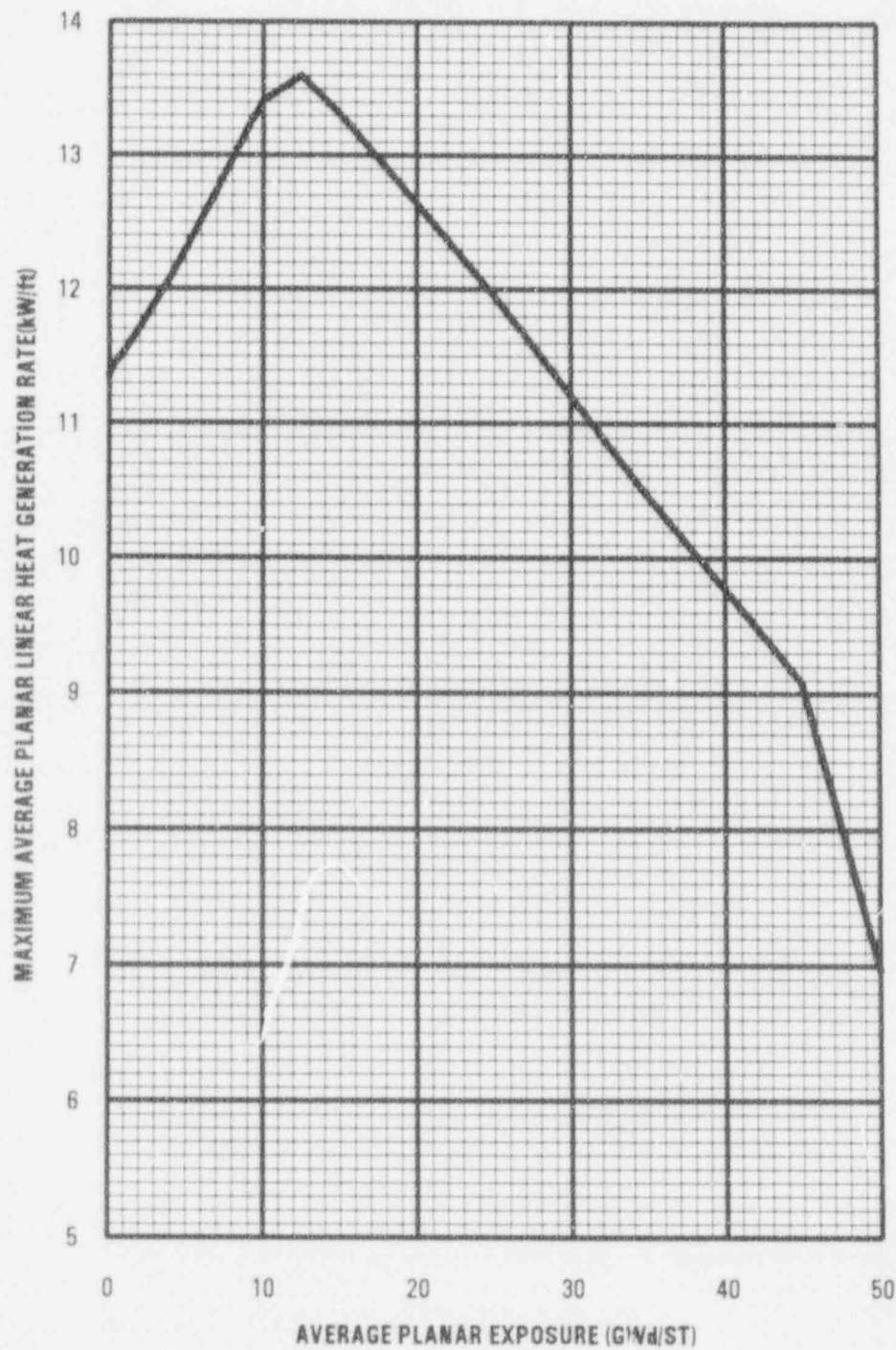


FIGURE 7. MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE (MAPLHGR) VERSUS AVERAGE PLANAR
EXPOSURE GE8B-P8SQB334-10GZ2-120-M-4WR-150-T

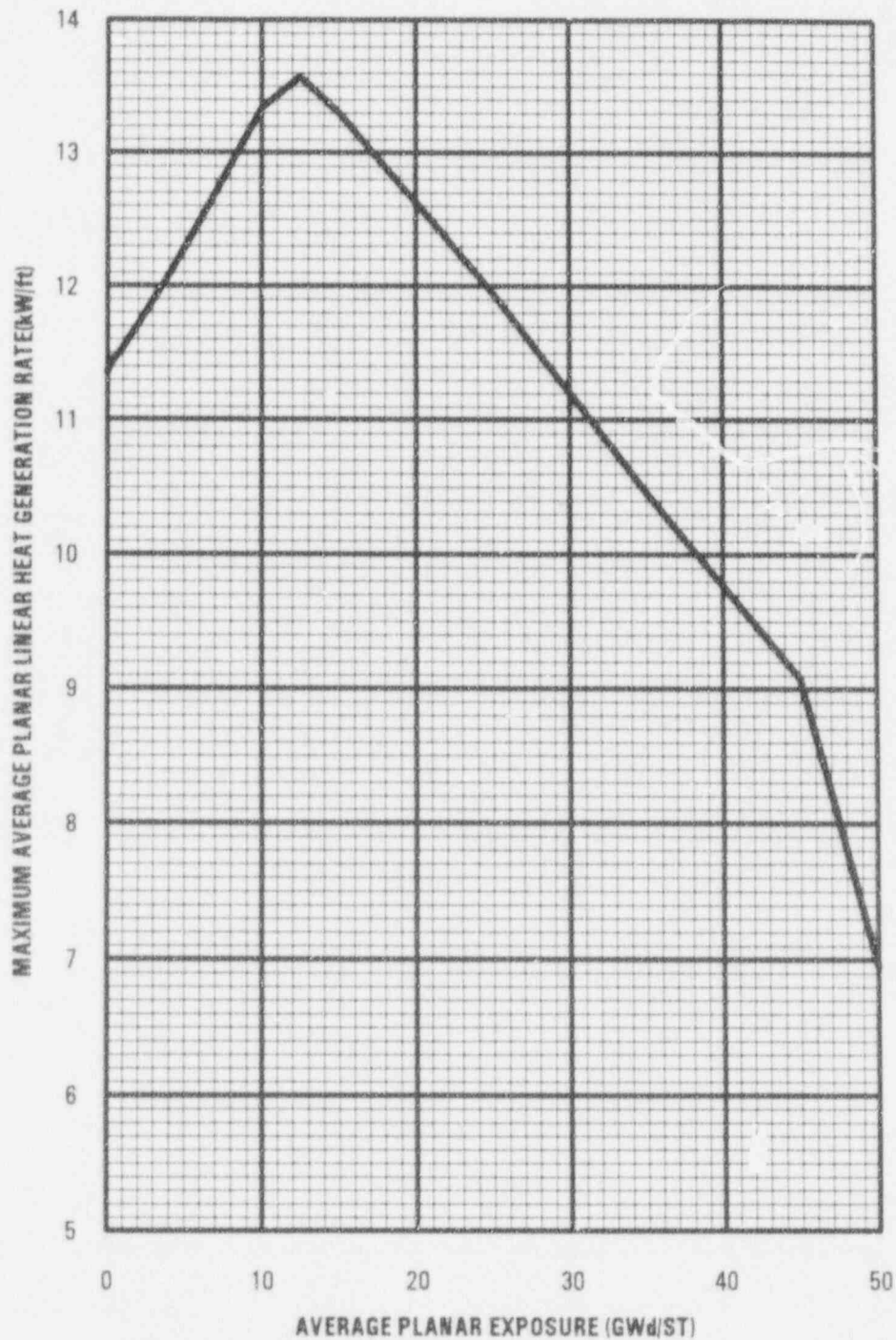


FIGURE 8. MAXIMUM AVERAGE PLANAR LINEAR HEAT
GENERATION RATE (MAPLHGR) VERSUS AVERAGE PLANAR
EXPOSURE GE8B-P8SQB334-11GZ-120-M-4WR-150-T

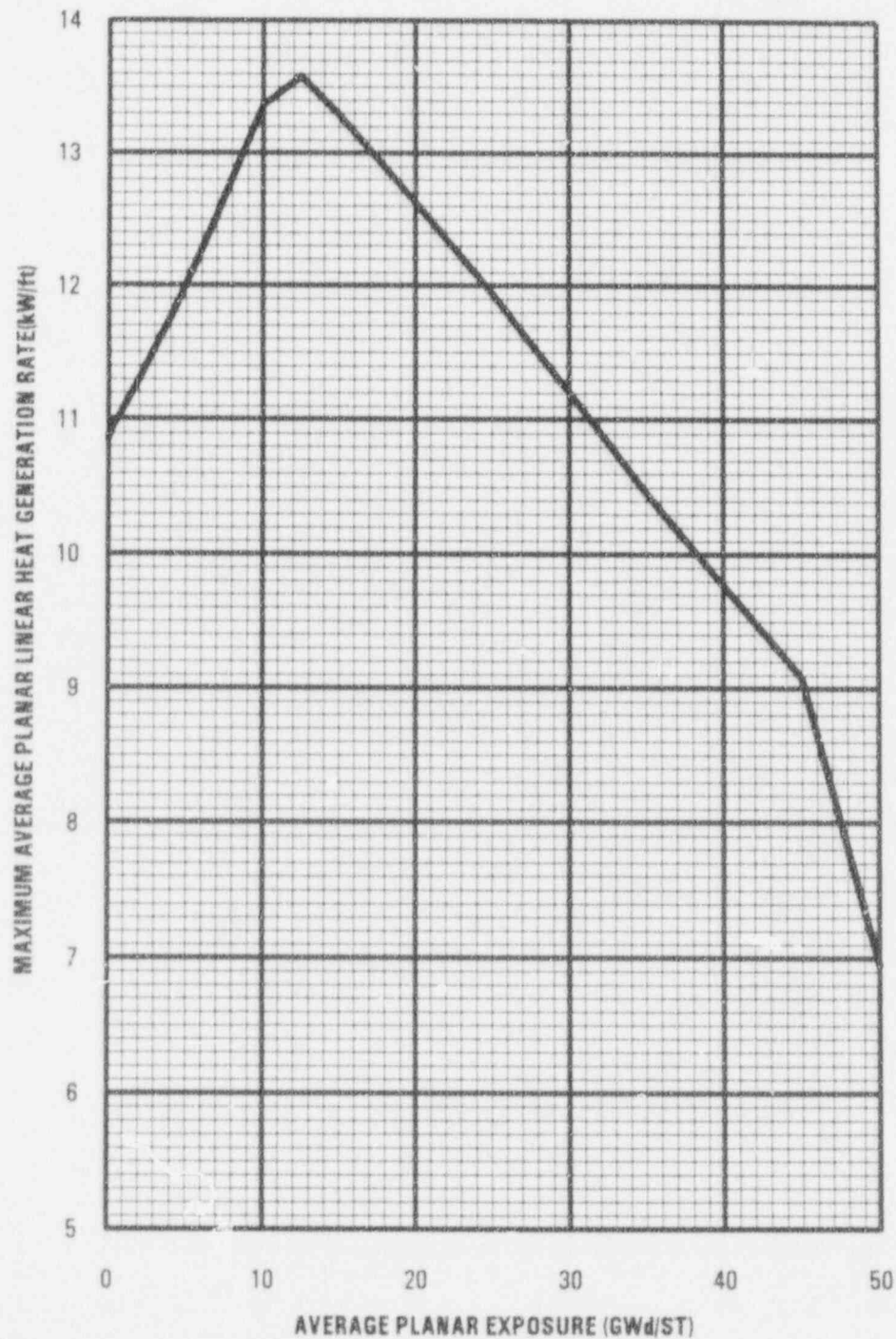


FIGURE 9. MCPR_f

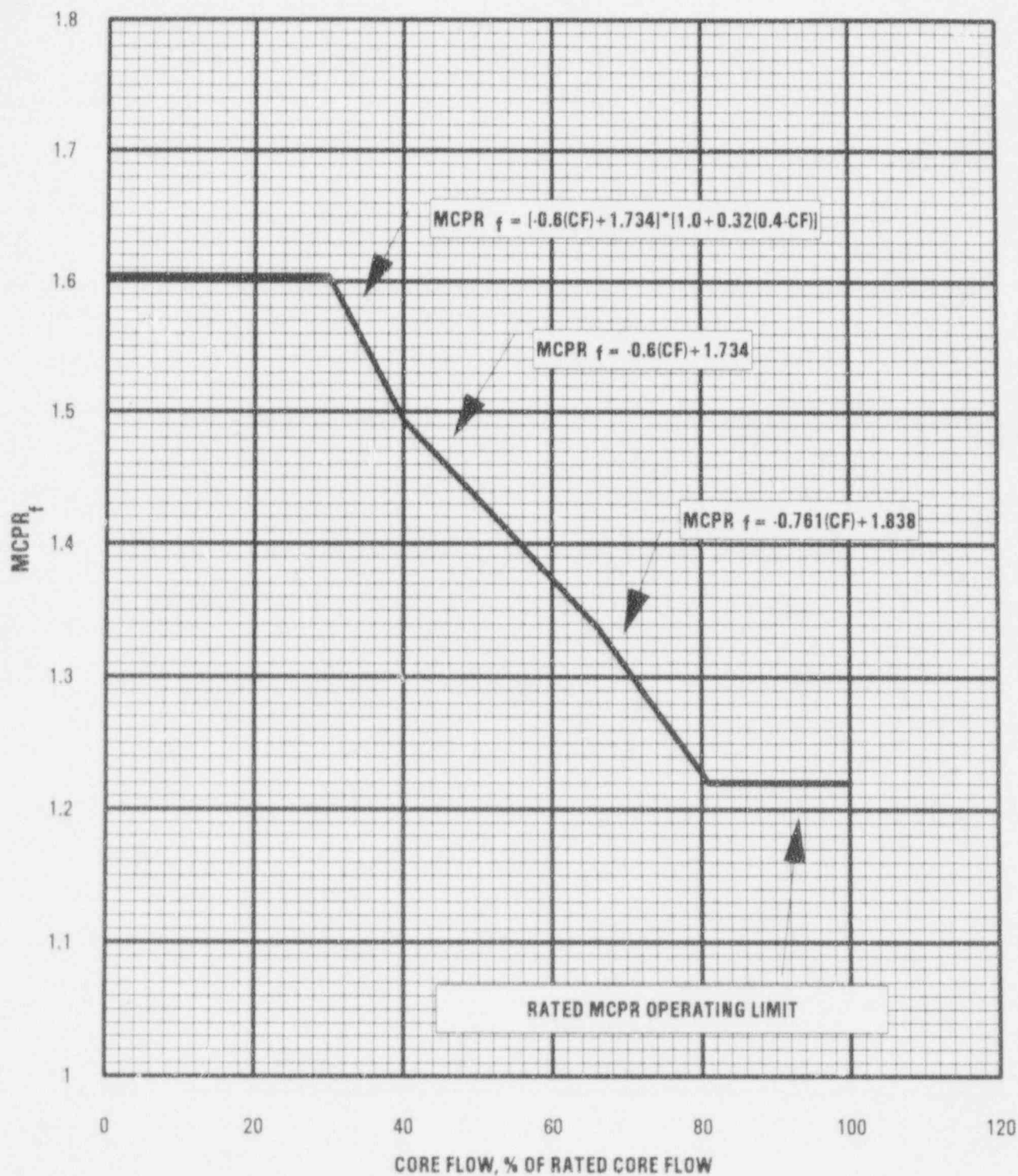
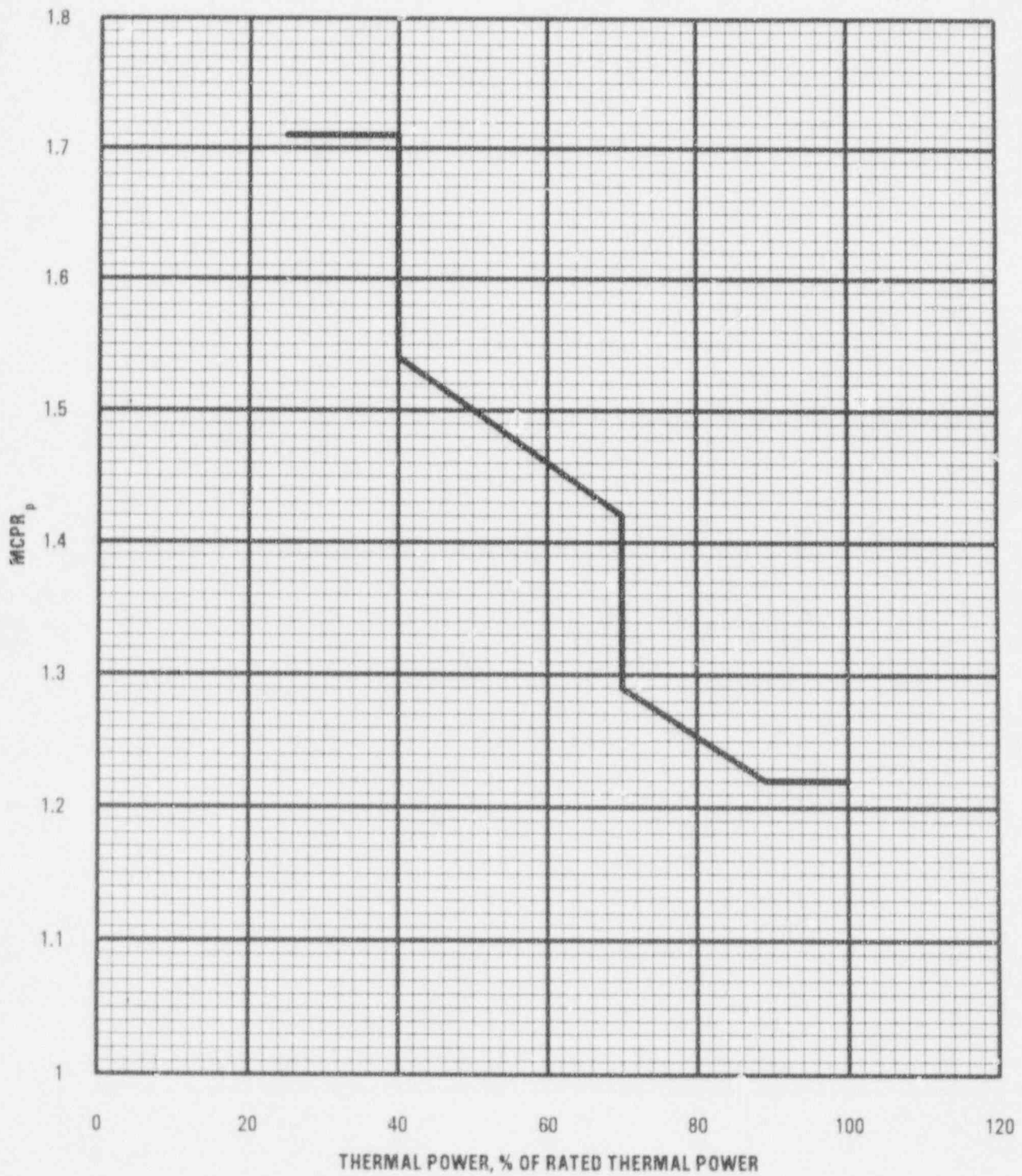
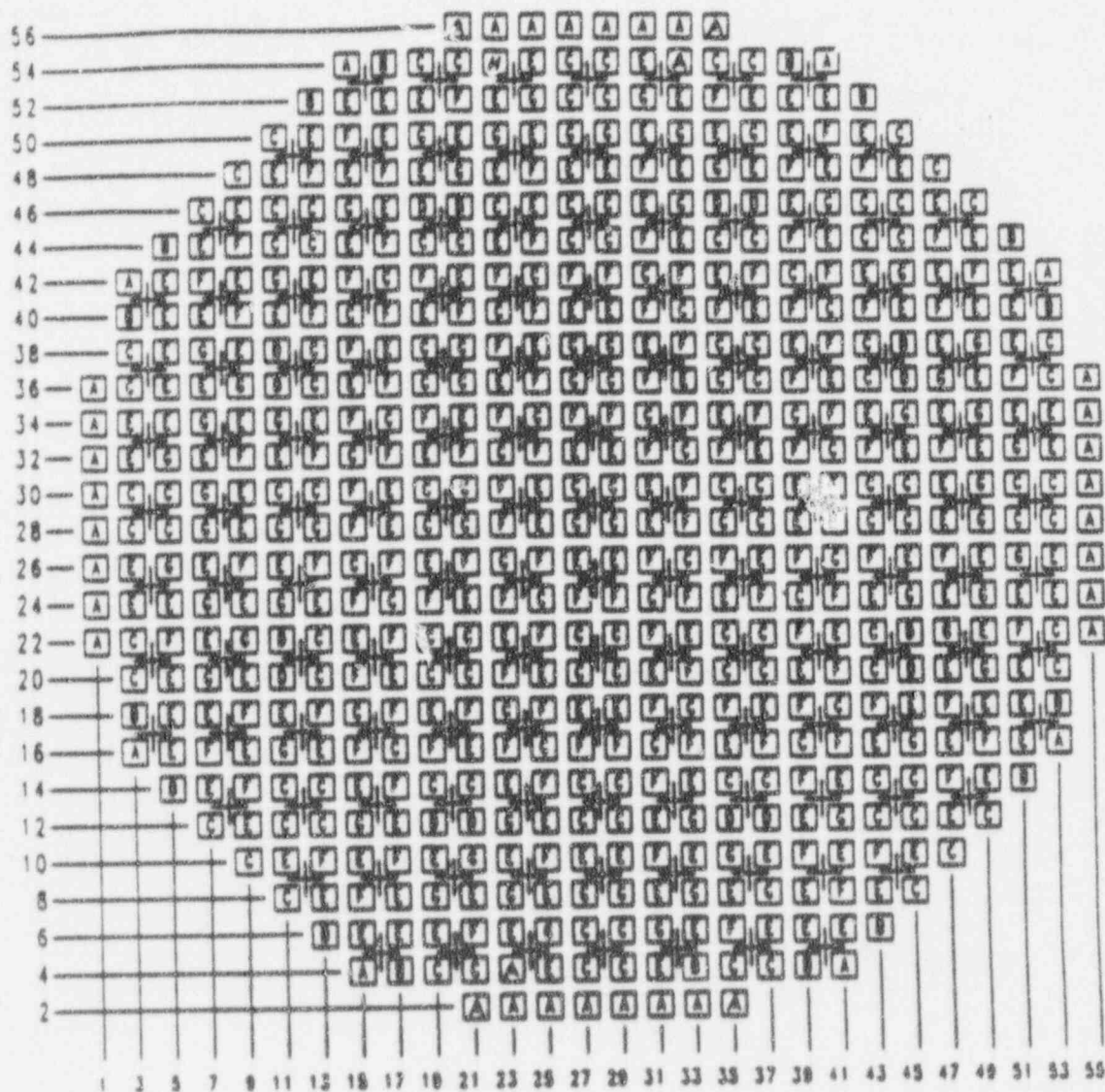


FIGURE 10. MCPR_p





Fuel Type	
A=GE8B-P85QB322-8GZ-120M-4WR-150-T	E=GE8B-P85QB334-10GZ-120M-4WR-150-T
B=GE8B-P85QB322-9GZ-120M-4WR-150-T	F=GE8B-P85QB334-10GZ-120M-4WR-150-T
C=GE8B-P85QB333-10GZ-120M-4WR-150-T	G=GE8B-P85QB334-11GZ-120M-4WR-150-T
D=GE8B-P85QB331-11GZ-120M-4WR-150-T	H=BP8SRB299

Figure 11 Final Core Loading Pattern