Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

April 9, 1990

Dr. Thomas E. Murley, Director
Office Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: U.S. NRC Document Control Desk

Subject: Quad Cities Nuclear Power Station Unit 2
Cycle 11 Reload and Core Operating Limits Report
NRC Docket Nos. 50-265

References: (a) Letter from J.A. Silady to T.E. Murley, submitting proposed amendment to remove Cycle-Specific Core Limits from the Quad Cities Technical Specifications, dated July 11, 1989.

(b) Letter from T.M. Ross to T.J. Kovach dated October 20, 1989 providing NRC approval and SER on Quad Cities Amendments 120 and 116 for Units 1 and 2, respectively.

(c) Letter from J.A. Silady to T.E. Murley dated January 15, 1990 submitting proposed amendment to Unit 2 MCPR limit to reflect use of NRC approved fuel type GE8X8NB.

Dr. Murley:

Quad Cities Unit 2, which has completed its tenth cycle of operation, is currently preparing for Cycle 11 startup. The purpose of this letter is twofold: (1) to advise you of the Commonwealth Edison Company (CECo) review and approval of the Cycle 11 reload under the provisions of 10 CFR 50.59, and (2) to transmit the Core Operating Limits Reports (COLR) for the upcoming cycle consistent with Generic Letter 88-16. Note that the necessary Technical Specification changes to incorporate the COLR were proposed in the Reference (a) submittal and approved in the Reference (b) NRC letter and SER.

The Quad Cities Unit 2 Cycle 11 core consists of NRC approved fuel designs and was designed to operate under currently approved fuel design parameters, Technical Specifications, and related bases such that:

1) Core operating characteristics will be less limiting than those previously reviewed and accepted; or

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2) For those postulated incidents analyzed and reported in the Final Safety Analysis Report (FSAR) which could potentially be affected by the fuel reload, a re-analysis using NRC-approved methods has demonstrated that the results of the postulated events are within allowable limits.

Commonwealth Edison has performed a detailed review of the relevant licensing documents, the bases, and references. Based on the review, a safety evaluation was prepared as required by 10 CFR 50.59 (a) and (b) and submitted to On-Site and Off-Site Review. As in the past, the reload licensing analyses were performed using NRC approved methodologies as reported in the FSAR, NEDE-24011 (GESTAR) and other generically approved documents.

Edison has reviewed the cycle-specific licensing results and concluded that additional Technical Specification changes are not required for Cycle 11 operation at Quad Cities Unit 2 provided that the Reference (c) preparatory amendment receives NRC approval. Furthermore, Edison has completed On-Site and Off-Site Reviews which determined that no unreviewed safety questions are created by the reload.

Following completion of these On-Site and Off-Site Reviews, CECo received NRC Bulletin 90-02, which discusses the impact of channel bow on thermal margin. As required by the Bulletin, CECo will account for the effects of channel bow during Quad Cities Unit 2 Cycle 11 operation and all subsequent reloads. Details will be provided in the Bulletin response, which will be submitted approximately April 23, 1990.

Therefore, application for an amendment to the Quad Cities Unit 2 operating license is not required for resumption of operation with the Cycle 11 reload core. The estimated startup is April 29, 1990.

If there are any further questions regarding this matter, please contact this office.

Very truly yours,

J A Silady

John A. Silady
Nuclear Licensing Administrator

Attachment: COLR for Quad Cities Unit 2 Cycle 11

cc: A.B. Davis - Regional Administrator, RIII
L.N. Olshan - Project Manager, NRR
T. Taylor - Senior Resident Inspector, Quad Cities

/lmw:0649T

Core Operating Limits Report

for

Quad Cities Nuclear Power Station

Unit 2, Reload 10 (Cycle 11)

ISSUANCE OF CHANGES SUMMARY

Affected Section	Affected Pages	Summary of Changes	Date
All	All	Original Issue (Cycle 11)	10/89

TABLE OF CONTENTS

REFERENCES

1. Commonwealth Edison Company and Iowa-Illinois Gas and Electric Company Docket No. 50-265, Quad Cities Station, Unit 2 Facility Operating License, License No. DRP-30.

2. Letter from D. M. Crutchfield to All Power Reactor Licenses and Applicants, Generic Letter 88-16; Concerning the Removal of Cycle-Specific Parameter Limits from Technical Specifications.

3. Supplemental Reload License Submittal for Quad Cities Nuclear Power Station, Unit 2, Reload 10 (Cycle 11), 23A6451, Rev. 0, May 1989.

4. Quad Cities Nuclear Power Station, Units 1 and 2, SAFER/GESTR-LOCA Loss-of-Coolant-Accident Analysis, NEDC-31345P, June 1987 (as amended).

5. General Electric Standard Application for Reactor Fuel (GESTAR), NEDE-24011-P-A-9, September 1988 (as amended).

LIST OF FIGURES

1.0 CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION (3.2/4.2)

1.1 TECHNICAL SPECIFICATION REFERENCE:

Technical Specification Table 3.2-3 and 3.6.H

1.2 DESCRIPTION:

The Rod Withdrawl Block Monitor Upscale Instrumentation Trip Setpoint for two recirculation loop operation is determined from the following relationship:

$$\leq (0.65)Wd + 43\%^{**}$$

** Clamped, with an allowable value not to exceed the allowable value for recirculation loop flow (Wd) of 100%.

Wd is the percent of drive flow required to produce a rated core flow of 98 million lb/hr. Trip level setting is in percent of rated power (2511 MWth).

2.0 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR) (3.5/4.5)

2.1 TECHNICAL SPECIFICATION REFERENCE:

Technical Specification 3.5.I

2.2 DESCRIPTION:

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type P8DGB298 is determined from Figure 2-1.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel types P8DRB265H and BP8DRB265H are determined from Figure 2-2.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BP8DRB282 is determined from Figure 2-3.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BP8DRB283H is determined from Figure 2-4.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BP8DRB299 is determined from Figure 2-5.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BP8DRB299L is determined from Figure 2-6.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BD316A is determined from Figure 2-7.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BD300C is determined from Figure 2-8.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type GE9B-P8DWB299-11GZ-80M-145-T is determined from Figure 2-9.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type GE9B-P8DWB310-9GZ-80M-145-T is determined from Figure 2-10.

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type P8DGB298

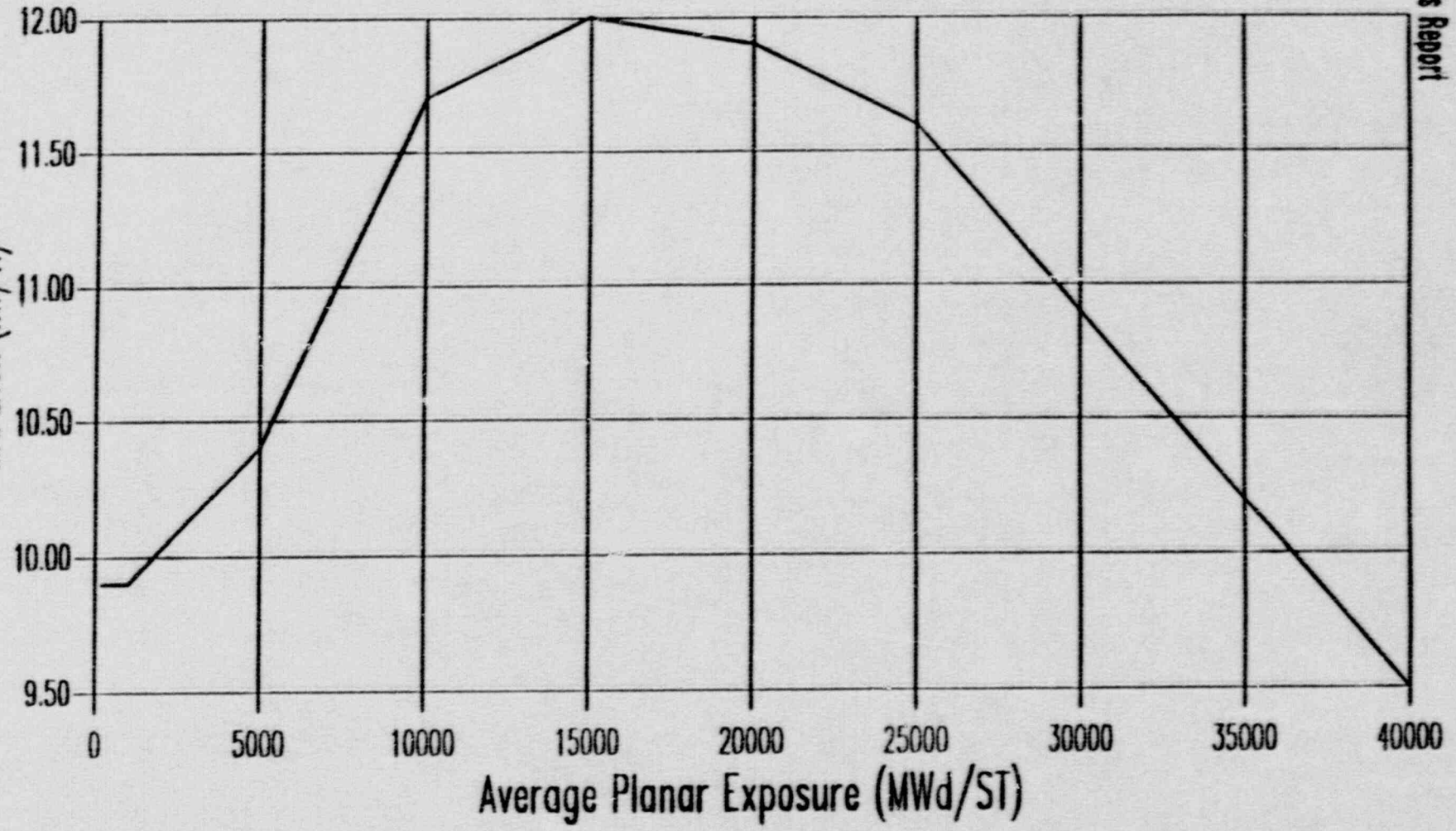

Figure 2-1

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Types P8DRB265H and BP8DRB265H

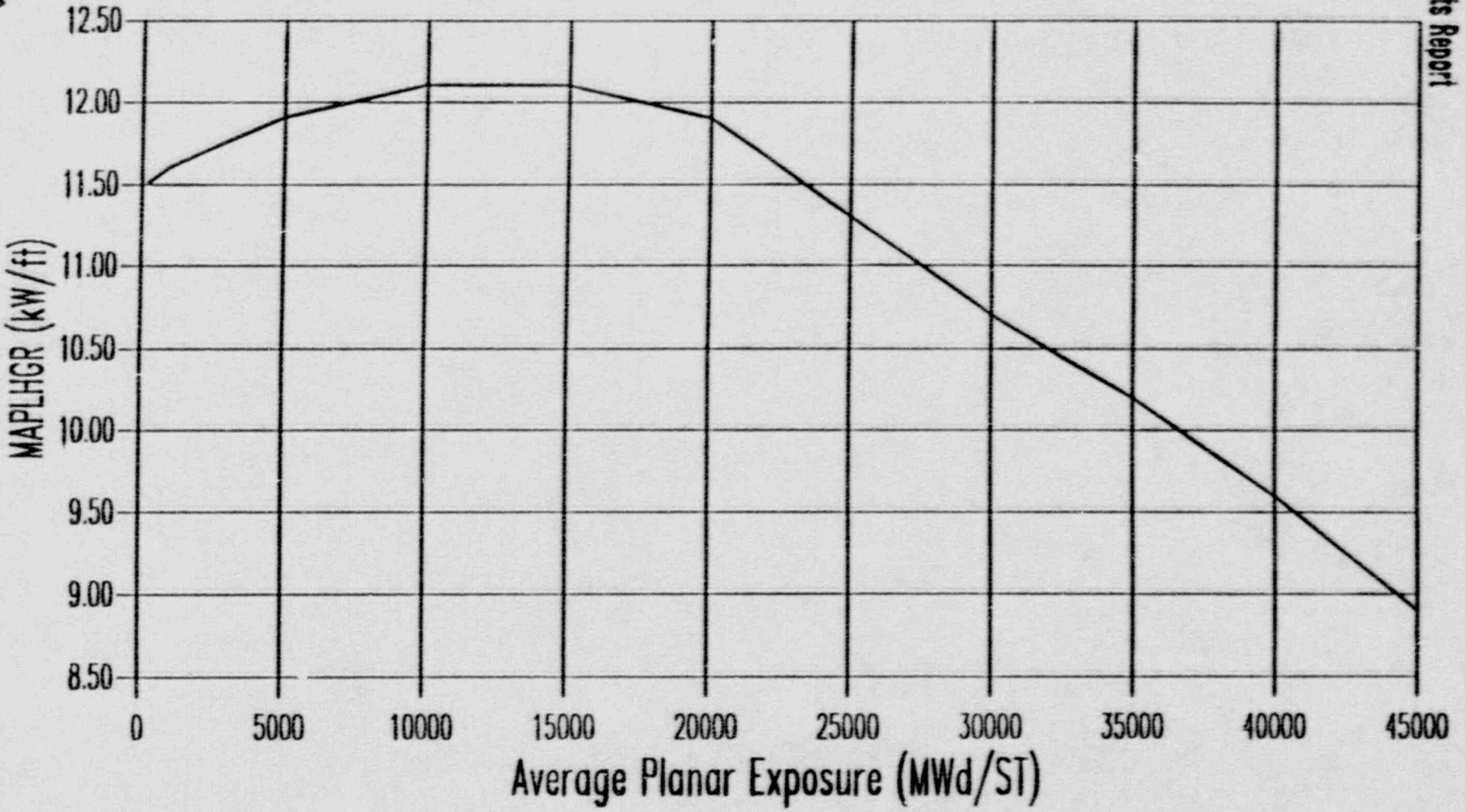

Figure 2-2

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BP8DRB282

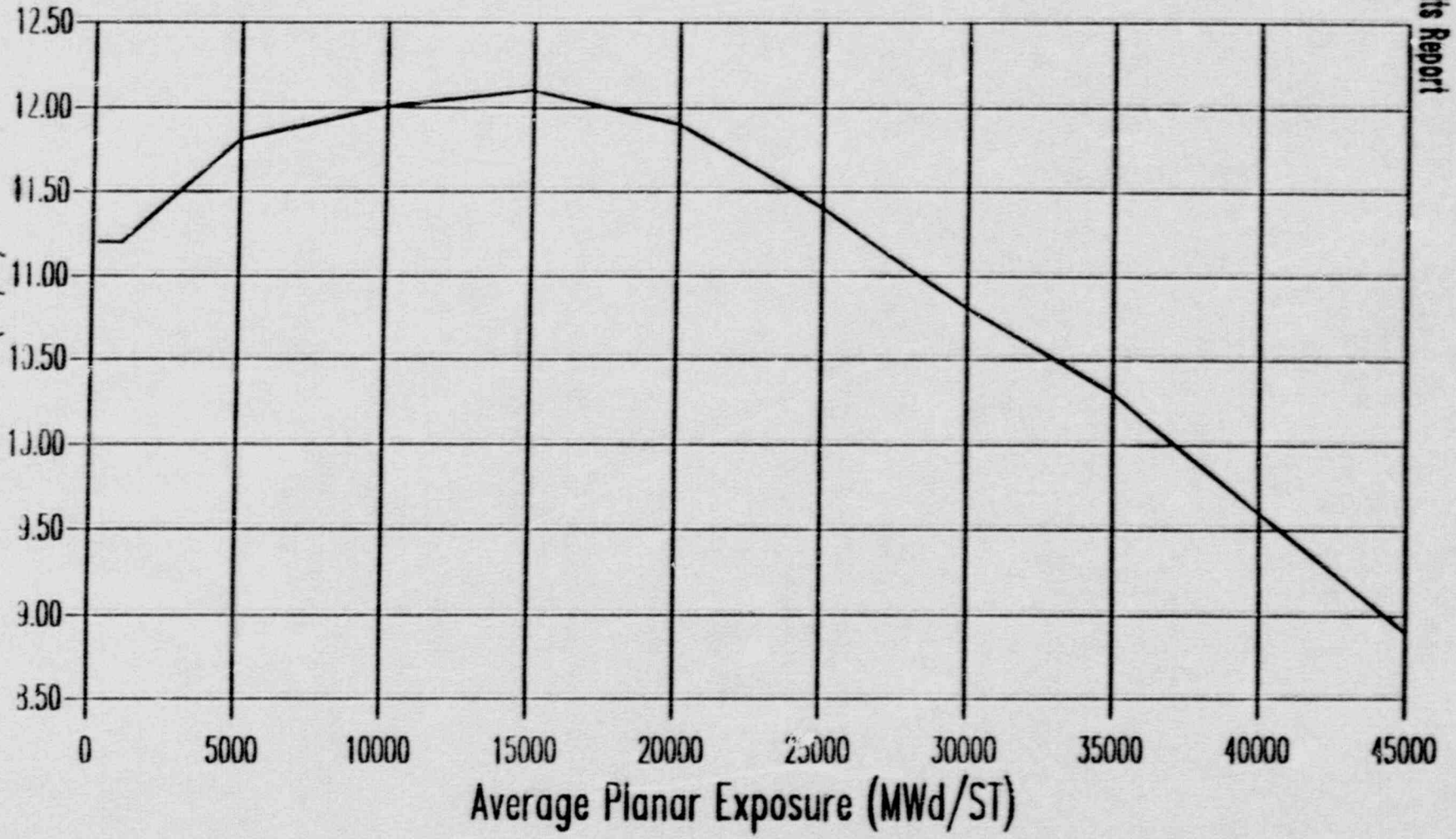

Figure 2-3

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BP8DRB283H

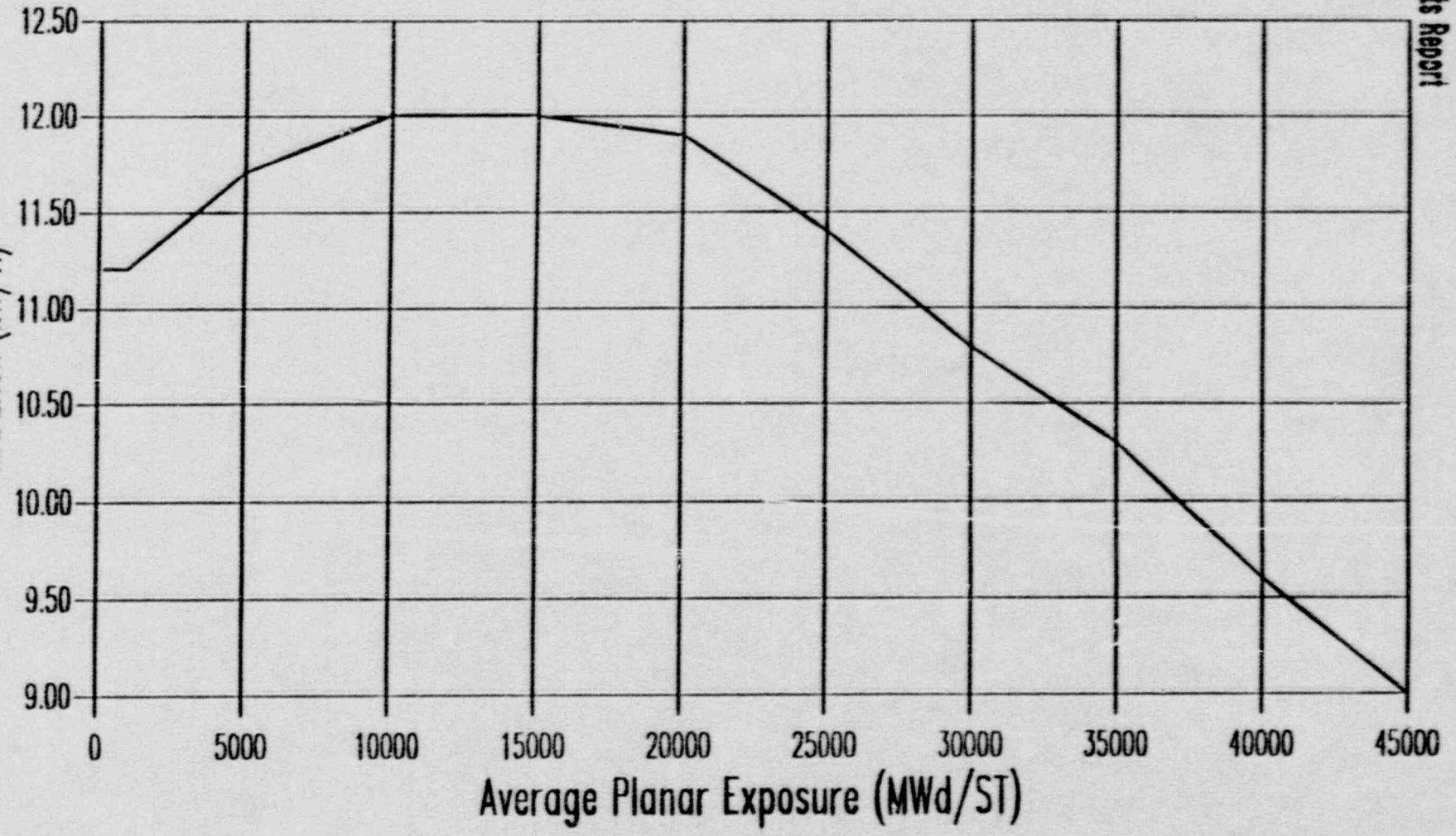

Figure 2-4

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BP8DRB299

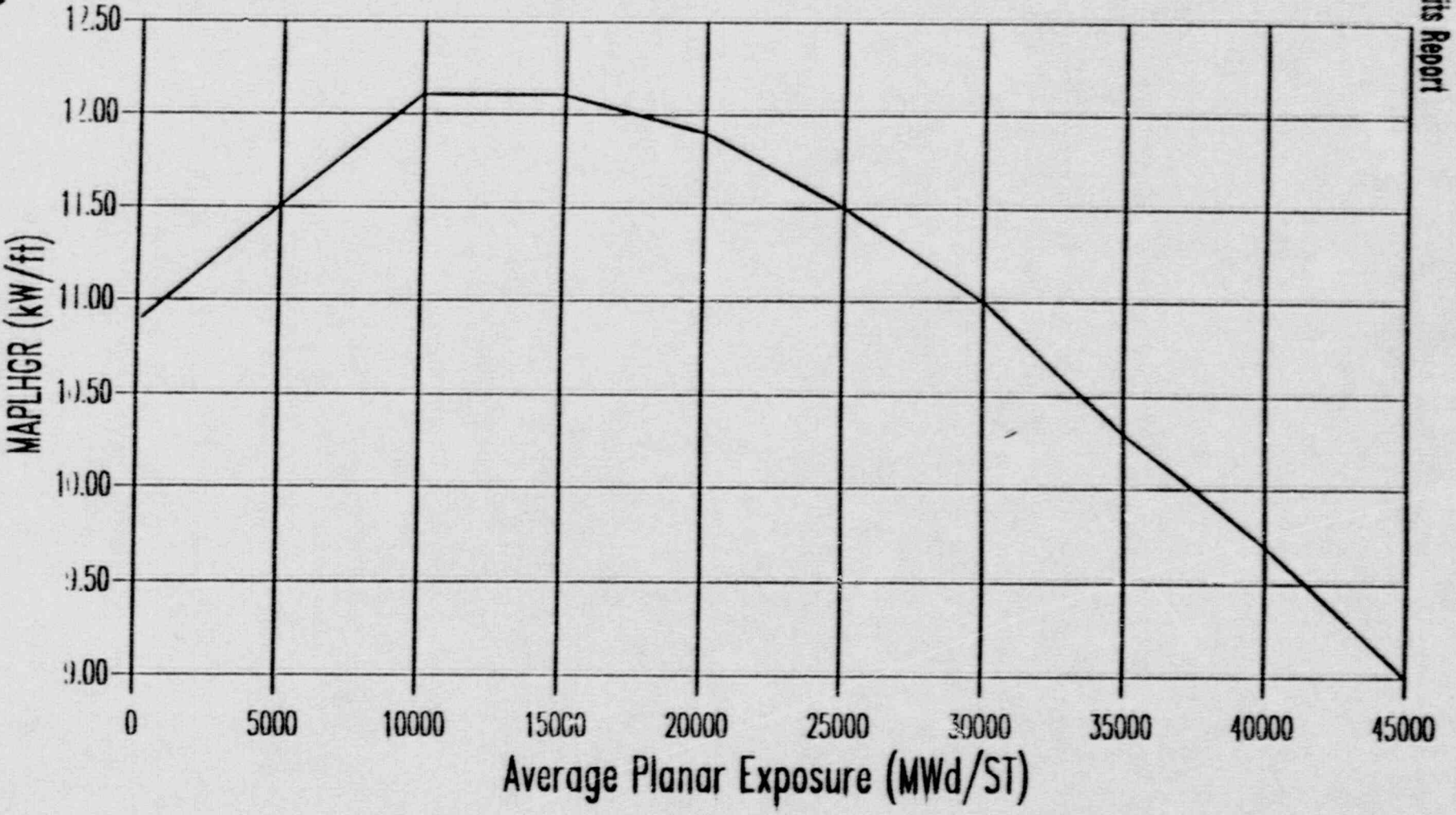

Figure 2-5

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BP8DRB299L

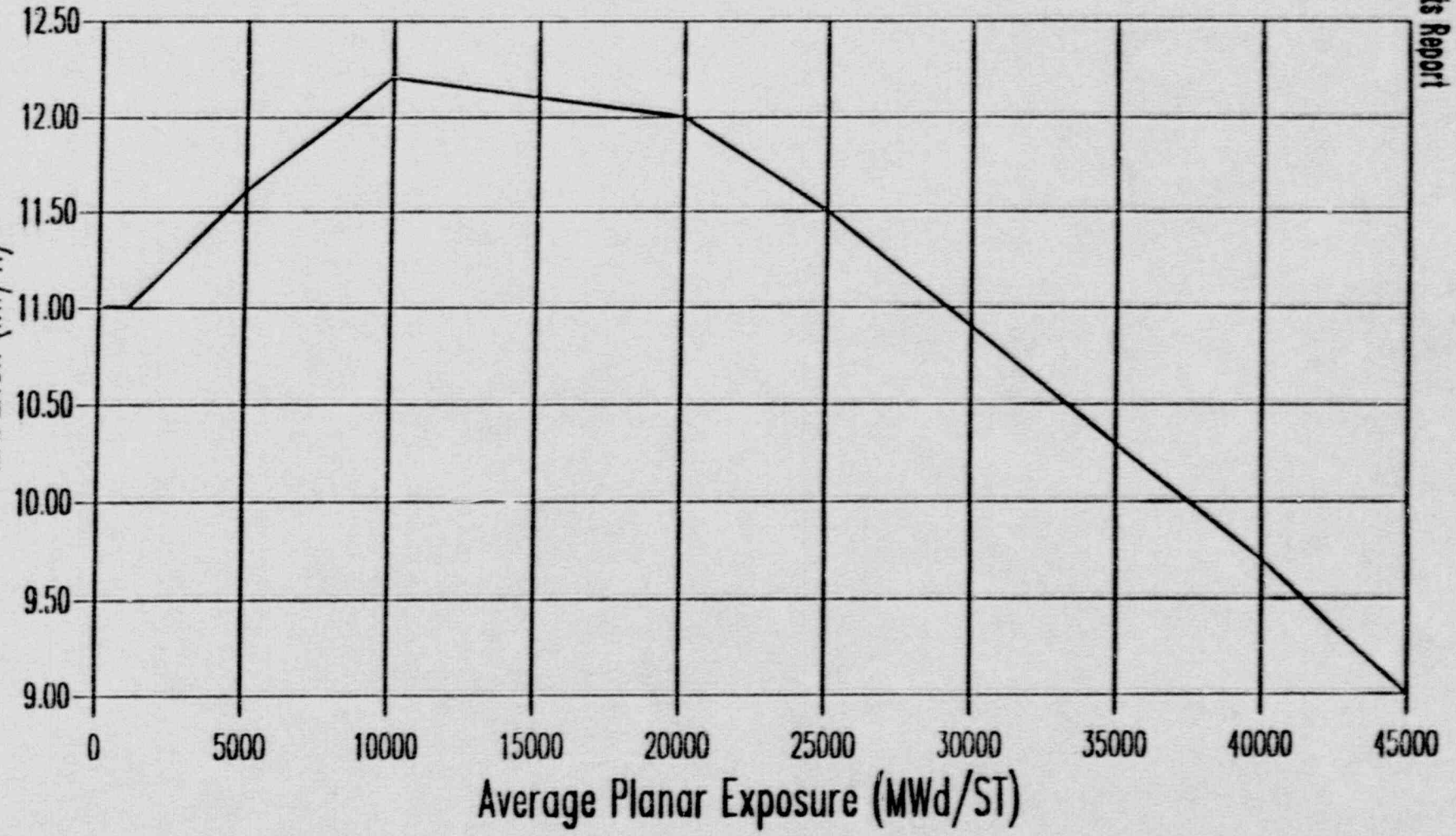

Figure 2-6

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BD316A

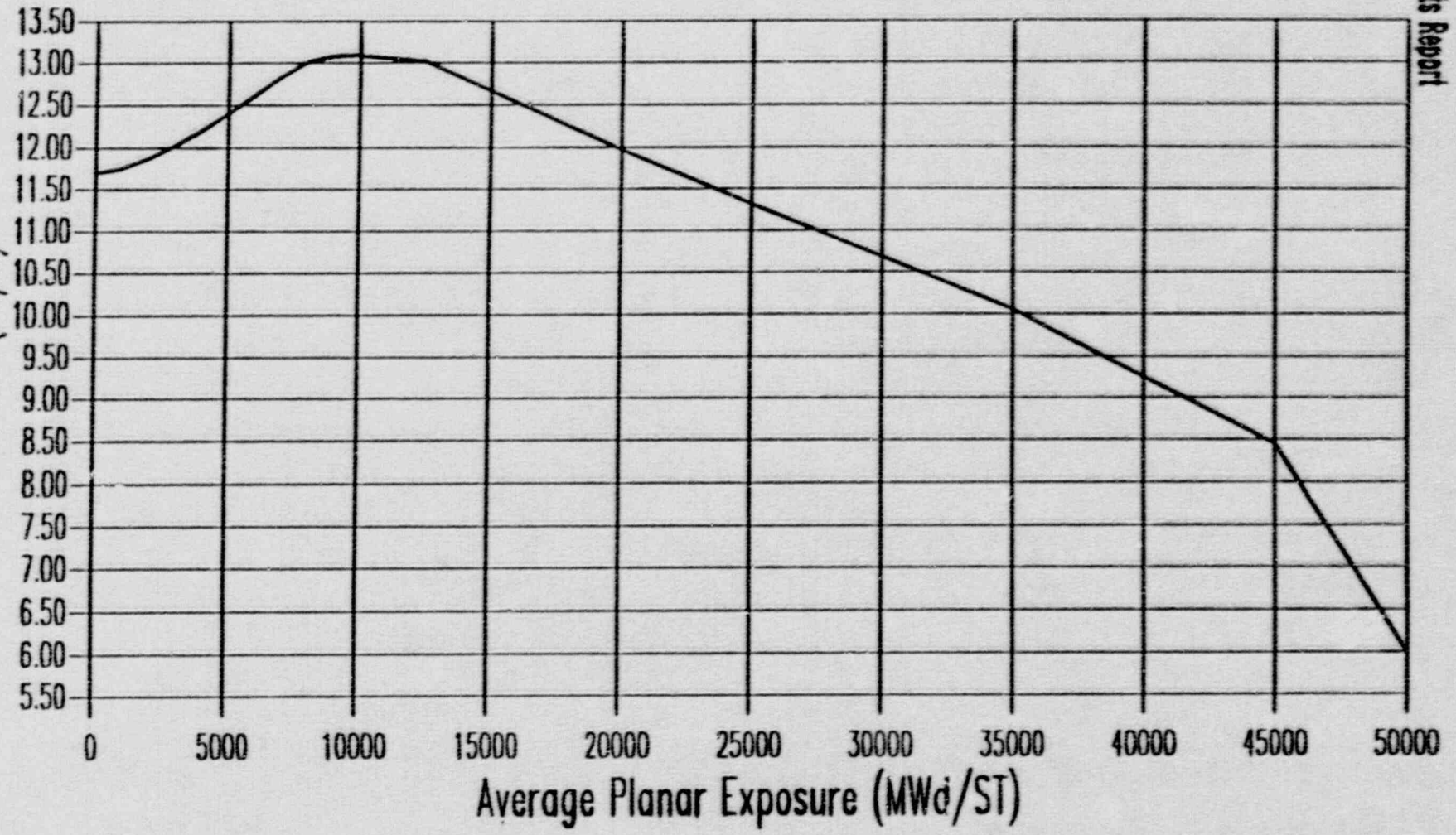

Figure 2-7

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BD300C

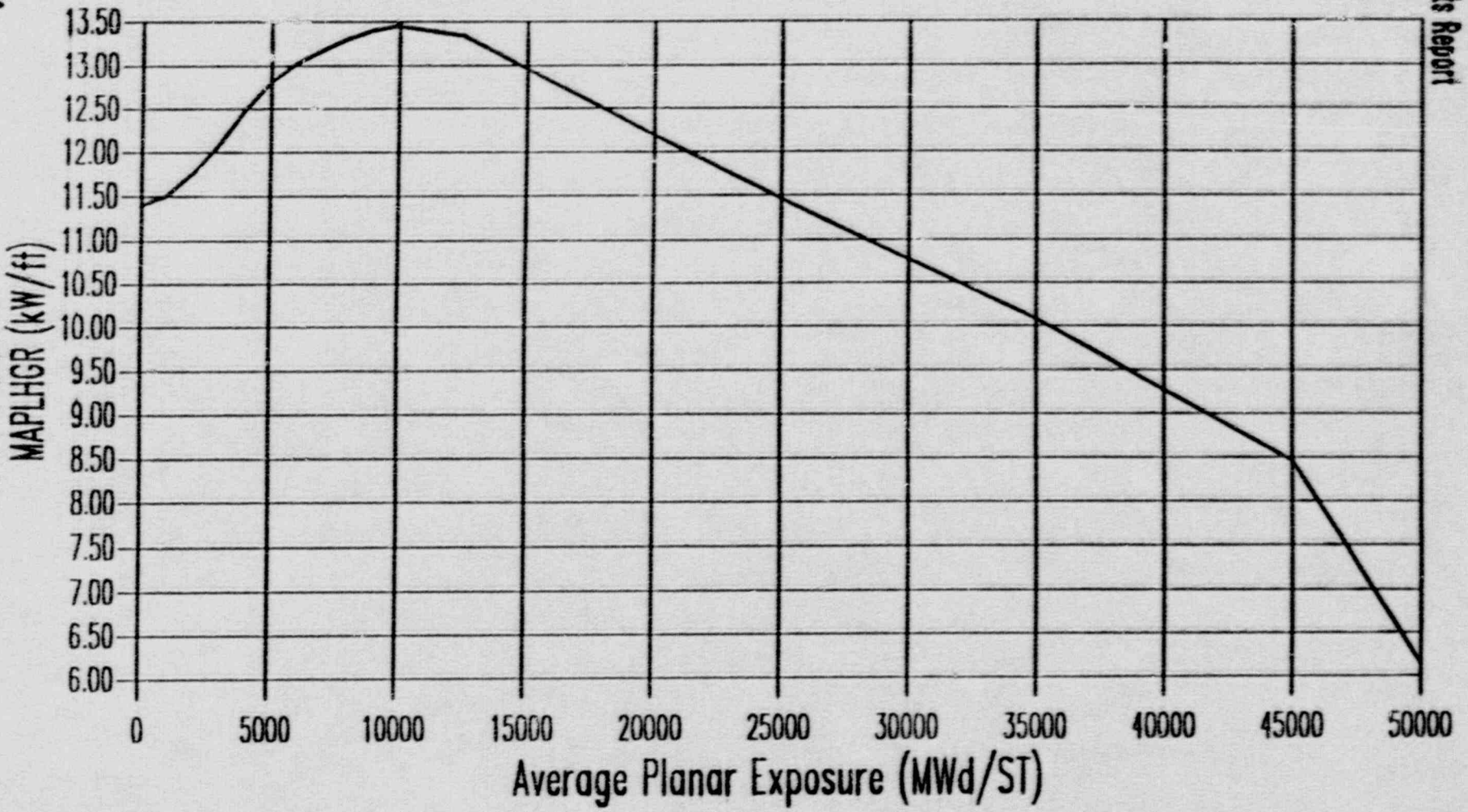

Figure 2-8

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type GE9B-P8DWB299-11GZ-80M-145-T

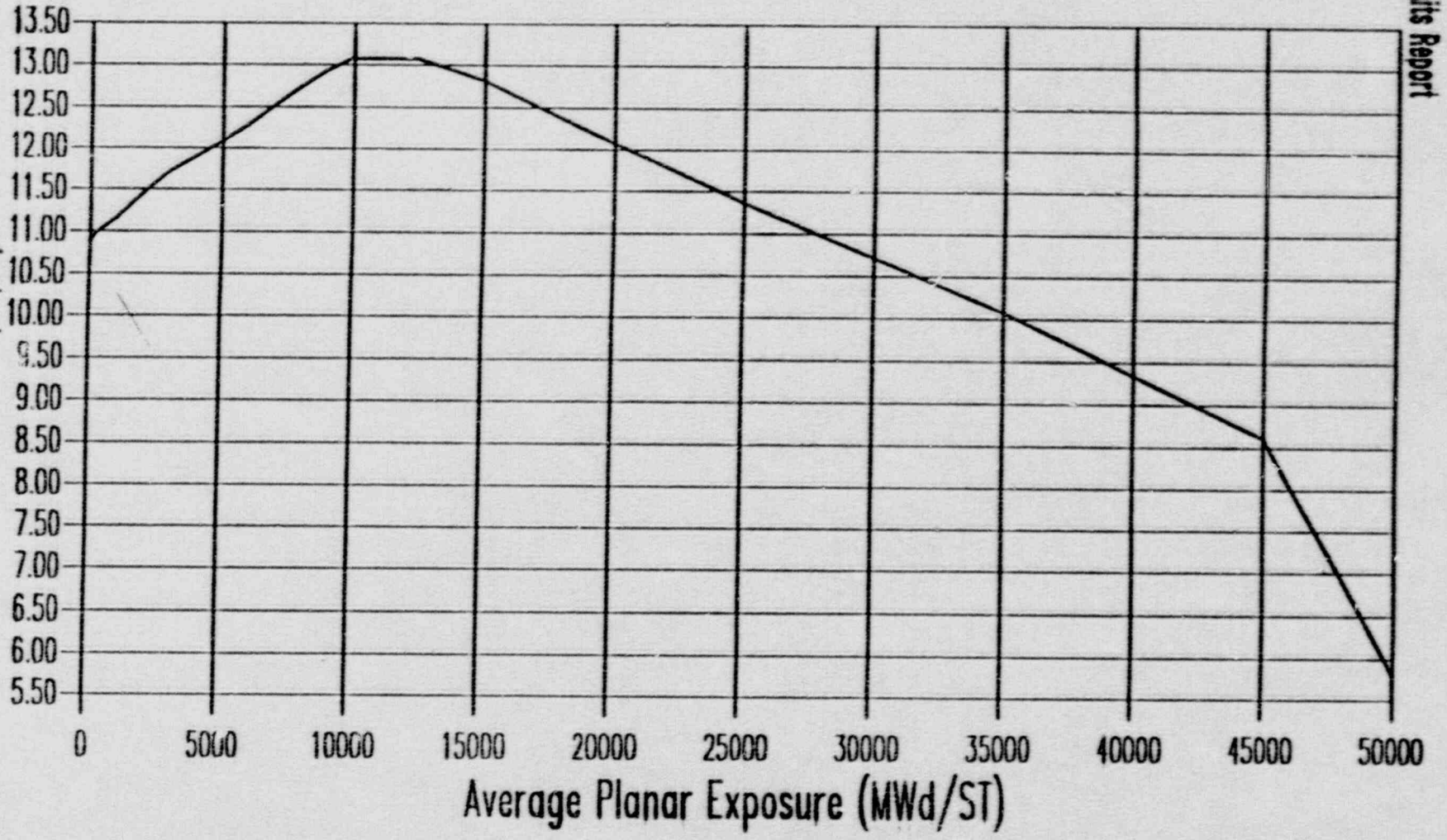

Figure 2-9

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type GE9B-P8DWB310-9GZ-80M-145-T

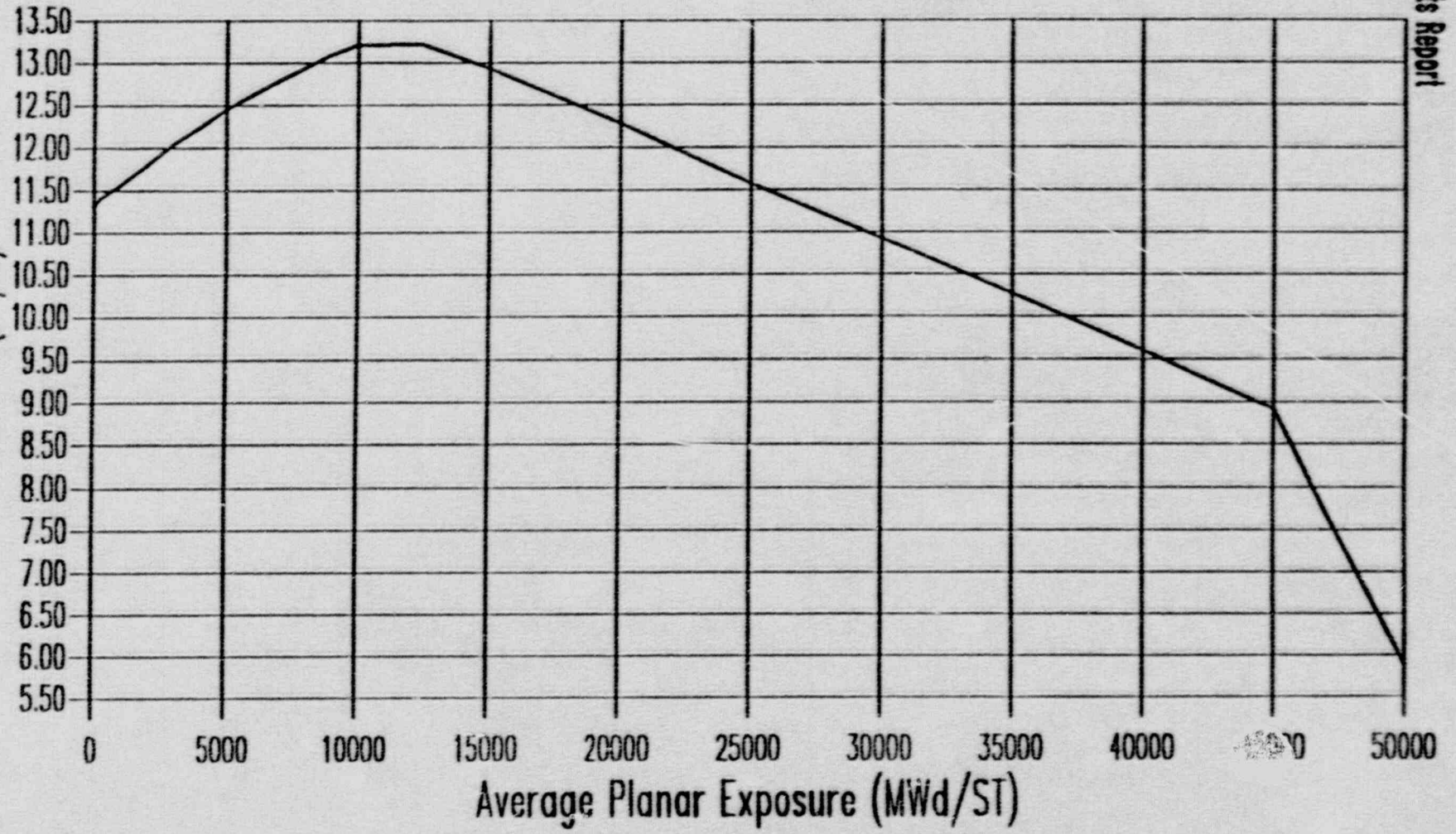

Figure 2-10

3.0 LINEAR HEAT GENERATION RATE (LHGR) (3.5/4.5)

3.1 TECHNICAL SPECIFICATION REFERENCE:

Technical Specification 3.5.J

3.2 DESCRIPTION:

a. The LHGR limit is 13.4 kw/ft for fuel types:

1. P8DGB298
2. BP8DRB265H
3. BP8DRB282
4. BP8DRB283H
5. BP8DRB299H
6. BP8DRB299L

b. The LHGR limit is 14.4 kw/ft for fuel types:

1. BD316A
2. BD300C
3. GE9B-P8DWB299-11GZ-80M-145-T
4. GE9B-P8DWB310-9GZ-80M-145-T

4.0 MINIMUM CRITICAL POWER RATIO (MCPR) (3.5/4.5)

4.1 TECHNICAL SPECIFICATION REFERENCE:

Technical Specification 3.5.K and 3.6.H

4.2 DESCRIPTION:

During steady-state operation at rated core flow, MCPR shall be greater than or equal:

1.31 for tave $\leq$ 0.68 sec.

1.36 for tave $\geq$ 0.86 sec.

(0.278)tave + 1.121 for 0.68 sec. < tave < 0.86 sec.

where tave = mean 20% scram insertion time for all surveillance data from Tech. Spec. 4.3.C which has been generated in the current cycle.

For core flows other than rated, these nominal values of MCPR shall be increased by a factor of Kf where Kf is as shown in Figure 4-1.

When operating with a Feedwater Heater Out-of-Service, the Operating MCPR Limit shall be increased by 0.01.

K_f FACTOR

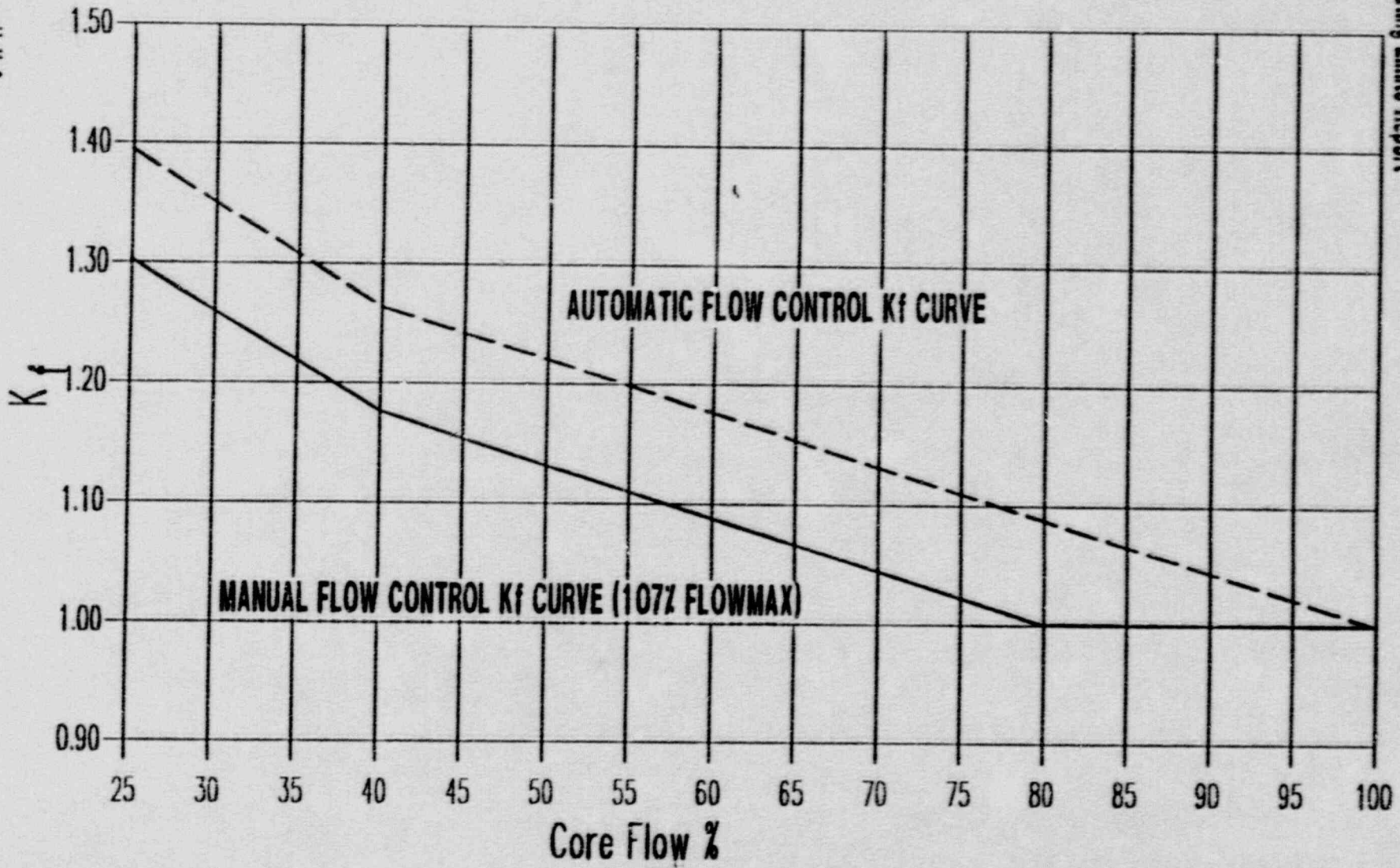

Figure 4-1