ATTACHMENT

CORE OPERATING LIMITS REPORT

FOR

QUAD CITIES UNIT 1 CYCLE 12

Core Operating Limits Report

for

Quad Cities Nuclear Power Station

Unit 1, Reload 11 (Cycle 12)

ISSUANCE OF CHANGES SUMMARY

Affected Section	Affected Pages	Summary of Changes	Date
All	All	Original Issue (Cycle 11)	06/89
All	All	Original Issue (Cycle 12)	10/90

TABLE OF CONTENTS

REFERENCES

1. Commonwealth Edison Company and Iowa-Illinois Gas and Electric Company Docket No. 50-254, Quad Cities Station, Unit 1 Facility Operating License, License No. DRP-29.

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 1, Reload 11 (Cycle 12), 23A5989, Rev. 0, Class I, August 1990.

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).

6. Extended Operating Domain and Equipment Out-Of-Service (EOD/EOOS) for Quad Cities Nuclear Power Station, Units 1 and 2, H. X. Hoang, NEDC-31449, Class II, July 1987.

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 types P8DRB265H and BP8DRB265H are determined from Figure 2-1.

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

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BP8DRB283H is determined from Figure 2-3.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BP8DRB299 is determined from Figure 2-4.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BD300A is determined from Figure 2-5.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BD300B is determined from Figure 2-6.

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type BD301H is determined from Figure 2-7.

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

The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Average Planar Exposure for fuel type GE9B-P8DWB258-9GZ-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-P8DWB258-4G4.0/3G3.0-80M-145-T is determined from Figure 2-10.

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

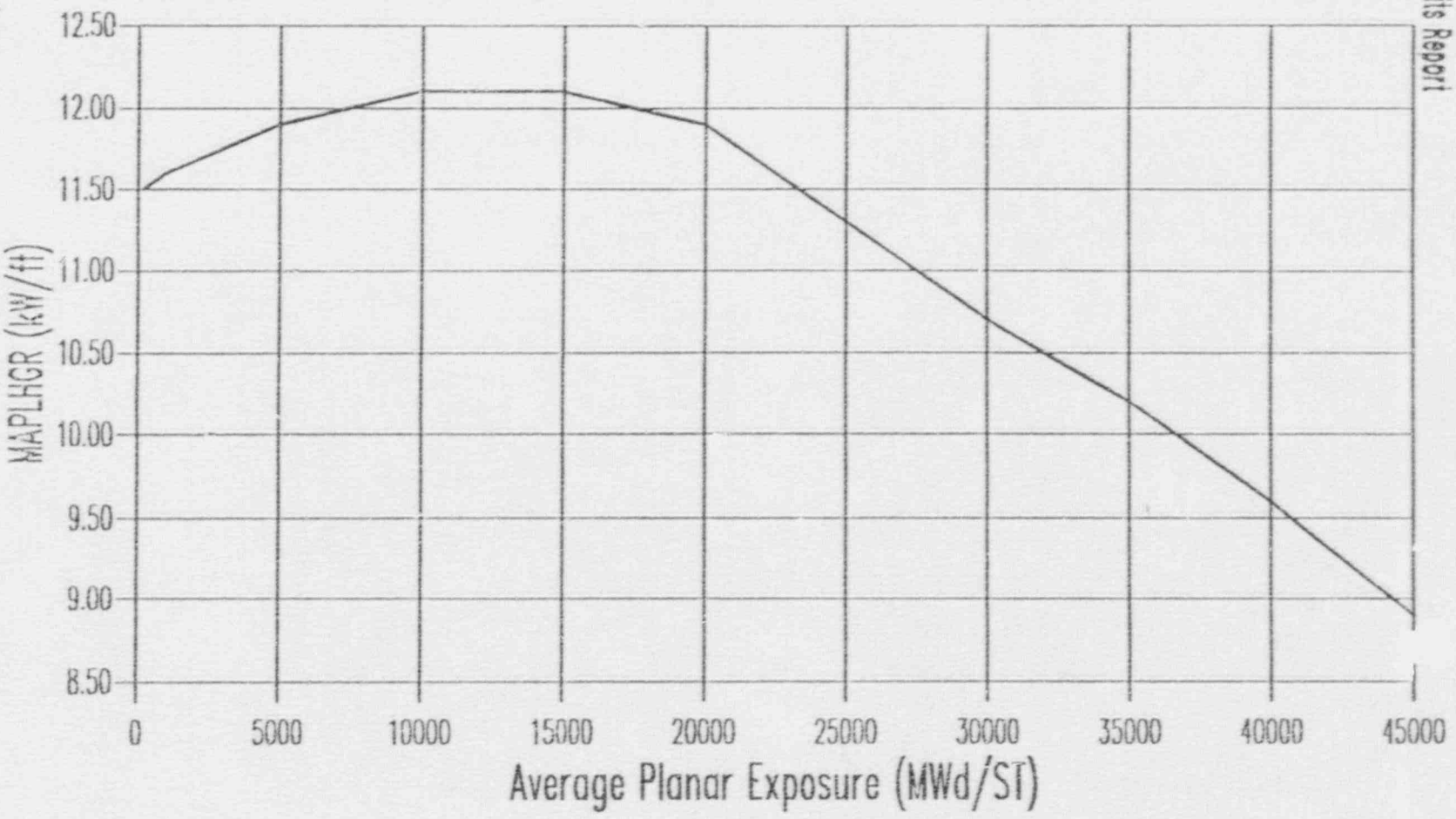

Figure 2-1

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

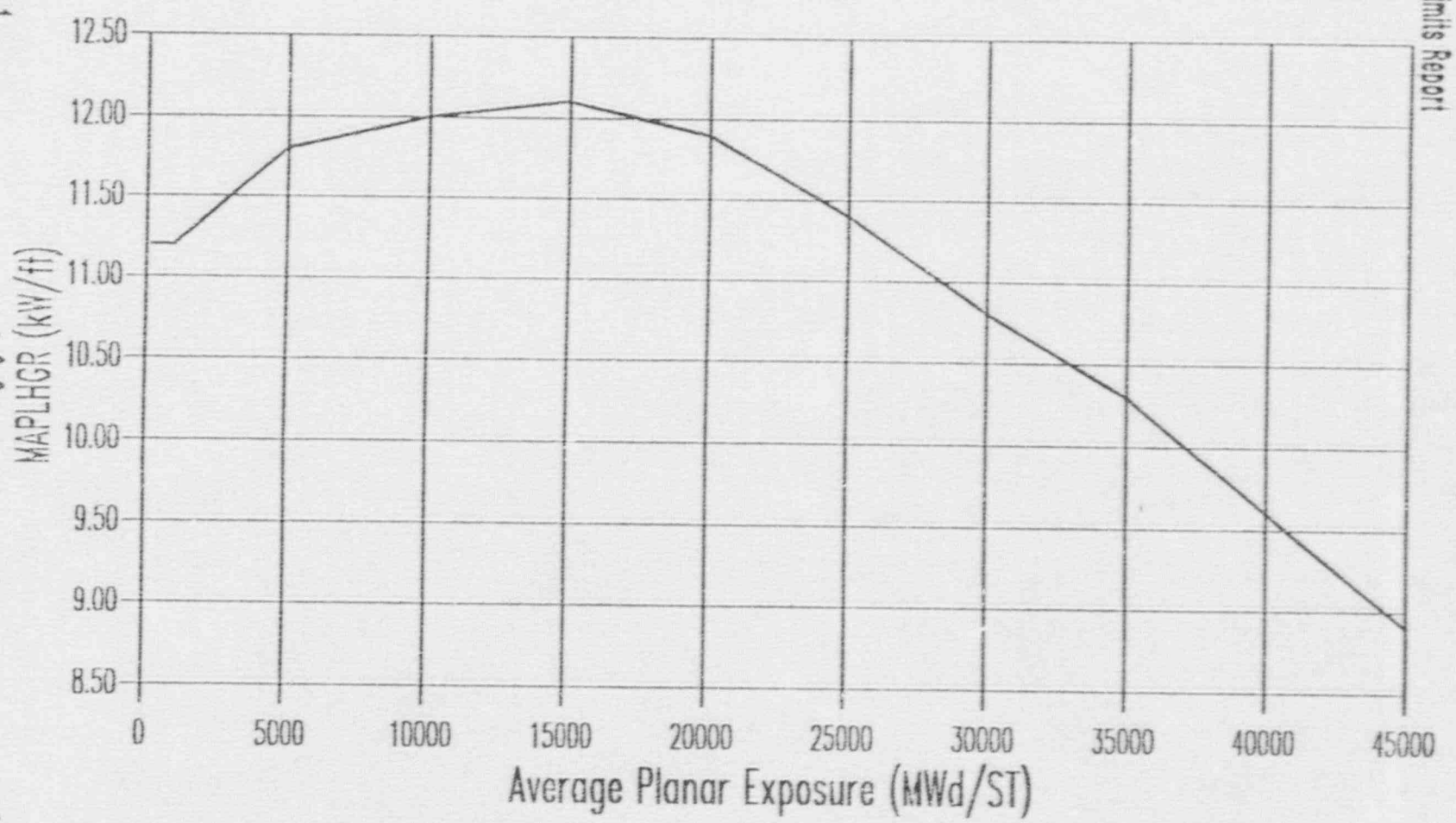

Figure 2-2

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BP8DRB283II

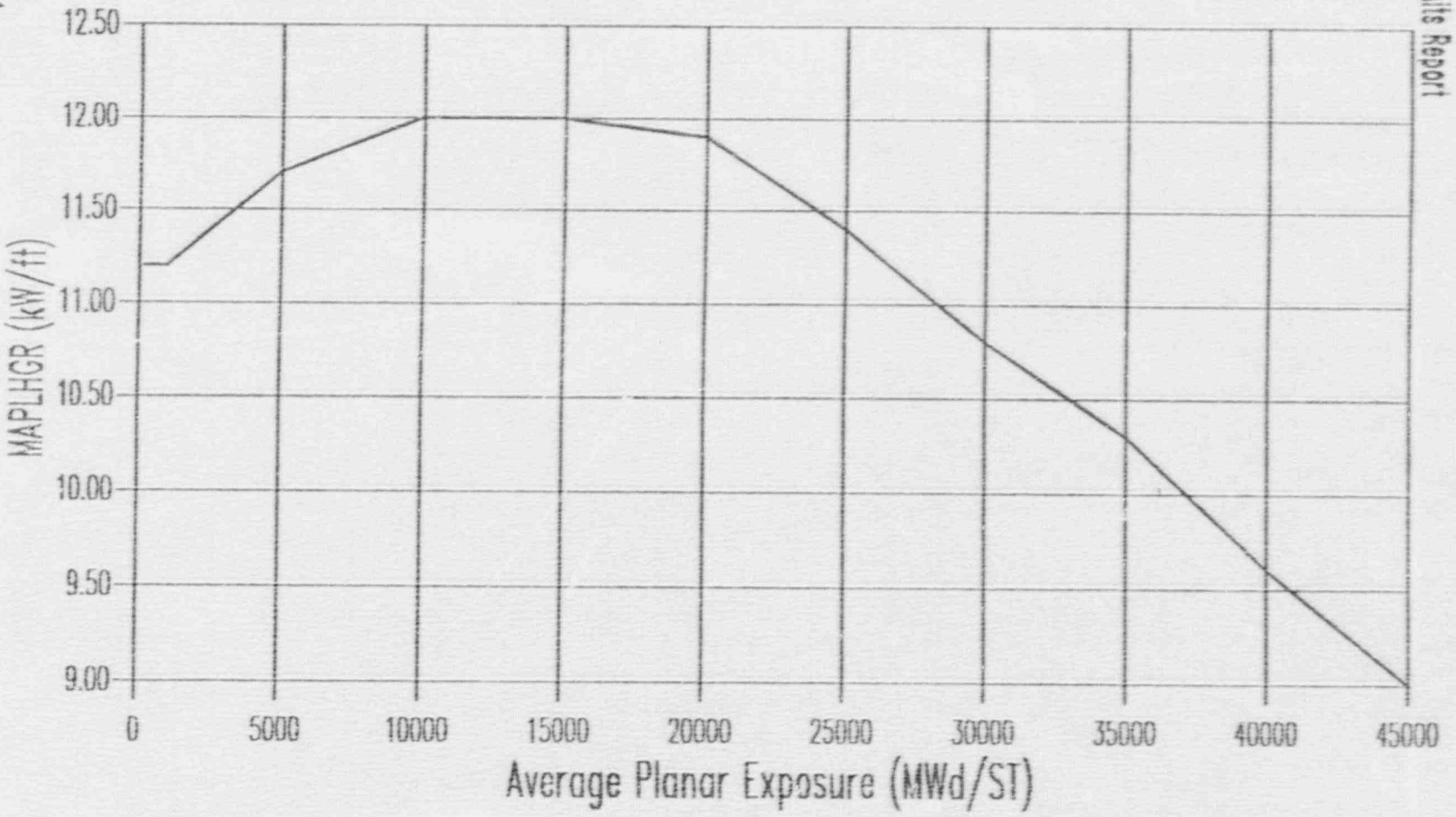

Figure 2-3

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

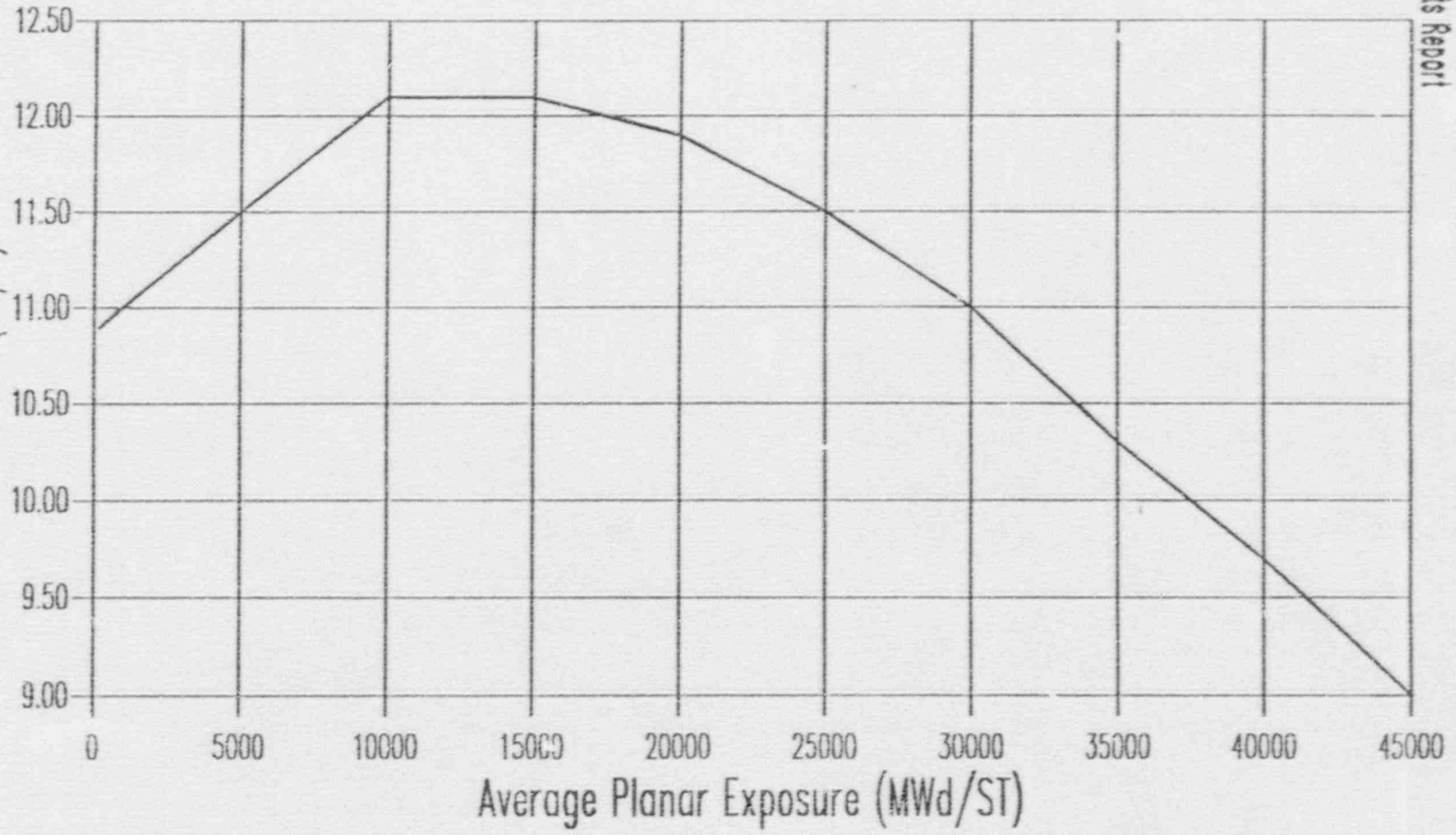

Figure 2-4

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BD300A

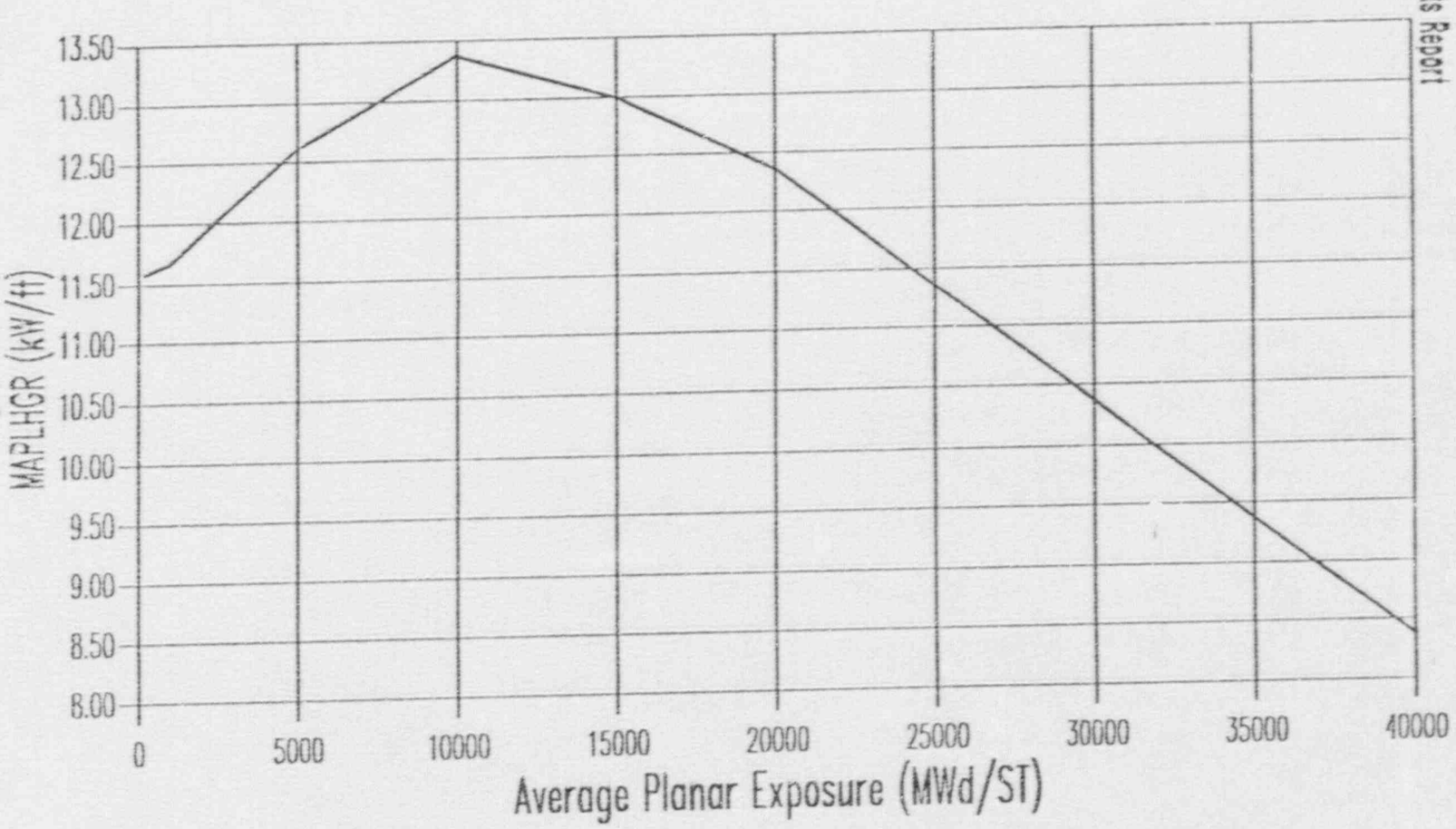

Figure 2-5

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BD300B

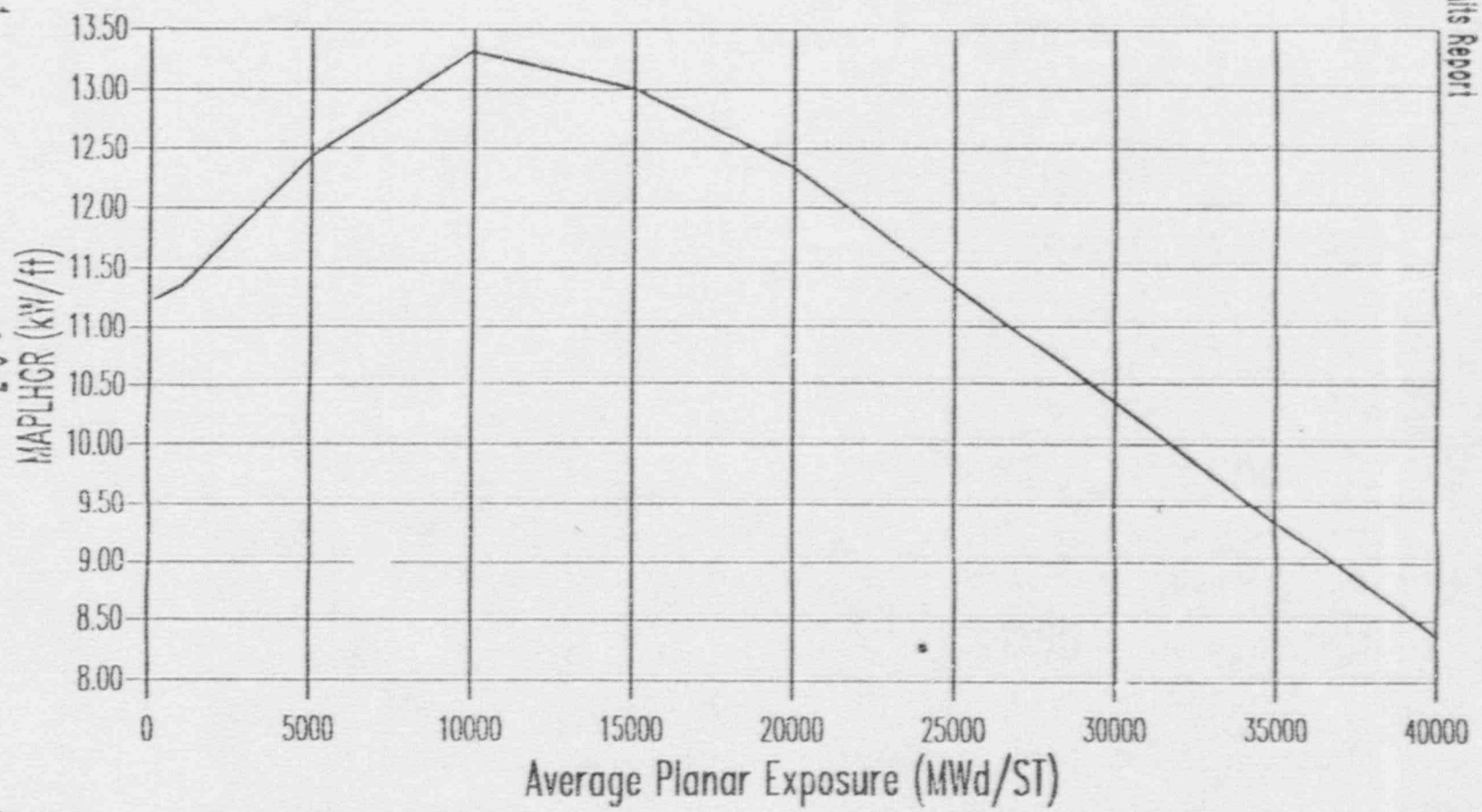

Figure 2-6

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type BD301H

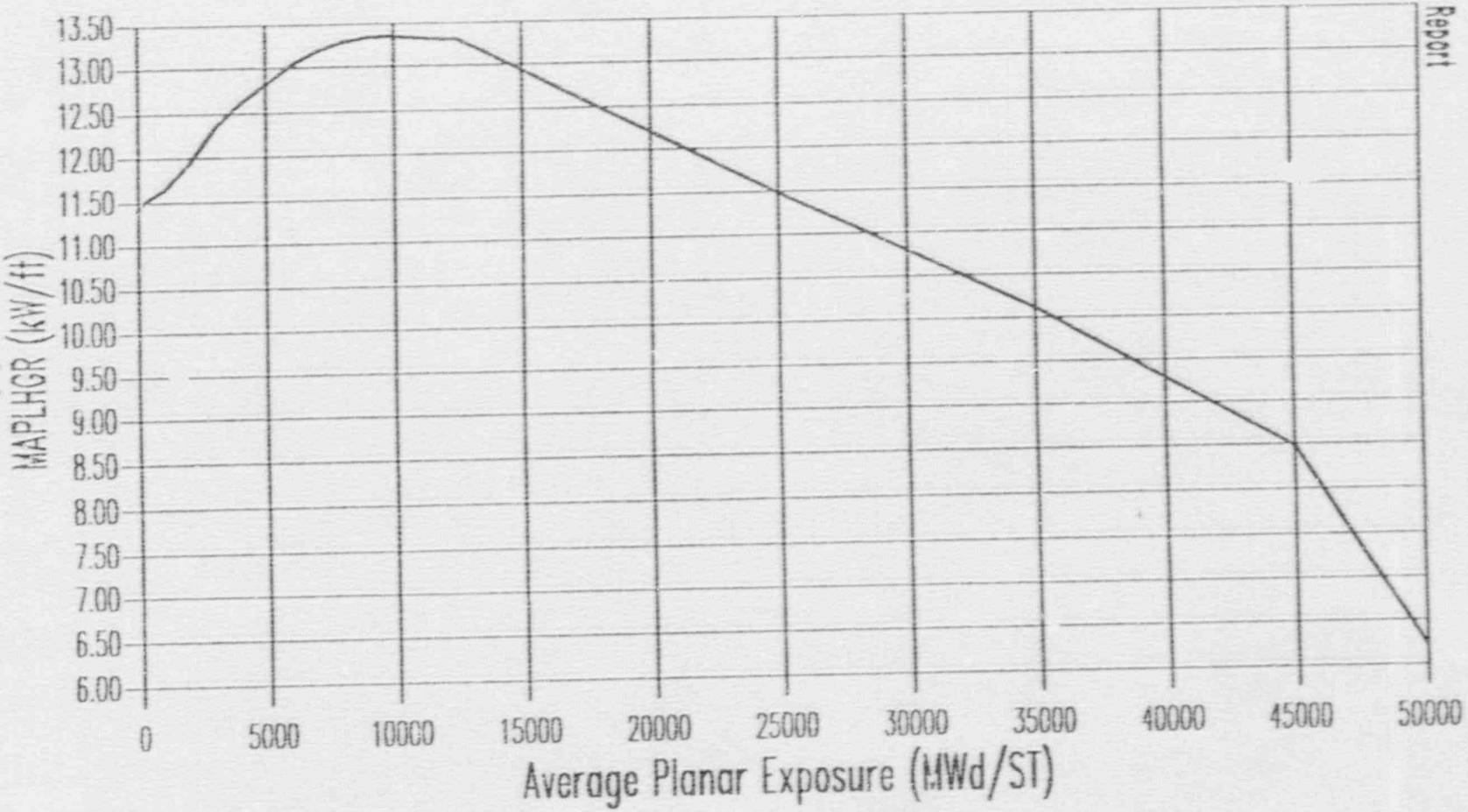

Figure 2-7

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

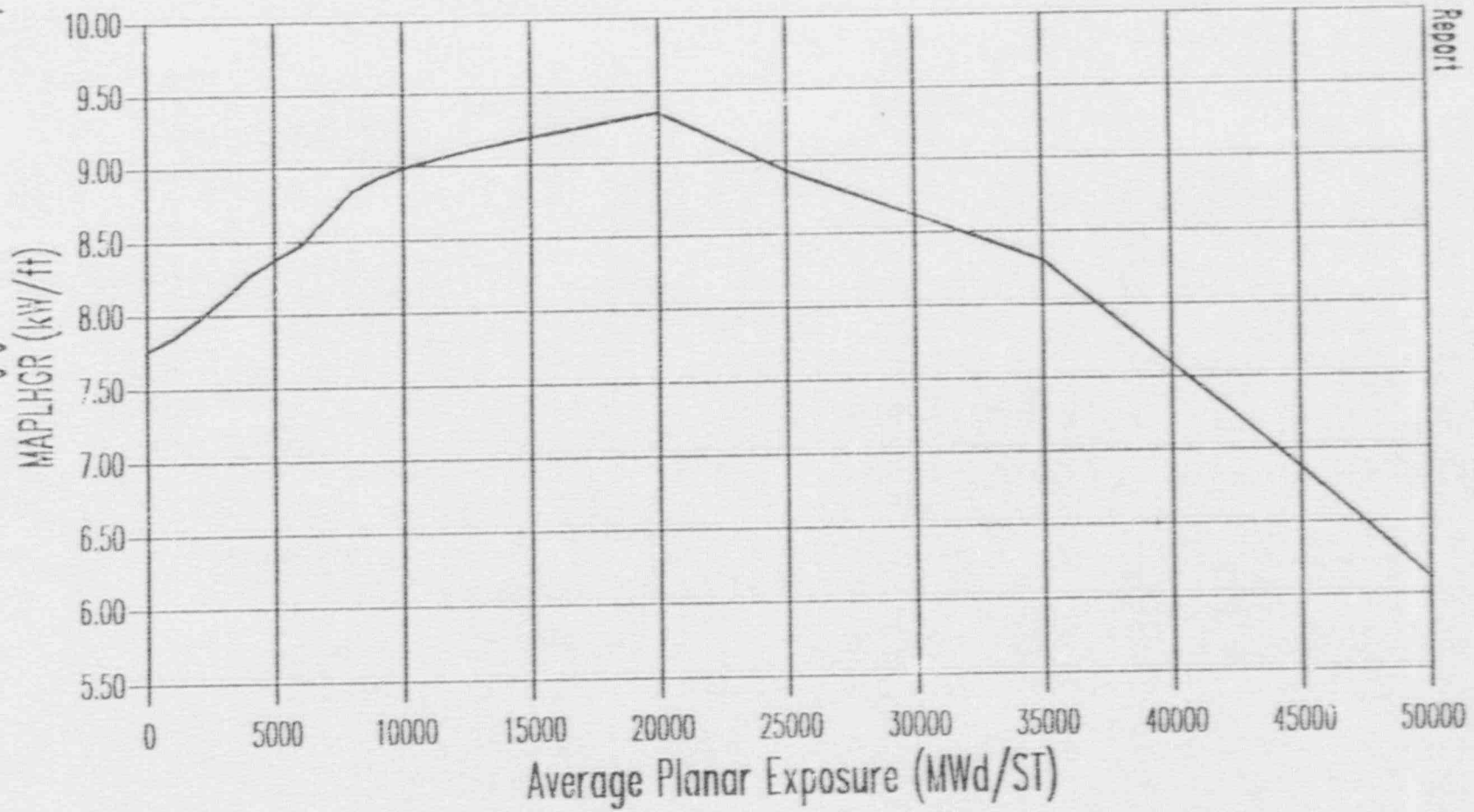

Figure 2-8

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type GE9B-P8DWB258-9GZ-80M-145-T

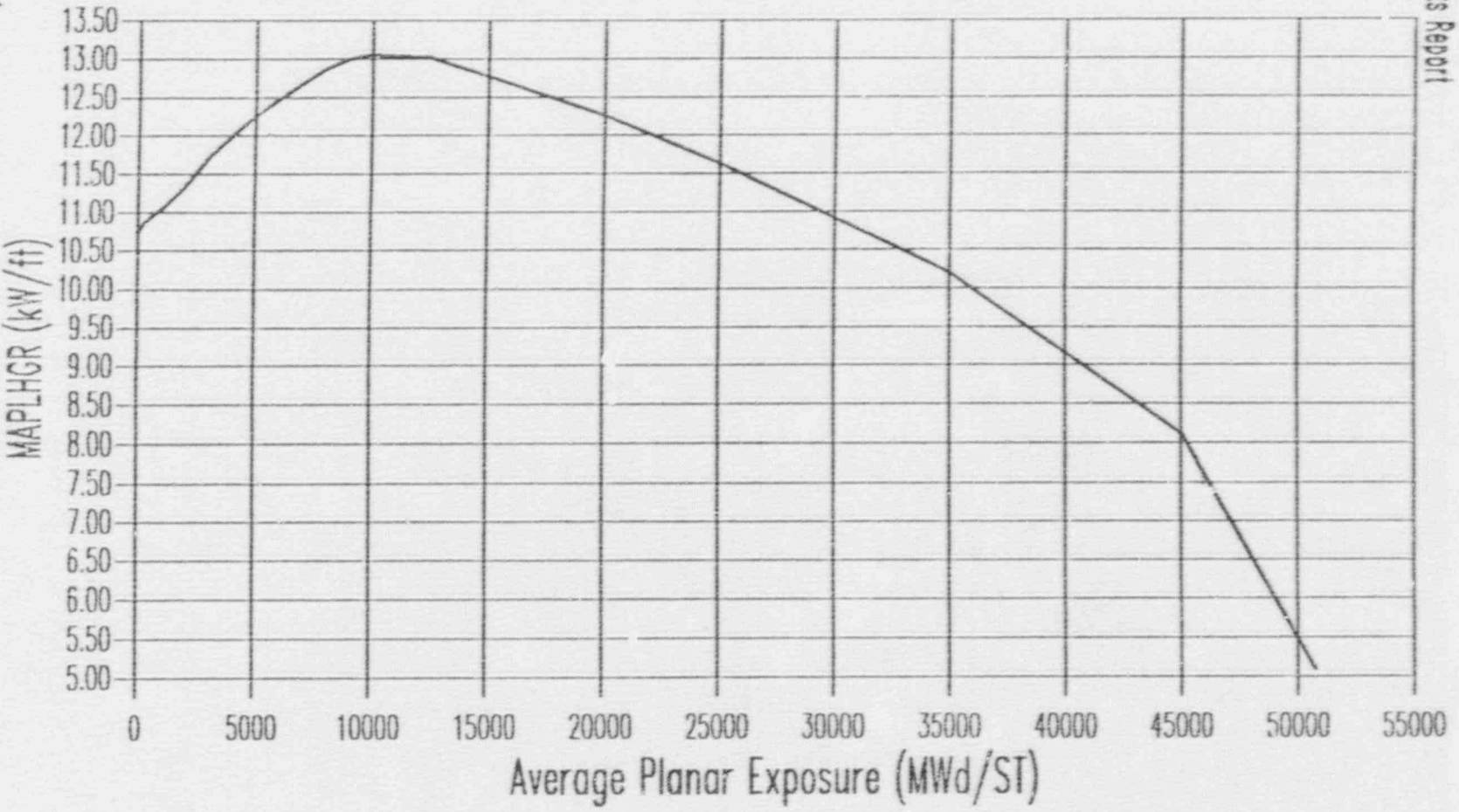

Figure 2-9

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs Average Planar Exposure for Fuel Type GE9B-P8DWB258-4G4.0/3G3.0-80 M-145-T

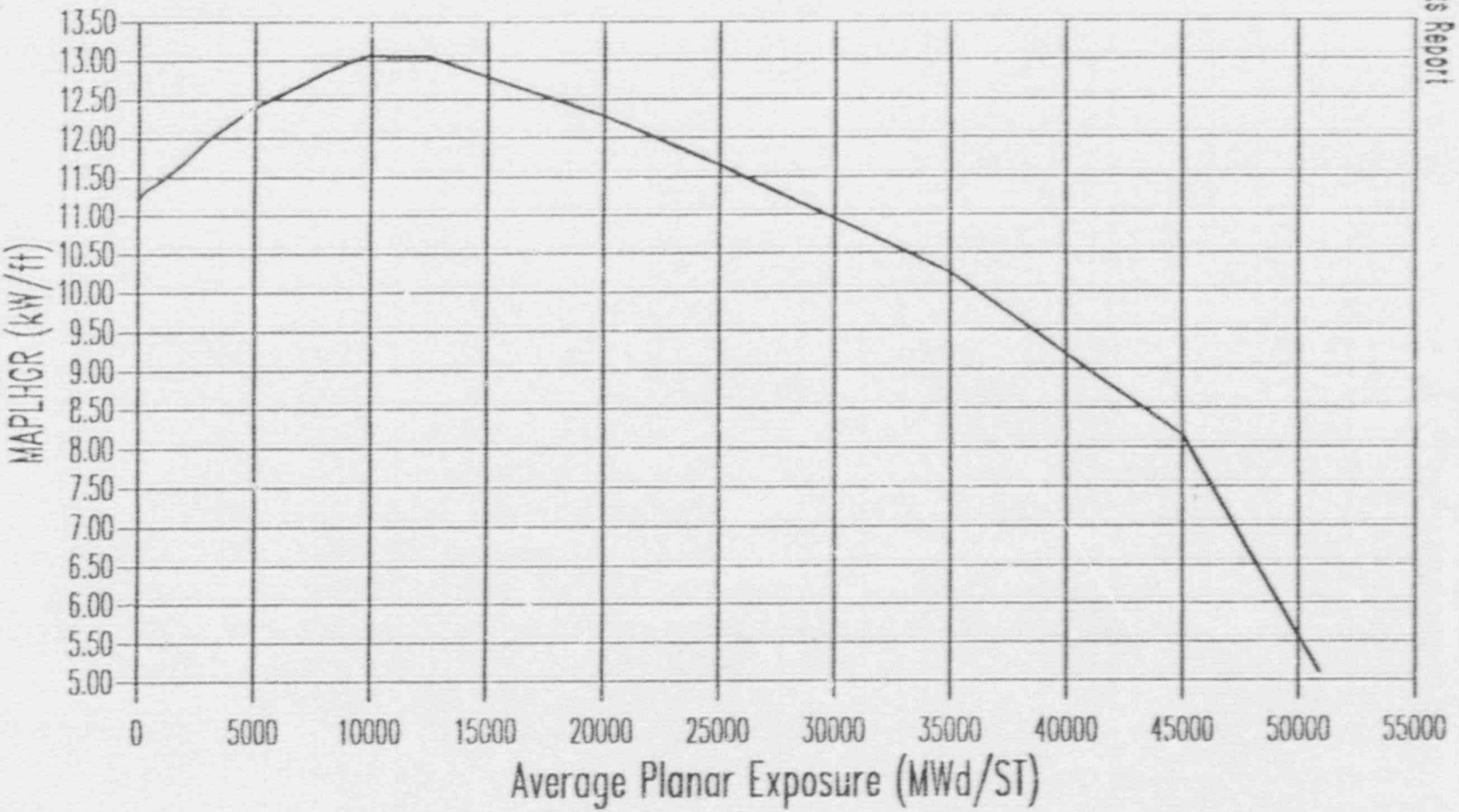

Figure 2-10

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. BP8DRB265H
2. BP8DRB283H
3. BP8DRB282
4. BP8DRB299
5. Barrier LTA

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

1. BD300A
2. BD300B
3. BD301H
4. GE9B-P8DWB258-9GZ-80M-145-T
5. GE9B-P8DWB258-4G4.0/3G3.0-80M-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, the MCPR limit (OLMCPR) shall be greater than or equal:

1.30 for tave $\leq$ 0.68 sec.

1.35 for tave $\geq$ 0.86 sec.

(0.278)tave + 1.111 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 (FWHOOS), the Operating Limit MCPR (OLMCPR), calculated using the above information, shall be increased by 0.02. This event, which conservatively bounds the requirements detailed within the EOD/EOOS document (Reference 6), goes beyond all operating conditions which can be expected during normal operation as set forth in the SRLS (Reference 3).

K_f FACTOR

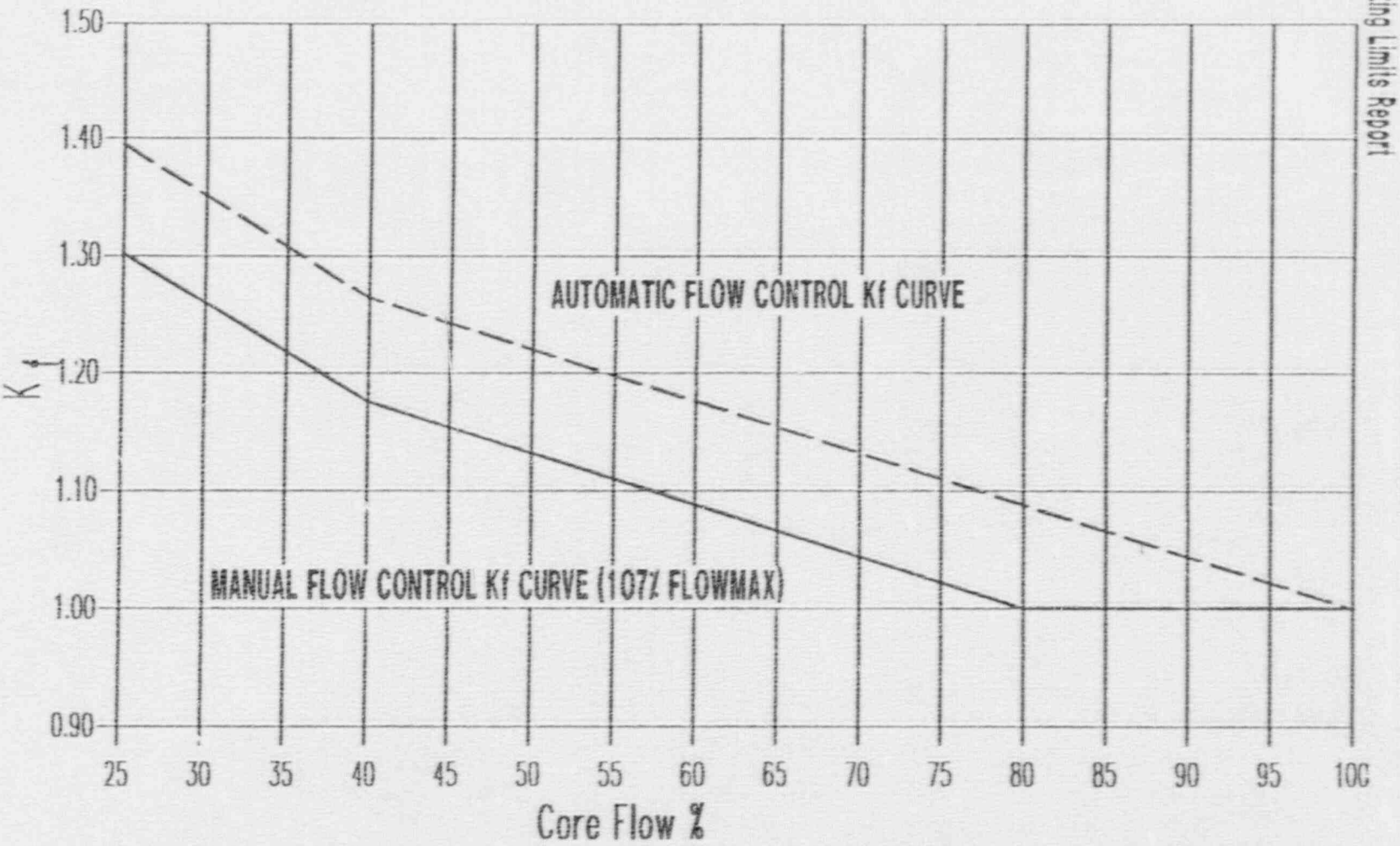

Figure 4-1