

Core Operating Limits Report
Quad Cities Nuclear Power Station
Unit 2, Reload 11 (Cycle 12)

Core Operating Limits Report

ISSUANCE OF CHANGES SUMMARY

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REFERENCES

1. Commonwealth Edison Company and Iowa-Illinois Gas and Electric Company Docket No. 50-265, Quad Cities Station, Unit 2 Facility Operating License No. DPR-30.
2. NRC letter, 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. GE document, 23A7118 Rev. 0, Supplemental Reload License Report for Quad Cities Nuclear Power Station Unit 2 Reload 11 Cycle 12, June 1991.
4. GE document, NEDC-31345P, Quad Cities Nuclear Power Station Units 1 & 2, SAFER/GESTAR-LOCA Loss-of-Coolant Accident Analysis, July 1989 (as amended).
5. GE document, NEDE-24011-P-A-9, General Electric Standard Application for Reactor Fuel (GESTAR), September 1988 (as amended).

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

$$\leq (0.65)W_d + 43\% \text{ **}$$

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

W_d 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).

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

2.1 TECHNICAL SPECIFICATION REFERENCE:

Technical Specification 3.5.1

2.2 DESCRIPTION:

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type BP8DRB282 are determined from Figure 2.2-1.

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type BP8DRB283H are determined from Figure 2.2-2.

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type BP8DRB299 are determined from Figure 2.2-3.

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type BP8DRB299L are determined from Figure 2.2-4.

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type BD316A are determined from Figure 2.2-5.

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type BD300C are determined from Figure 2.2-6.

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type GE9B-P8DWB299-11GZ-80M-145-T are determined from Figure 2.2-7.

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type GE9B-P8DWB310-9GZ-80M-145-T are determined from Figure 2.2-8.

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type GE9B-P8DWB286-9GZ-80M-145-T are determined from Figure 2.2-9.

The MAPLHGR Limit versus Actual Planar Exposure for Fuel Type GE9B-P8DWB286-7G3.0-80M-145-T are determined from Figure 2.2-10.

Figure 2.2-1
MAPLHGR Limit vs Average Planar Exposure
for Fuel Type BP8DRB282

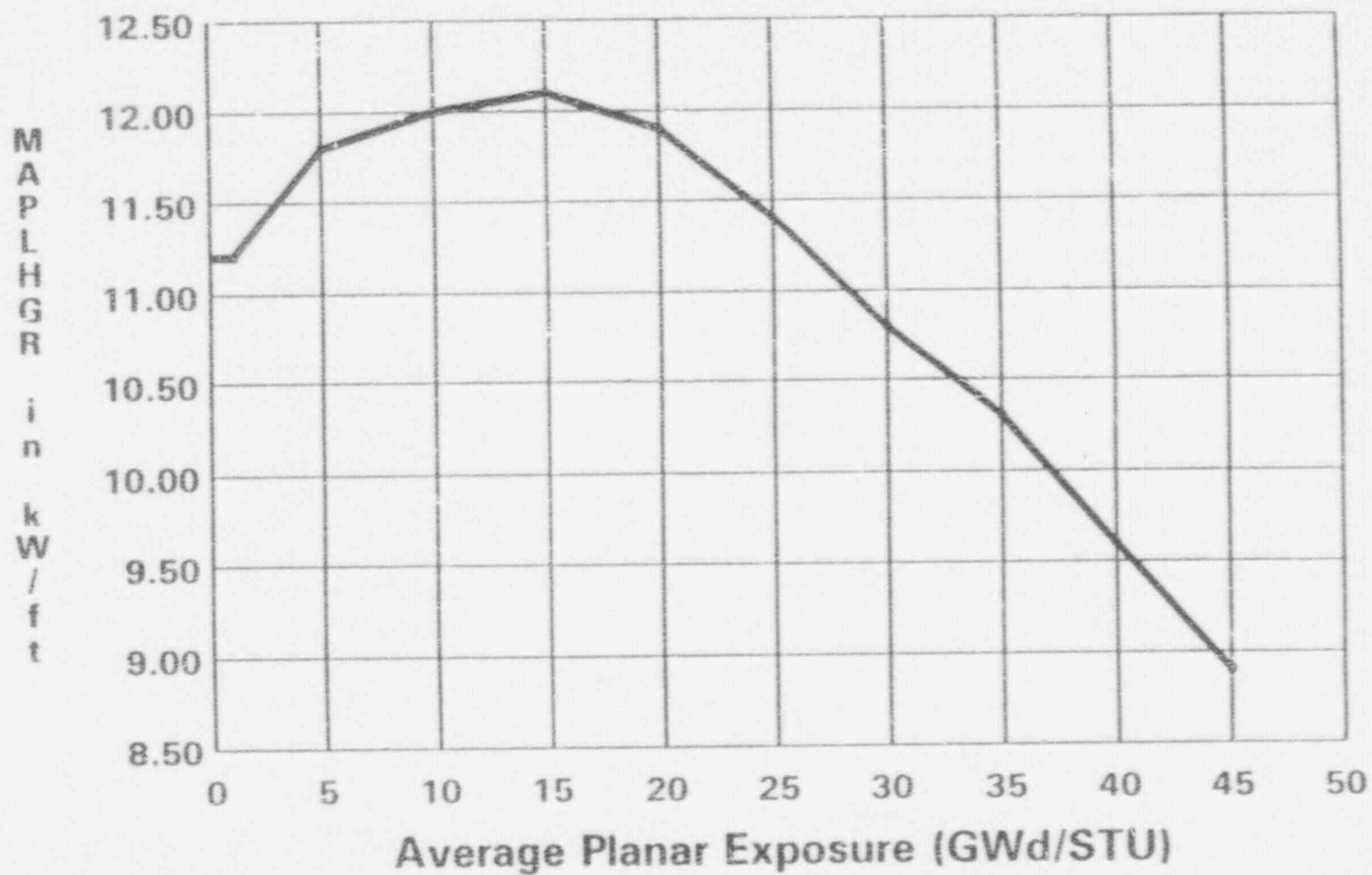


Figure 2.2-2
MAPLHGR Limit vs Average Planar Exposure
for Fuel Type BP8DRB283H

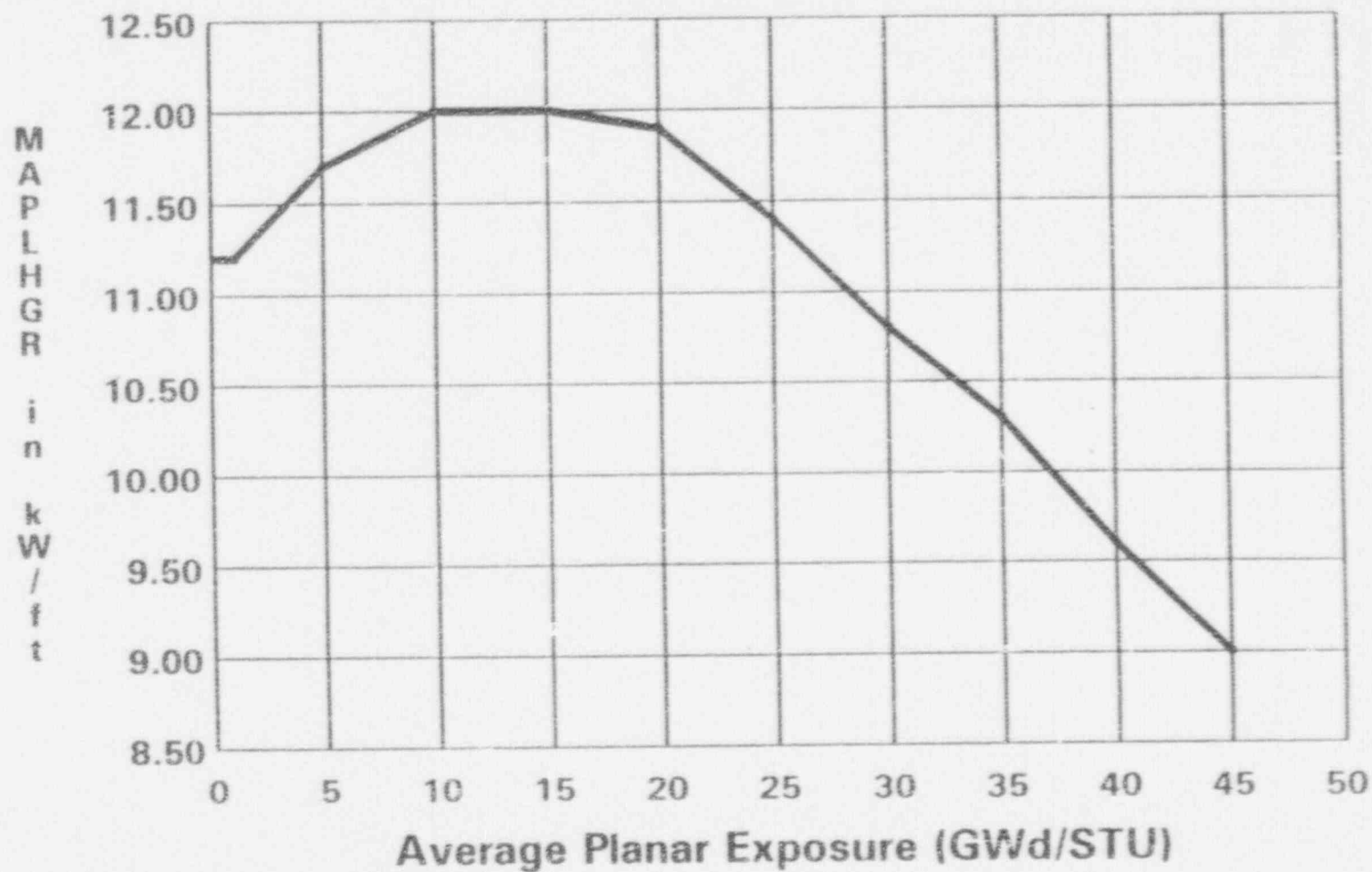


Figure 2.2-3
MAPLHGR Limit vs Average Planar Exposure
for Fuel Type BP8DRB299

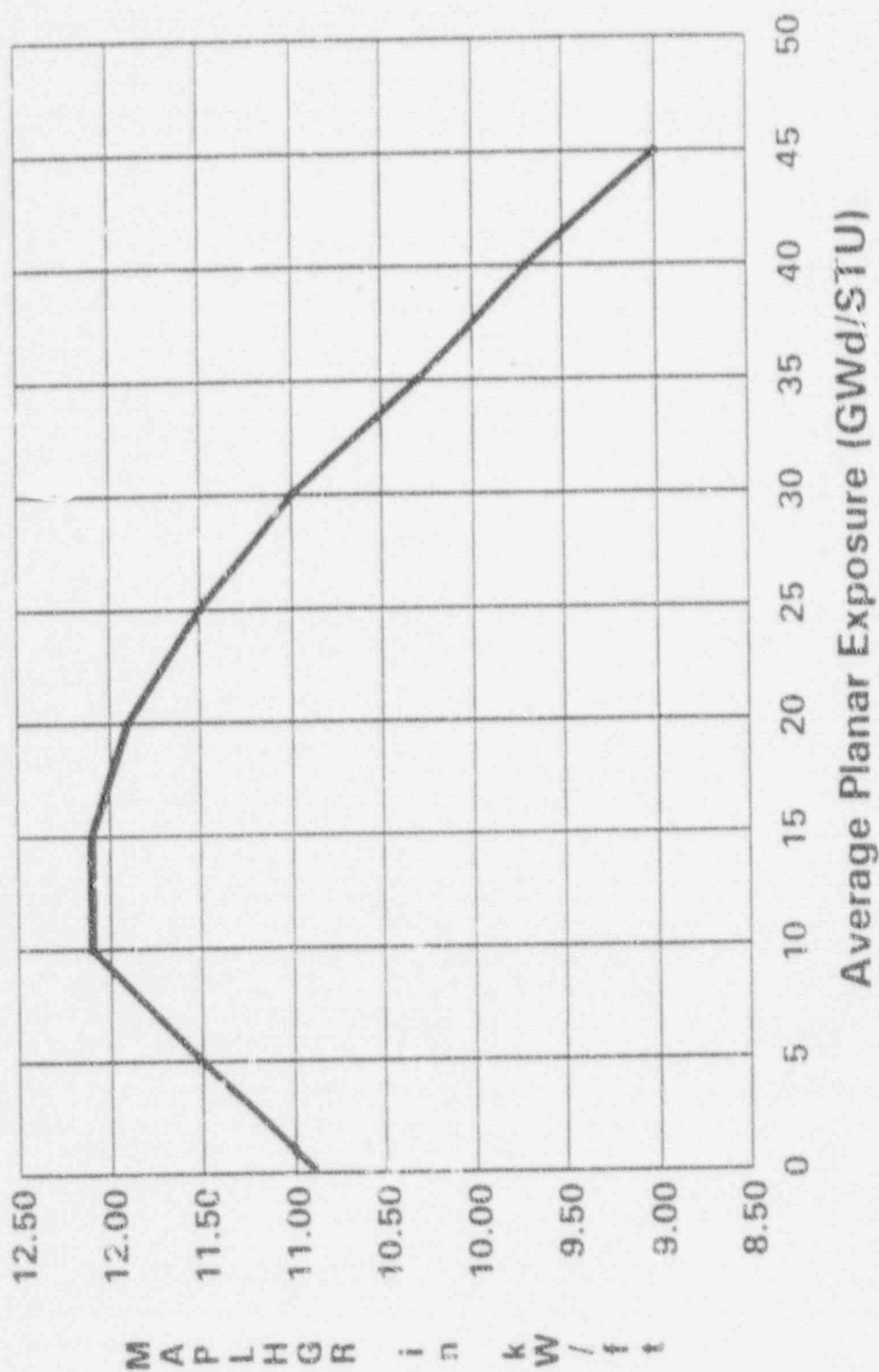


Figure 2.2-4
MAPLHGR Limit vs Average Planar Exposure
for Fuel Type BP8DRB299L

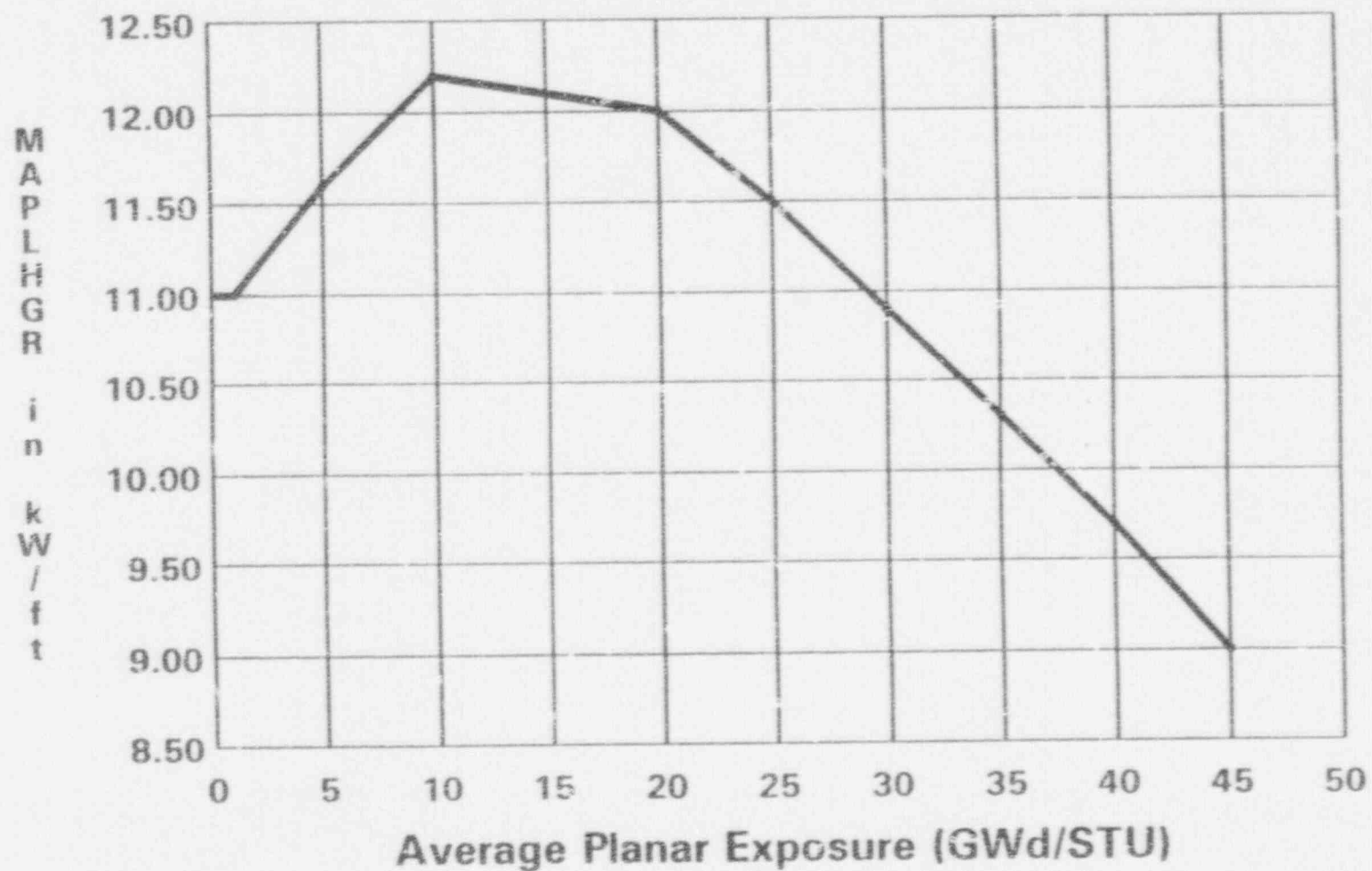


Figure 2.2-5
MAPLHGR Limit vs Average Planar Exposure
for Fuel Type BD316A

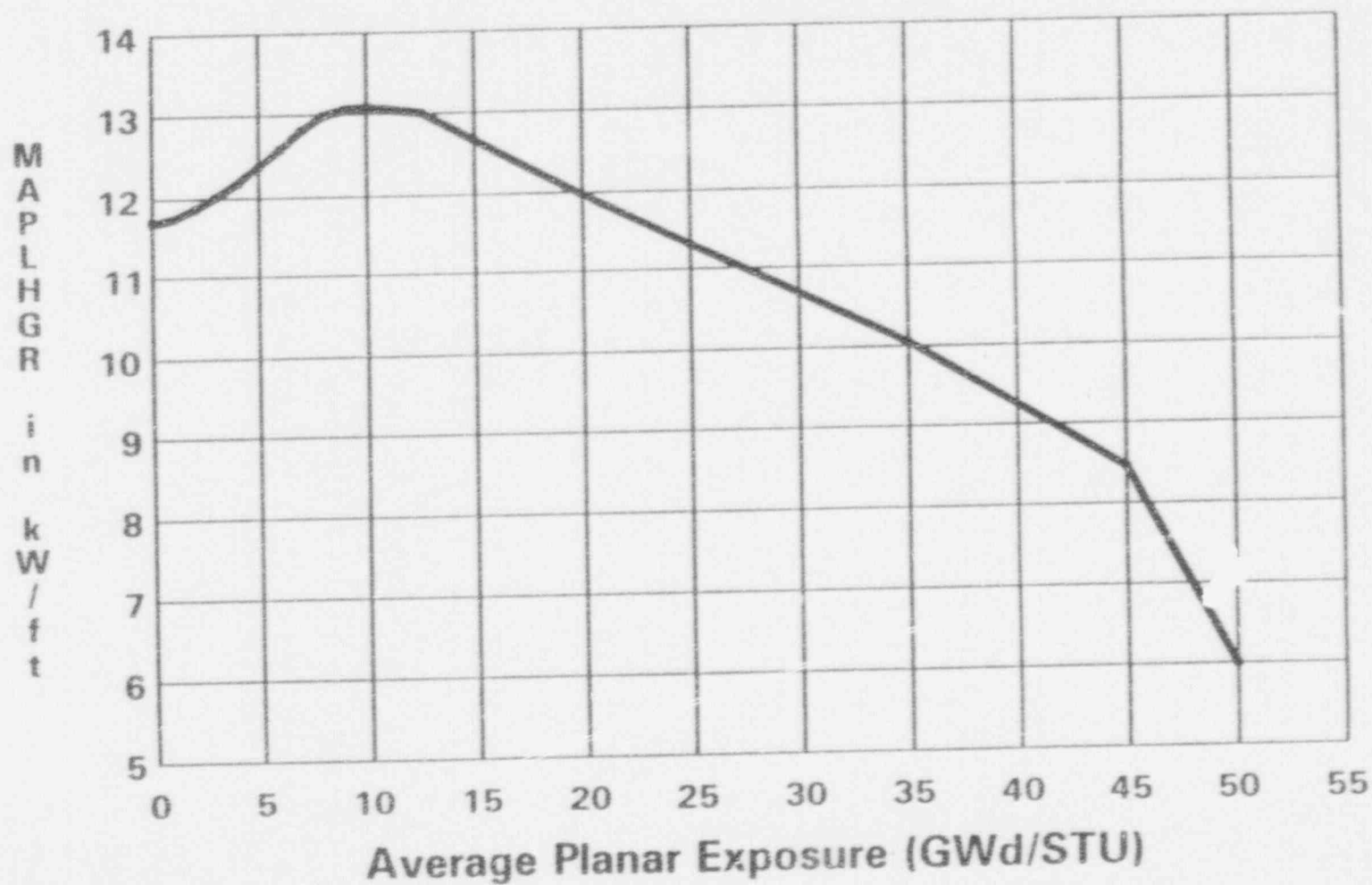


Figure 2.2-6
MAPLHGR Limit vs Average Planar Exposure
for Fuel Type BD300C

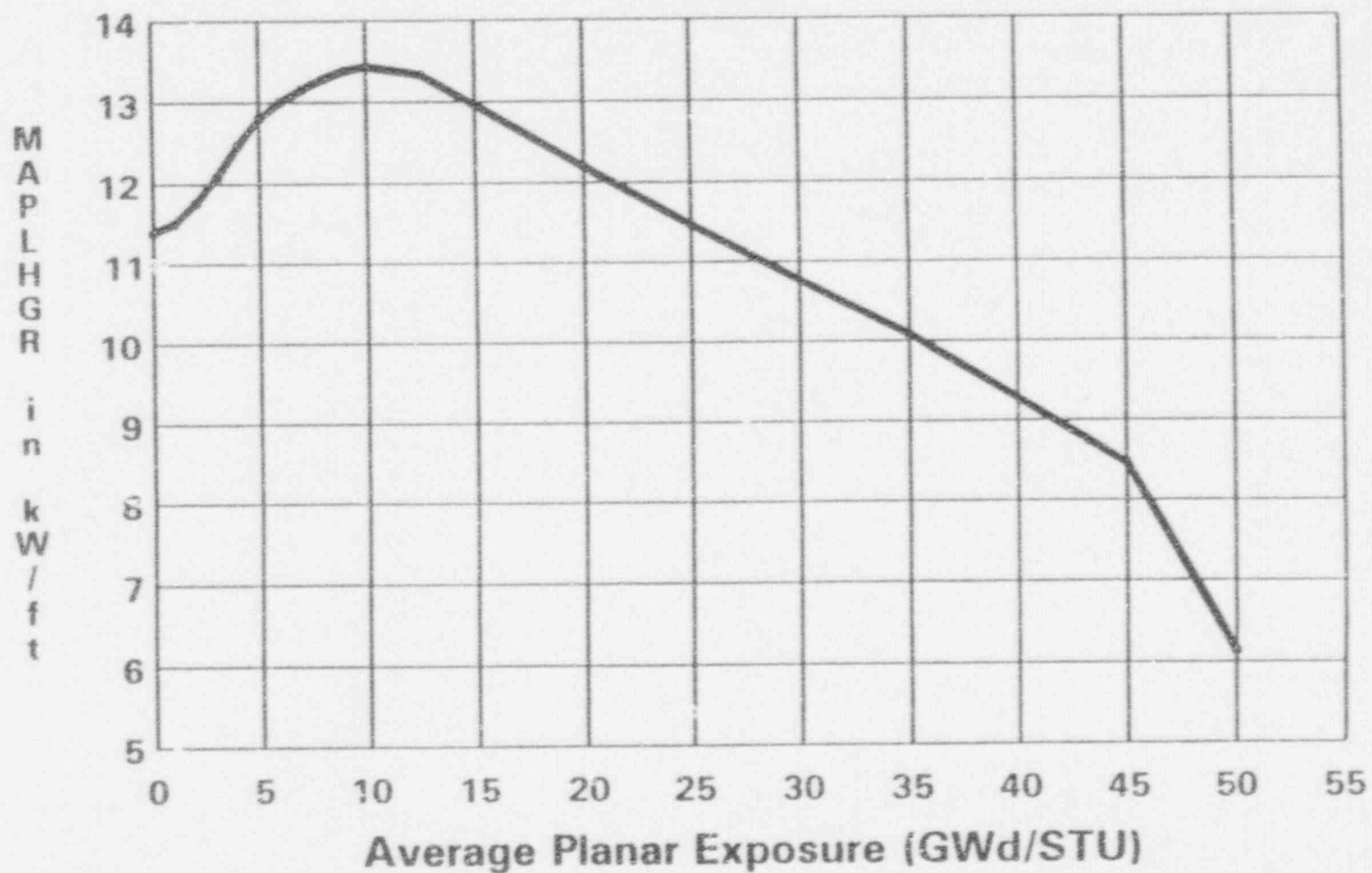


Figure 2.2-7
MAPLHGR Limit vs Average Planar Exposure
for Fuel Type GE9B-P8DWB299-11GZ-80M-145-T

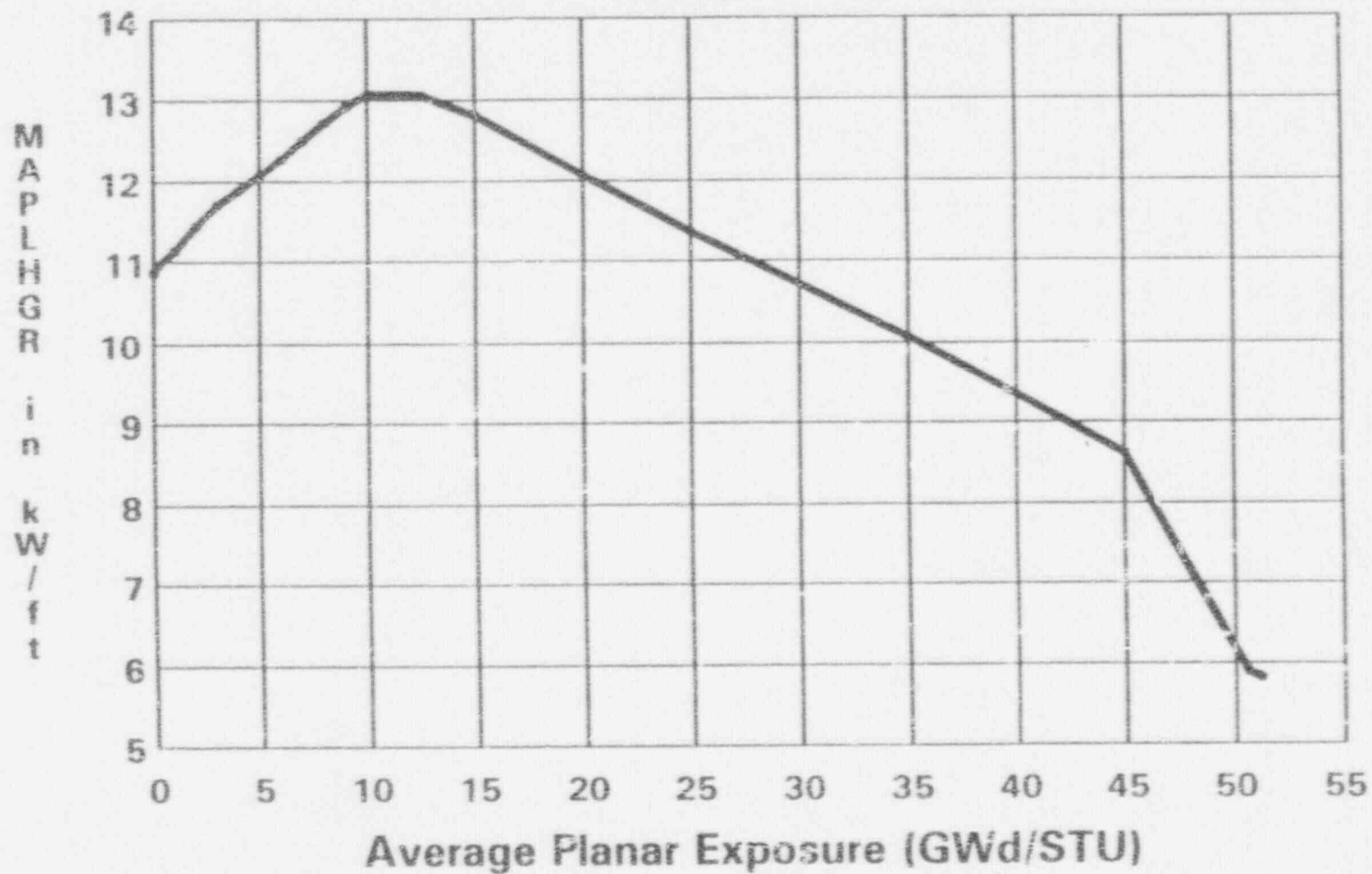


Figure 2.2-8
MAPLHGR Limit vs Average Planar Exposure
for Fuel Type GE9B-P8DWB310-9GZ-80M-145-T

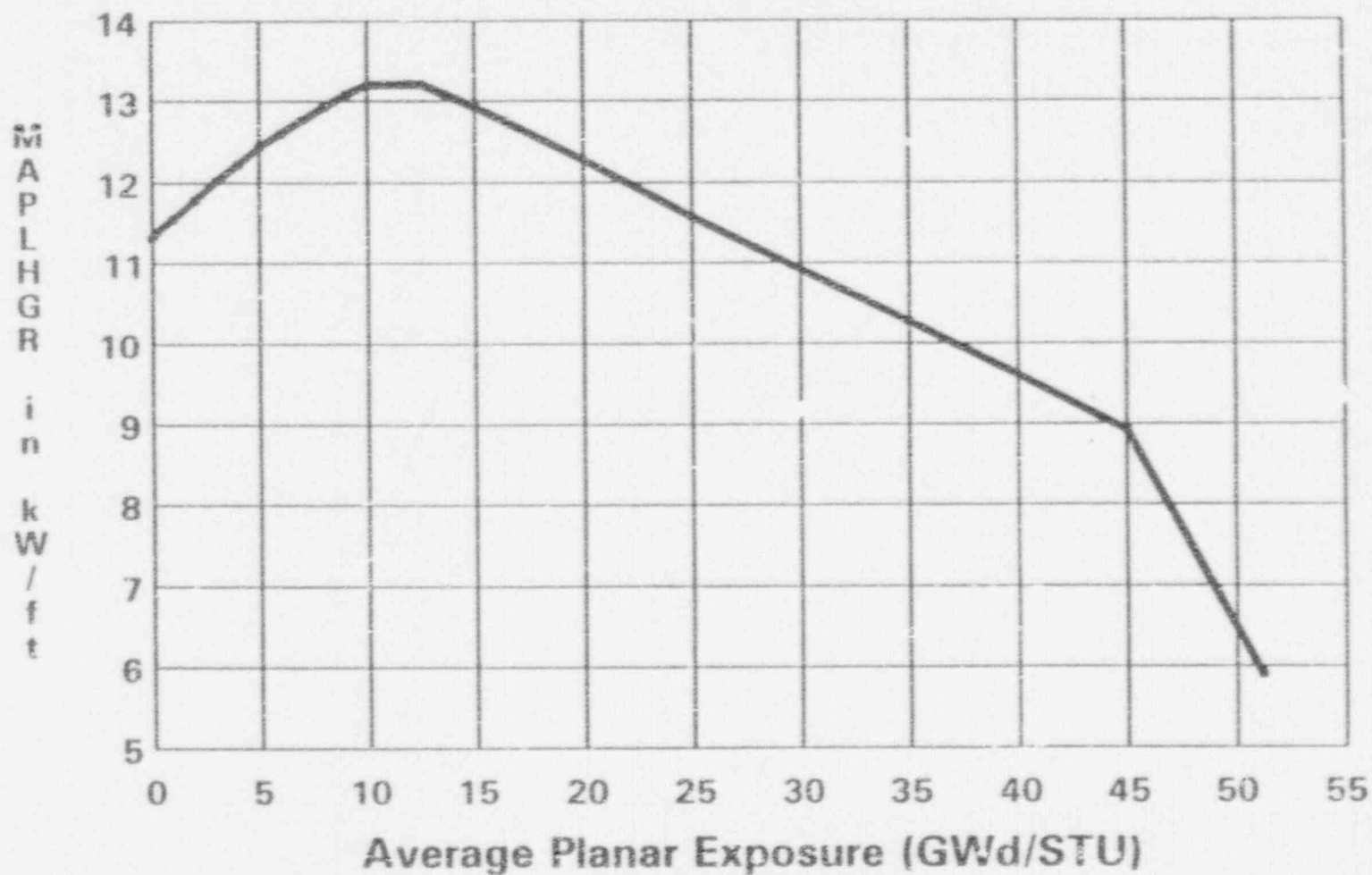


Figure 2.2-9

MAPLHGR Limit vs Average Planar Exposure
for Fuel Type GE9B-P8DWB286-9GZ-80M-145-T

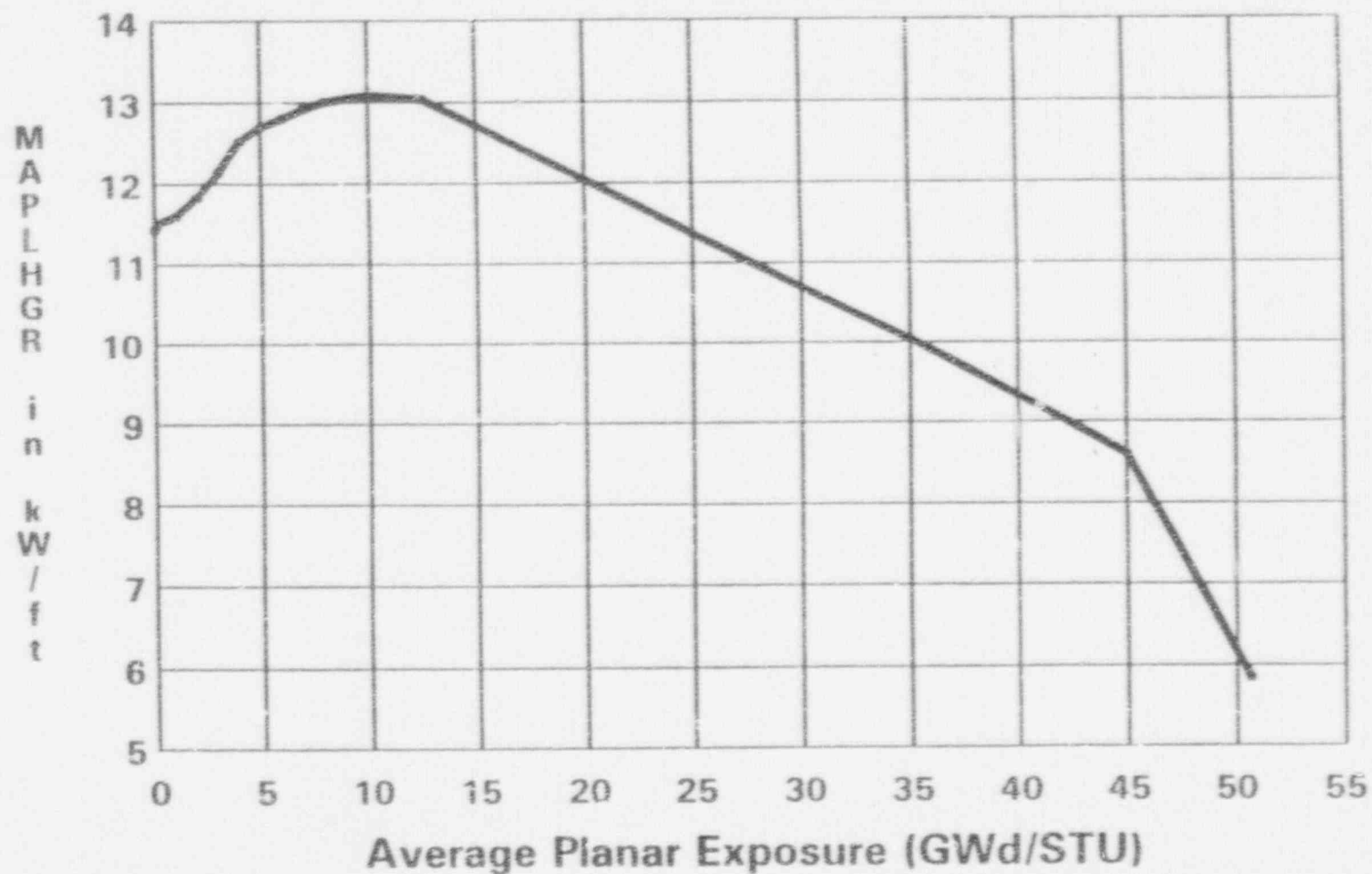
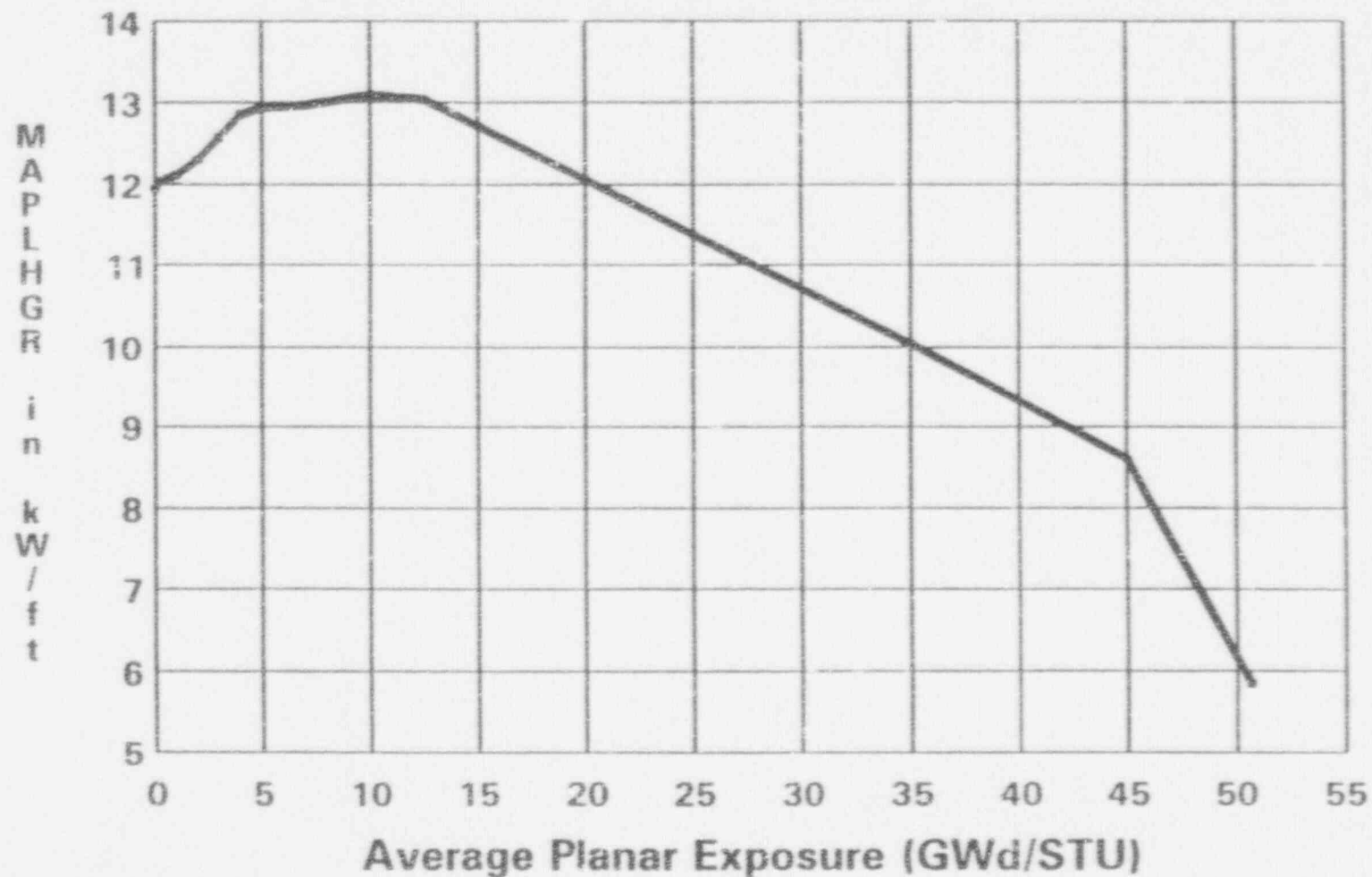


Figure 2.2-10
MAPLHGR Limit vs Average Planar Exposure
for Fuel Type GE9B-P8DWB286-7G3.0-80M-145-T



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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. BP8DRB282
2. BP8DRB283H
3. BP8DRB299
4. 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
5. GE9B-P8DWB286-9GZ-80M-145-T
6. GE9B-P8DWB286-7G3.0-80M-145-T

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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:

1.30 for $t_{ave} \leq 0.68$ sec.

1.40 for $t_{ave} \geq 0.86$ sec.

$(0.556)t_{ave} + 0.922$ for $0.68 \text{ sec.} < t_{ave} < 0.86 \text{ sec.}$

where t_{ave} = mean 20% scram insertion time for all surveillance data from Technical Specification 4.3.C which has been generated for the current cycle.

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

When operating with a Feedwater Heater Out-of-Service, the Operating MCPR Limit shall be increased by 0.02.

Figure 4-1
Kf Factor

