ATTACHMENT 1

NRC DOCKET 50-321
OPERATING LICENSE DPR-57
EDWIN I. HATCH NUCLEAR PLANT UNIT 1
PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS

GE Letter No. GGJ: 83-076 dated September 20, 1983
RE: MAPLHGR Curves for Hatch 1

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PDR ADOCK 05000321
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September 20, 1983
GGJ:83-076

cc: Georgia Power Company
L. T. Gucwa
H. C. Nix
Southern Company Services
B. E. Hunt
L. K. Mathews

Mr. R. D. Baker
Georgia Power Company
P. O. Box 4545
Atlanta, GA 30302

Subject: MAPLHGR Curves for Hatch 1

Dear Mr. Baker:

The purpose of this letter is to transmit the information you requested so that H2R1 (P8DRB284LA) and H2R2 (P8DRB283) fuel types can be used in the Hatch 1 reactor. The MAPLHGR Versus Exposure for the two fuel types are presented in Tables 1 and 2 attached hereto. GE has evaluated these two fuel types and concluded that the attached curves conservatively bound their use in Hatch 1. An Errata and Addenda Sheet to NEDO-24086 will follow shortly.

Sincerely,

Gary G Jones

G. G. Jones
Senior Fuel Project Manager
Hatch 1, 2
M/C 174; (408)925-1516

GGJ:lo

Attachment

TABLE 1

MAPLHGR vs Exposure

Fuel Type: P8DRB284LA

Exposure (MWd/t)	MAPLHGR (kW/ft)	PCT (°F)	Oxidation Fraction
200	11.7	2189	0.034
1,000	11.8	2190	0.033
5,000	12.0	2198	0.033
10,000	12.1	2197	0.033
15,000	12.1	2198	0.033
20,000	12.0	2194	0.033
25,000	11.5	2130	0.026
30,000	10.8	2032	0.019
35,000	10.1	1934	0.014
40,000	9.5	1840	0.010
45,000	8.9	1758	0.007

TABLE 2

MAPLHGR vs Exposure

Fuel Type: P8DRB283

200	11.30	2133	0.029
1,000	11.40	2134	0.028
5,000	11.90	2185	0.033
10,000	12.10	2195	0.033
15,000	12.10	2199	0.033
20,000	11.90	2184	0.032
25,000	11.30	2112	0.025
30,000	11.10	2061	0.021
35,000	10.50	1931	0.030
40,000	9.80	1878	0.017
45,000	9.20	1788	0.008

GGJ - 9/16/83

ATTACHMENT 2

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Pursuant to 10 CFR 170.12 (c), Georgia Power Company has evaluated the attached proposed amendments to Operating License DPR-57 and has determined that:

a. The proposed amendment does not require evaluation of a new Safety Analysis Report and rewrite of the facility license;

b. The proposed amendment does not require evaluation of several complex issues, involve ACRS review, or require an environmental impact statement;

c. The proposed amendment does not involve a complex issue or more than one environmental or safety issue;

d. The proposed amendment consists of three changes namely, addition of MAPLHGR operating limits for new fuel types, extension of MAPLHGR operating limits based on analysis, and an increase in the MCPR limit in order to cover contingencies. These changes result from a core reconfiguration.

e. Therefore, the proposed change is a Class III amendment.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS

3.11 FUEL RODS

Applicability

The Limiting Conditions for Operation associated with the fuel rods apply to those parameters which monitor the fuel rod operating conditions.

Objective

The Objective of the Limiting Conditions for Operation is to assure the performance of the fuel rods.

Specifications

A. Average Planar Linear Heat Generation Rate (APLHGR)

During power operation, the APLHGR for each type of fuel as a function of average planar exposure shall not exceed the limiting value shown in Figure 3.11-1, sheets 1 thru 5. If at any time during operation it is determined by normal surveillance that the limiting value for APLHGR is being exceeded, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. If the APLHGR is not returned to within the prescribed limits within two (2) hours, then reduce reactor power to less than 25% of rated thermal power within the next four (4) hours. If the limiting condition for operation is restored prior to expiration of the specified time interval, then further progression to less than 25% of rated thermal power is not required.

B. Linear Heat Generation Rate (LHGR)

During power operation, the LHGR as a function of core height shall not exceed the limiting value shown in Figure 3.11-2 for 7 x 7 fuel or the limiting value of 13.4 kw/ft for 8 x 8/8 x 8R fuel. If at any time during operation it is determined by normal surveillance that the limiting value for LHGR is being exceeded, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. If the

4.11 FUEL RODS

Applicability

The Surveillance Requirements apply to the parameters which monitor the fuel rod operating conditions.

Objective

The Objective of the Surveillance requirements is to specify the type and frequency of surveillance to be applied to the fuel rods.

Specifications

A. Average Planar Linear Heat Generation Rate (APLHGR)

The APLHGR for each type of fuel as a function of average planar exposure shall be determined daily during reactor operation at $\geq$ 25% rated thermal power.

B. Linear Heat Generation Rate (LHGR)

The LHGR as function of core height shall be checked daily during reactor operation at $\geq$ 25% rated thermal power.

3.11 FUEL RODS

A Average Planar Linear Heat Generation Rate (APLHGR)

This specification assures that the peak cladding temperature following the postulated design basis loss-of-coolant accident will not exceed the limit specified in the 10 CFR 50, Appendix K, even considering the postulated effects of fuel pellet densification.

The peak cladding temperature following a postulated loss-of-coolant accident is primarily a function of the average heat generation rate of all the rods of a fuel assembly at any axial location and is only dependent secondarily on the rod to rod power distribution within an assembly. Since expected local variations in power distribution within a fuel assembly affect the calculated peak clad temperature by less than ± 20o F relative to the peak temperature for a typical fuel design, the limit on the average linear heat generation rate is sufficient to assure that calculated temperatures are within the 10 CFR 50, Appendix K limit. The limiting value for APLHGR is shown in Figures 3.11-1., sheets 1 thru 5.

The calcualtional procedure used to establish the APLHGR shown in Figures 3.11-1, sheets 1 thru 5 is based on a loss-of-coolant accident analysis. The analysis was performed using General Electric (GE) calculational models which are consistent with the requirements of Appendix K to 10 CFR 50. A complete discussion of each code employed in the analysis is presented in Reference 1. Differences in this analysis as compared to previous analyses performed with Reference 1 are: (1) The analyses assumes a fuel assembly planar power consistent with 102% of the MAPLHGR shown in Figure 3.11.1; (2) Fission product decay is computed assuming an energy release rate of 200 MEV/Fission; (3) Pool boiling is assumed after nucleate boiling is lost during the flow stagnation period; (4) The effects of core spray entrainment and counter-current flow limiting as described in Reference 2, are included in the reflooding calculations.

A list of the significant plant input parameters to the loss-of-coolant accident analysis is presented in Table 1 of NEDO-21187 (3).

ATTACHMENT 3

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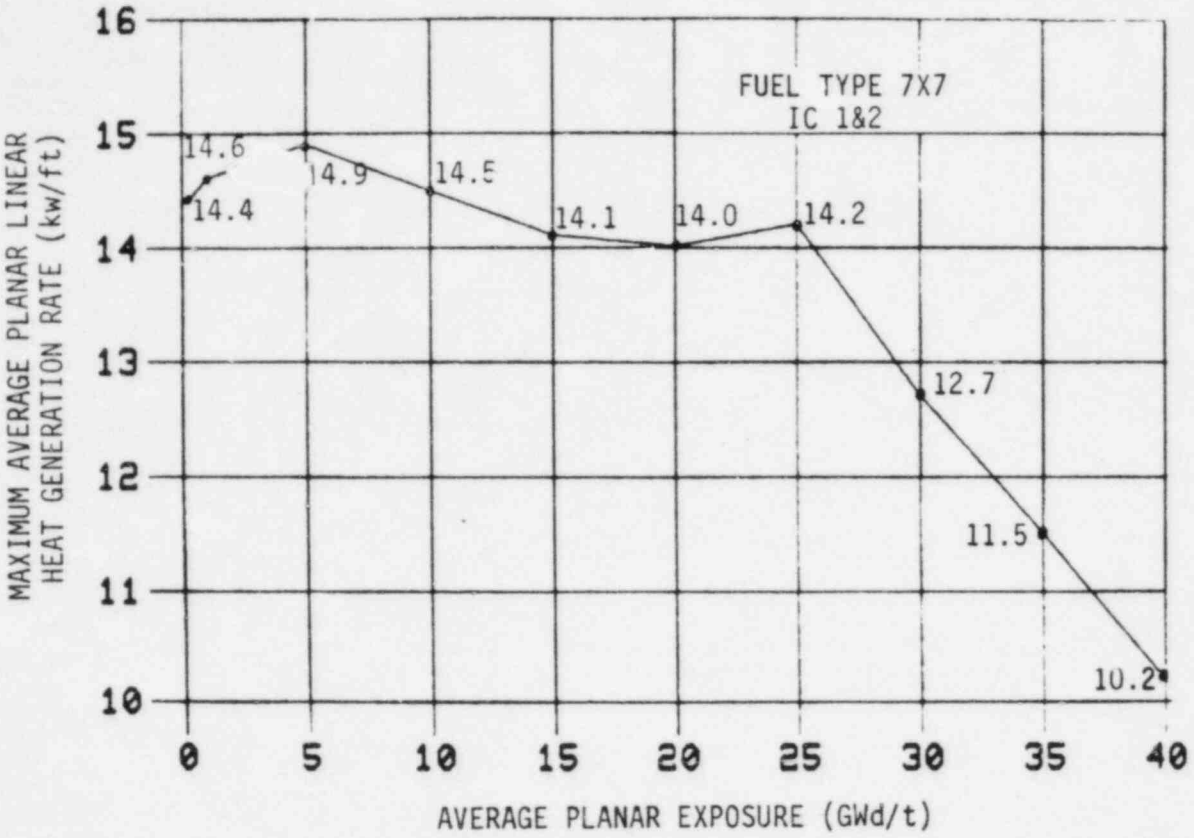
PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS

The proposed change to Technical Specifications (Appendix A to Operating License DPR-57) would be incorporated as follows:

Remove Page	Insert Page
3.11-1	3.11-1
3.11-3	3.11-3
Figure 3.11-1 (Sheet 1)	Figure 3.11-1 (Sheet 1)
Figure 3.11-1 (Sheet 2)	Figure 3.11-1 (Sheet 2)
Figure 3.11-1 (Sheet 3)	Figure 3.11-1 (Sheet 3)
	Figure 3.11-1 (Sheet 4)
	Figure 3.11-1 (Sheet 5)
Figure 3.11-4	Figure 3.11-4
Figure 3.11-5	Figure 3.11-5



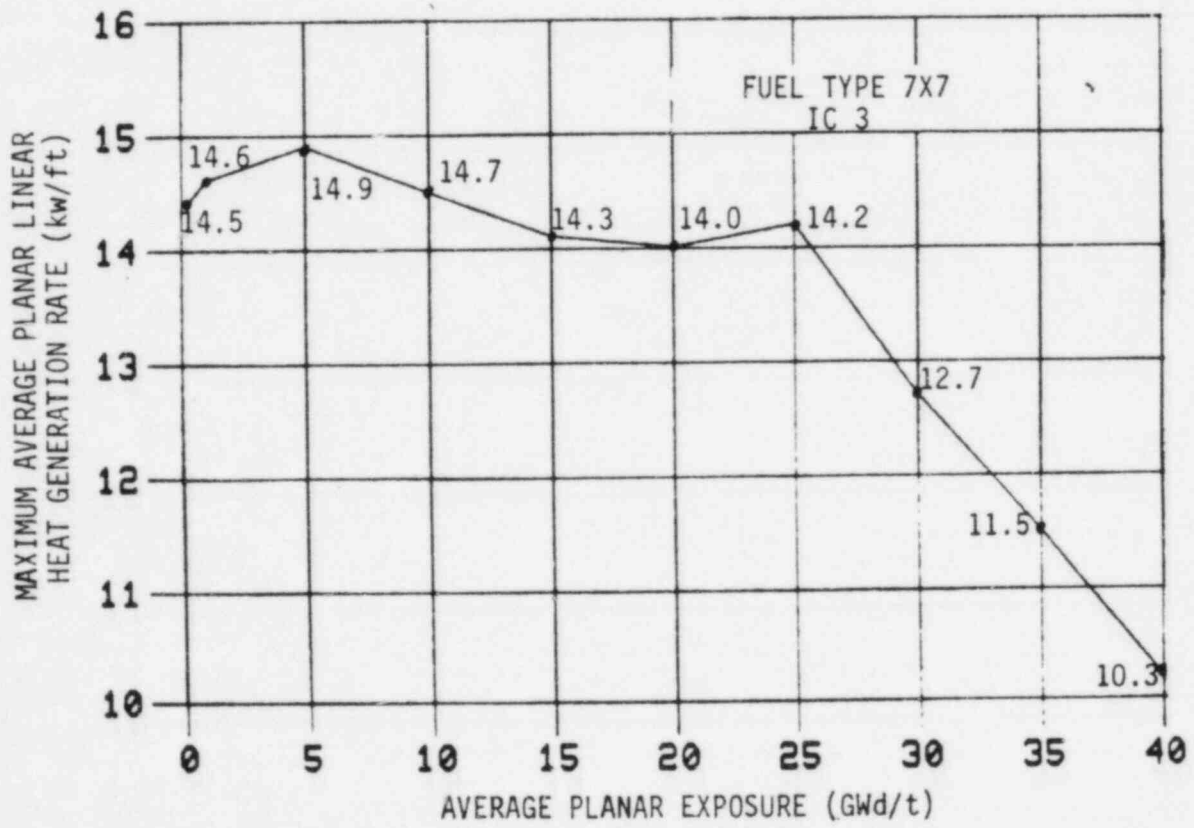
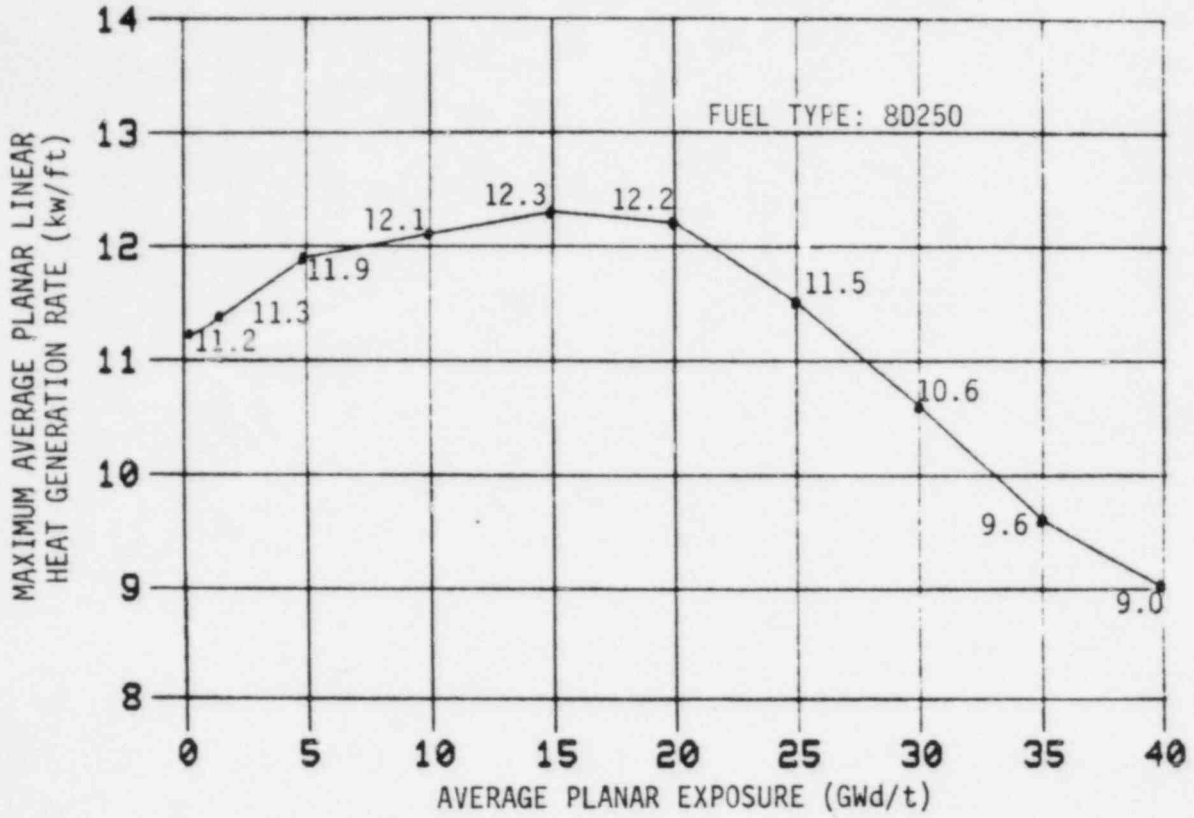


FIGURE 3.11-1 (SHEET 1)



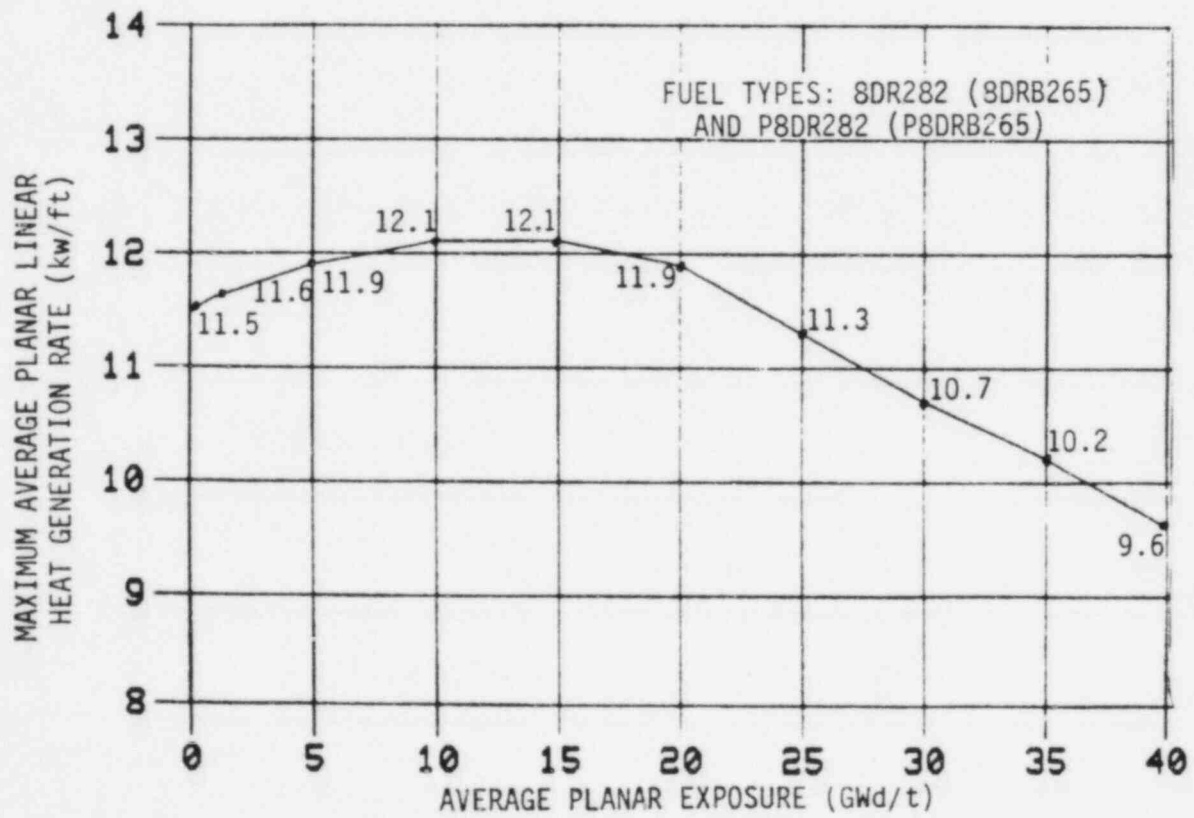
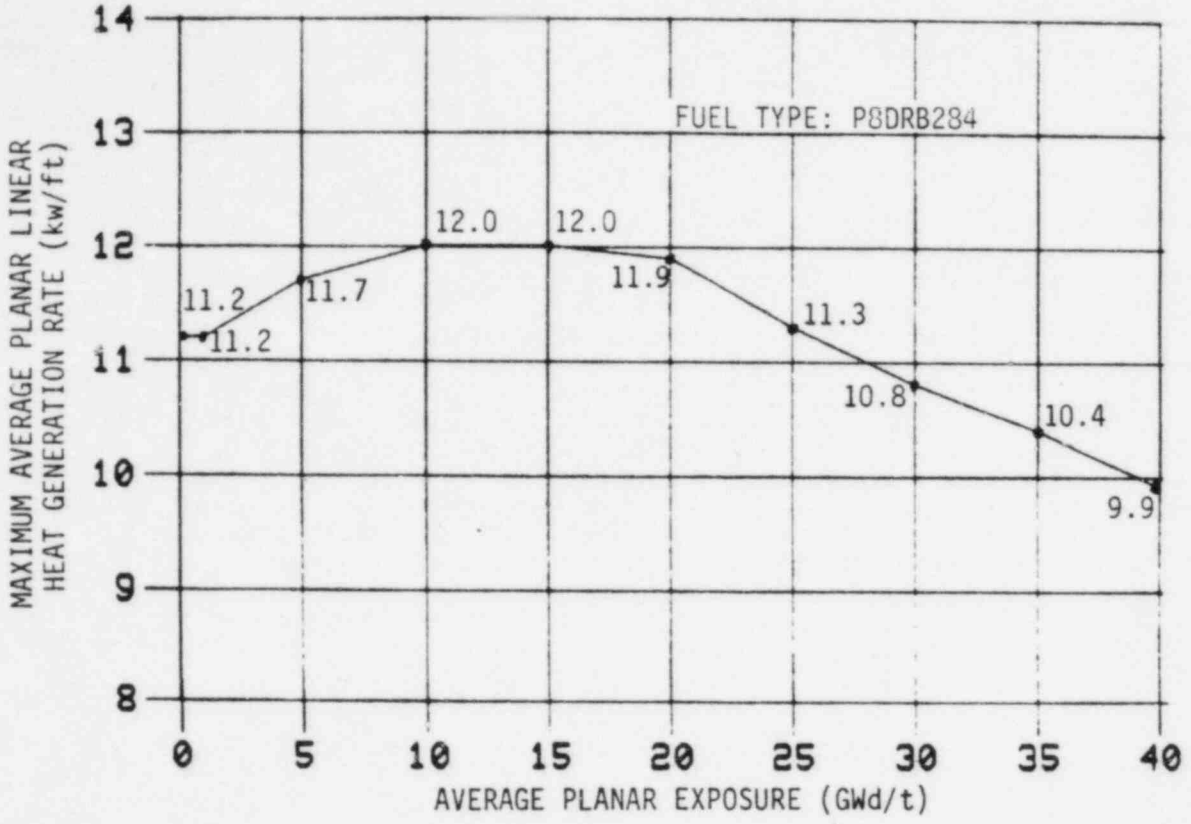


FIGURE 3.11-1 (SHEET 2)



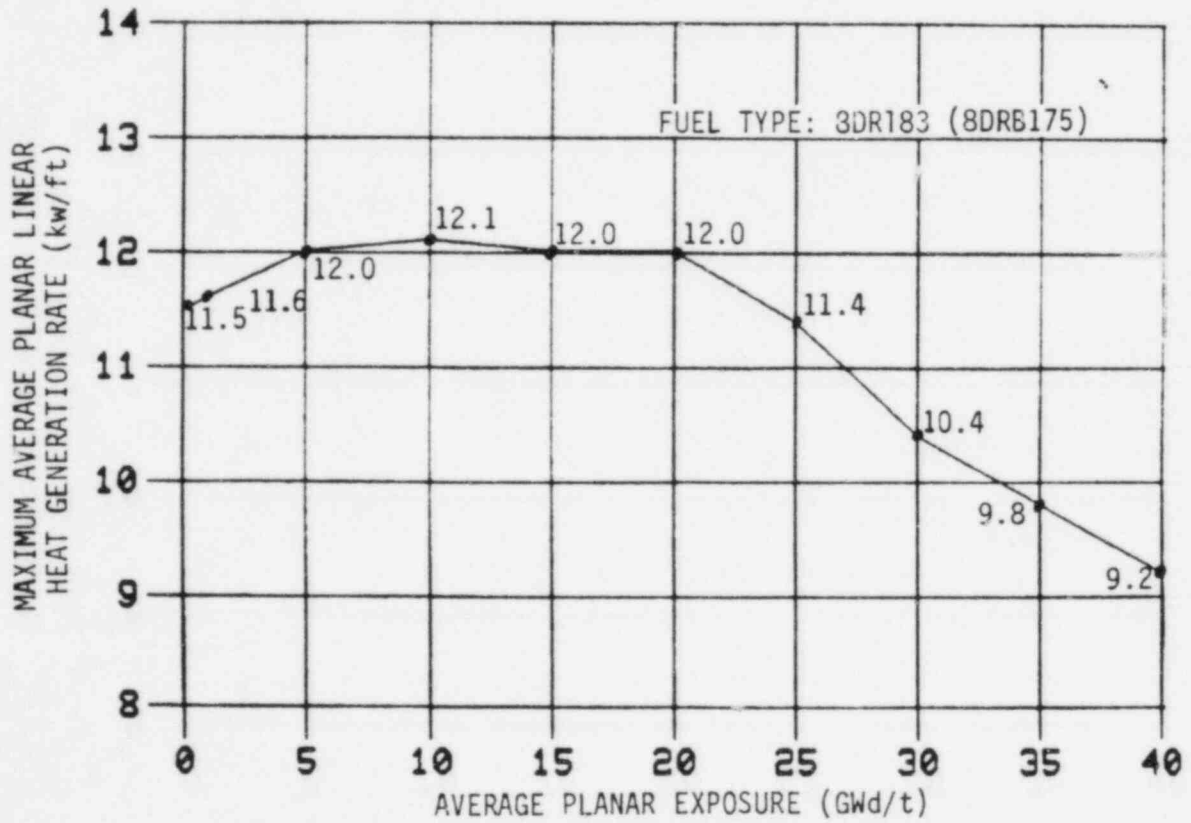
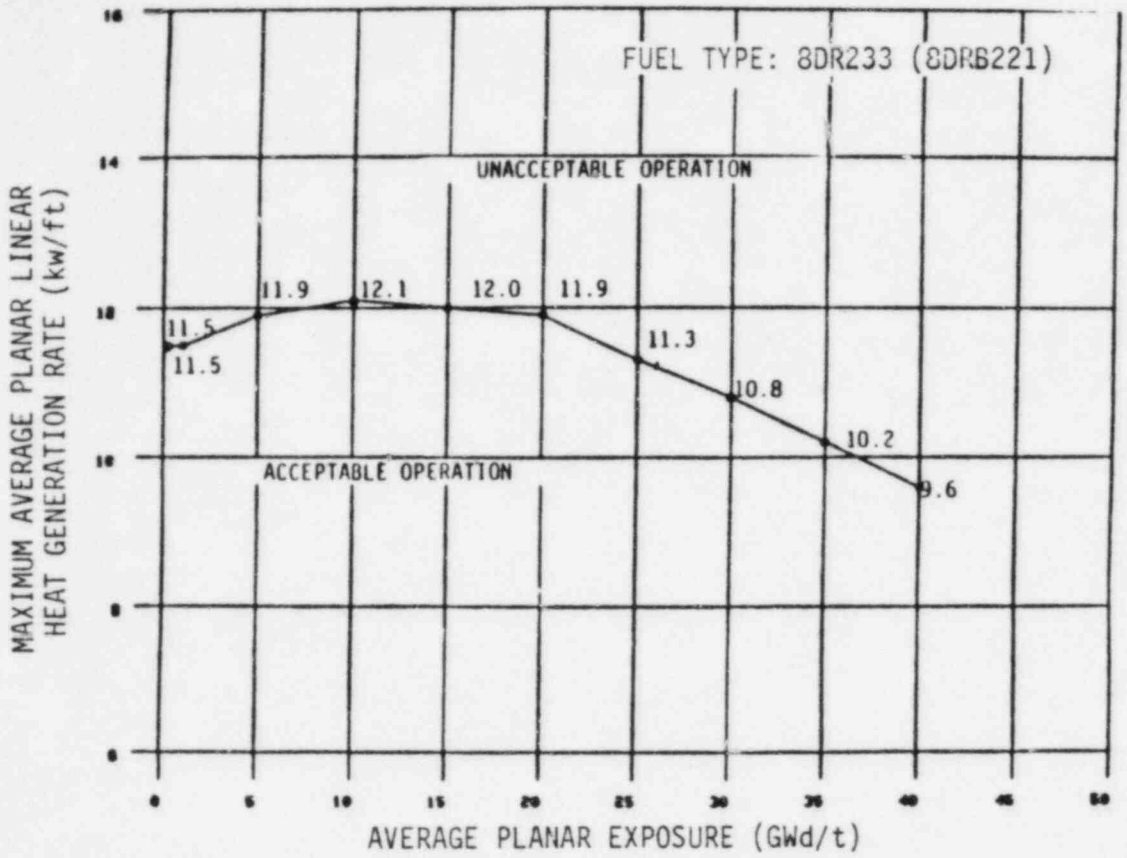


FIGURE 3.11-1 (SHEET 3)



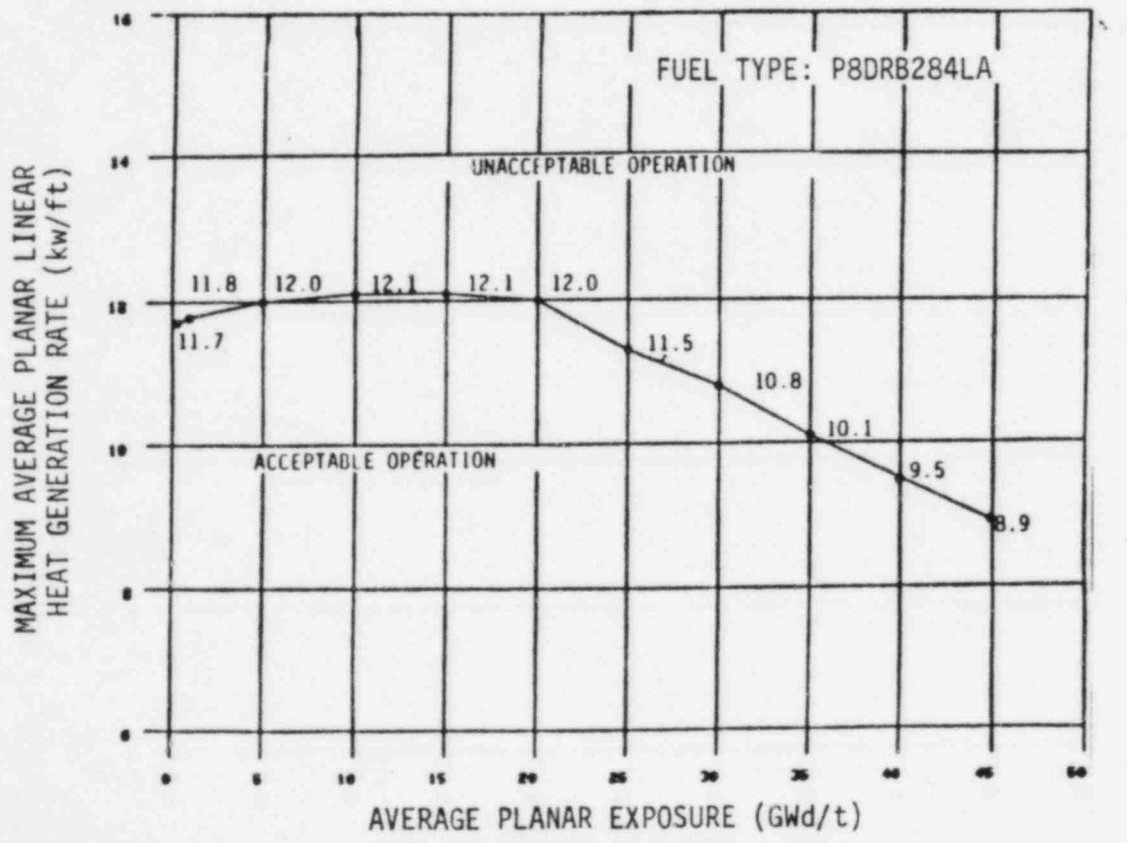


FIGURE 3.11-1 (SHEET 4)

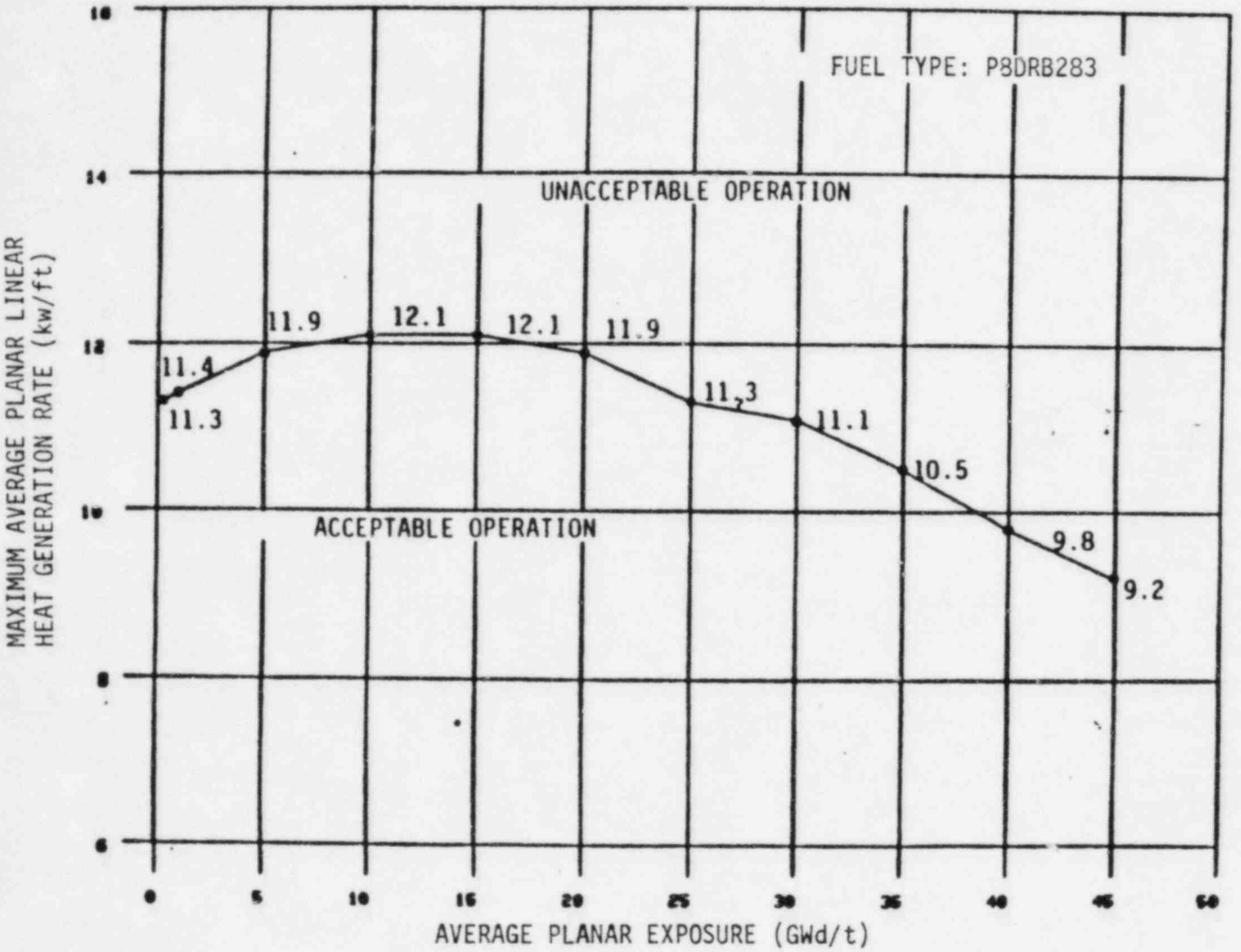
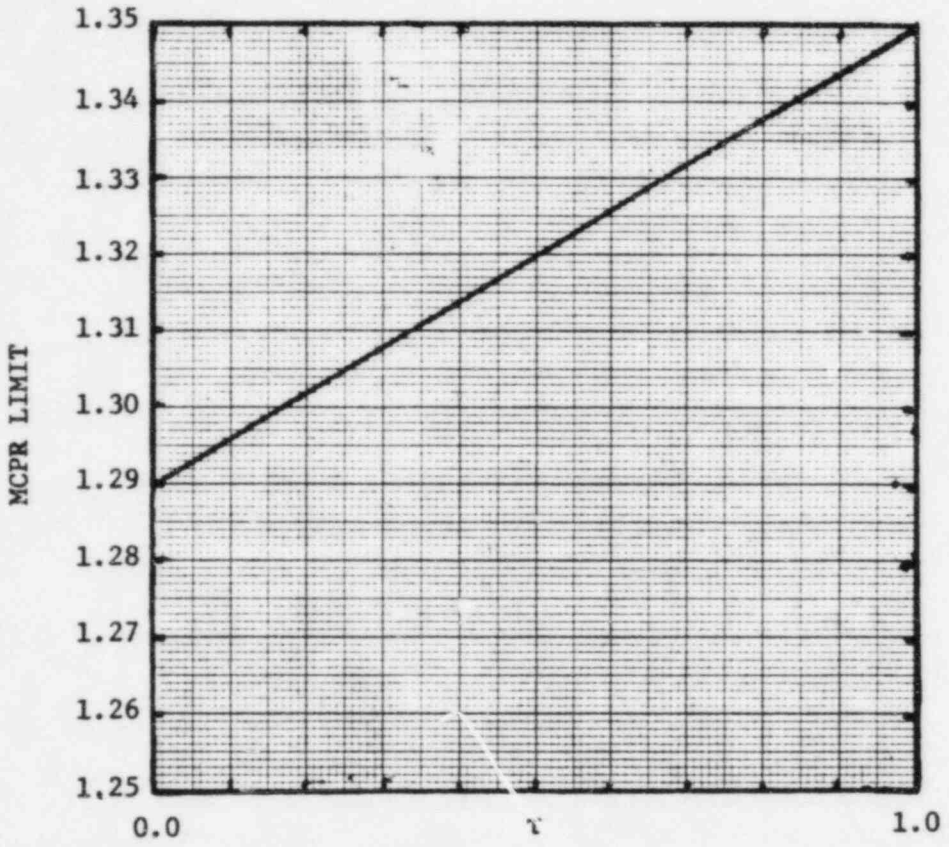
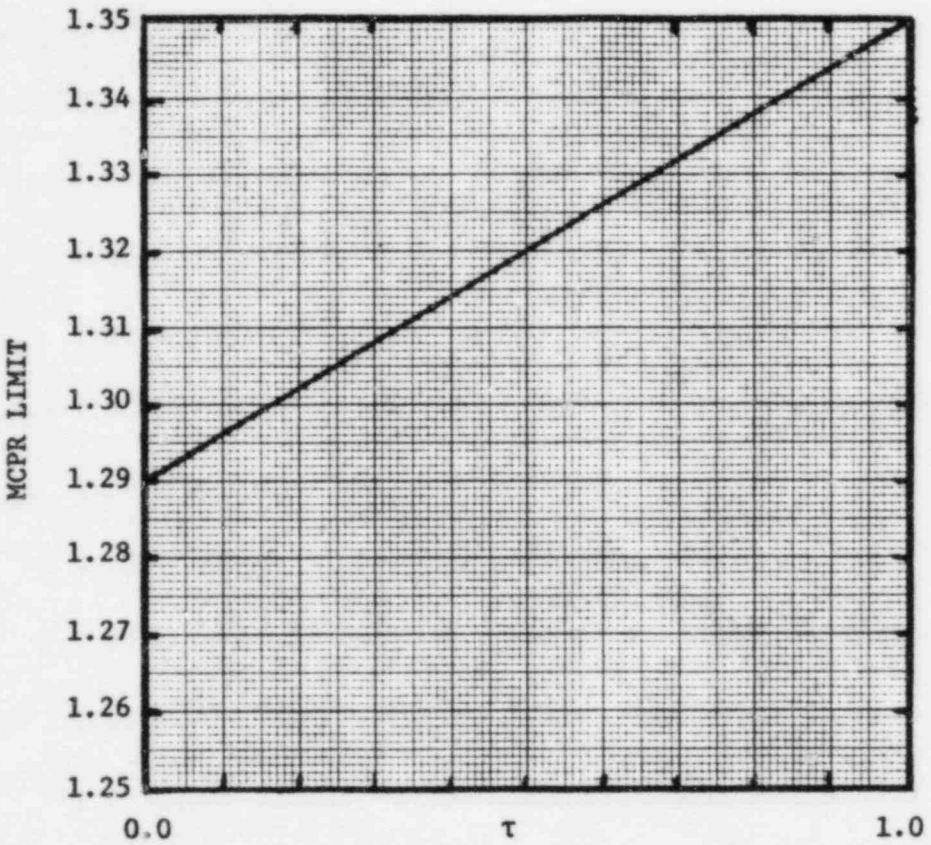


FIGURE 3.11-1 (SHEET 5)



MCPR LIMIT FOR 8X8R FUEL
FIGURE 3.11.4



MCPR LIMIT FOR P8X8R FUEL
FIGURE 3.11.5

ATTACHMENT 4

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Pursuant to the procedures and examples outlined in 10 CFR 50.92, Georgia Power Company has determined that this proposed amendment involves no significant hazards considerations since the requested changes add Standard General Electric (GE) fuel types and revise certain operating limits based on analyses using GE standard methodology. Consequently, existing margins are maintained. Further, no new or different type of accident not previously evaluated is created nor do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed amendment can be broken into four issues for purposes of complying with 10 CFR 50.91 and for comparing these changes with examples of Amendments that are considered not likely to involve significant hazards considerations published in Federal Register, April 6, 1983, page 14870. One change results from a nuclear reactor core reloading (example ii), namely, adding new MAPLHGR curves (Figures 3.11-1 Sheets 4 and 5) for fuel assemblies previously used in Plant Hatch Unit 2. GE has evaluated their use in Plant Hatch Unit 1 and has determined that the proposed MAPLHGR limits are bounding for use in Unit 1. The second change (pages 3.11-1 and 3.11-3) is purely an administrative change (example i) resulting from the need to accurately reference the new MAPLHGR curves. A third change extends the MAPLHGR limits beyond 30 Gwd/t based on analyses performed by General Electric following approved methodology and reported in Reference 1 and Attachment 1 of this letter. This change most nearly fits example iv. GPC understands that this relief has been established by prior review on other docket's amendment applications. The final change constitutes an additional limitation not presently included in the Technical Specification (example ii), namely, raising the MCPR operating limit to conservatively bound any core design resulting from this upcoming core reconstitution.

ATTACHMENT 5

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OPERATING LICENSE DPR-57
EDWIN I. HATCH NUCLEAR PLANT UNIT 1
PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS

References:

1) Letter, W. A. Widner(GPC) to Director, Nuclear Reactor Regulation (NRC) dated October 27, 1981

2) Letter, J. F. Stolz (NRC) to J. T. Beckham (GPC), dated February 3, 1982

3) Letter, R. E. Engel (GE) to D. G. Eisenhut (NRC), "Extension of Emergency Core Cooling System Performance Limits," dated May 6, 1981

4) Letter, R. E. Engel (GE) to T. A. Ippolito (NRC), "Additional Information Regarding Extension of Emergency Core Cooling System Performance Limits," dated May 28, 1981