December 6, 1983 DCR 016

Docket No. 50-321

DISTRIBUTION
Docket File
NRC PDR
L PDR
ORB#4 Rdg
DEisenhut
OELD
CMiles
LHarmon
ACRS-10
TBarnhart-4
EJordan
JTaylor
WJones
DBrinkman
RDiggs
Gray File-4
GRivenbark
RIngram

Mr. J. T. Beckham, Jr.
Vice President - Nuclear Generation
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Dear Mr. Beckham:

The Commission has issued the enclosed Amendment No. 96 to Facility Operating License No. DPR-57 for the Edwin I. Hatch Nuclear Plant, Unit 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated September 29, 1983, as supplemented October 24, 1983, and November 15, 1983.

This amendment modifies the TSs to 1) reflect changes to the core design associated with the replacement of leaking fuel assemblies and 2) extend the allowable fuel burnup limit from 30 gigawatt days per ton (Gwd/t) to 40 Gwd/t.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Monthly Notice.

Sincerely,

"ORIGINAL SIGNED BY:"
George Rivenbark, Project Manager
Operating Reactors Branch #4
Division of Licensing

Enclosures:
1. Amendment No. 96 to DPR-57
2. Safety Evaluation

cc: w/enclosures:
See next page

*See previous white for concurrences.

ORB#4:DL	ORB#4:DL	C-ORB#4:DL	AD:OR:DL	OELD
RIngram *	GRivenbark;cf*	JStolz*	GLainas	
12/5/83	12/2/83	12/2/83	12/5/83	12/ /83

8312200076 831206
PDR ADOCK 05000321
P PDR

DISTRIBUTION:
Docket File
NRC PDR
Local PDR
NSIC
DEisenhut
OELD
CMiles
LHarmon
ACRS-10
TBarnhart-4
EJordan
JTaylor
WJones
DBrinkman
RDiggs
PM
LA
HDenton
Gray File+4
HDenton
EBlackwood
HOrnstein

ORB#4:DL	ORB#4:DL	C-ORB#4:DL	AD:OR:DL	OELD
RIngram	GRivenbark;ps	JStolz	GLainas	
12/ /83	12/ 2/83	12/ 2/83	12/ /83	12/ /83

cc w/enclosure(s):

G. F. Trowbridge, Esq.
Shaw, Pittman, Potts and Trowbridge
1800 M Street, N.W.
Washington, D. C. 20036

Ruble A. Thomas
Vice President
P. O. Box 2625
Southern Company Services, Inc.
Birmingham, Alabama 35202

Ozen Batum
Southern Company Services, Inc.
Post Office Box 2625
Birmingham, Alabama 35202

Chairman
Appling County Commissioners
County Courthouse
Baxley, Georgia 31513

Mr. L. T. Gucwa
Georgia Power Company
Engineering Department
P. O. Box 4545
Atlanta, Georgia 30302

Mr. H. C. Nix, Jr. General Manager
Edwin I. Hatch Nuclear Plant
Georgia Power Company
P. O. Box 442
Baxley, Georgia 31513

Regional Radiation Representative
EPA Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308

Resident Inspector
U. S. Nuclear Regulatory Commission
Route 1, P. O. Box 279
Baxley, Georgia 31513

Mr. James P. O'Reilly, Regional
Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Charles H. Badger
Office of Planning and Budget
Room 610
270 Washington Street, S.W.
Atlanta, Georgia 30334

J. Leonard Ledbetter, Commissioner
Department of Natural Resources
270 Washington Street, N.W.
Atlanta, Georgia 30334

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-321

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 96
License No. DPR-57

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Georgia Power Company, et al., (the licensee) dated September 29, 1983, as supplemented October 24, 1983, and November 15, 1983, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-57 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 96 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Attachment:
Changes to the Technical Specifications

Date of Issuance: December 6, 1983

ATTACHMENT TO LICENSE AMENDMENT NO. 96

FACILITY OPERATING LICENSE NO. DPR-57

DOCKET NO. 50-321

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain a vertical line indicating the area of change.

Remove	Insert
3.11-1	3.11-1
3.11-3	3.11-3
Fig. 3.11-1 (Sheet 1)	Fig. 3.11-1 (Sheet 1)
Fig. 3.11-1 (Sheet 2)	Fig. 3.11-1 (Sheet 2)
Fig. 3.11-1 (Sheet 3)	Fig. 3.11-1 (Sheet 3)
	Fig. 3.11-1 (Sheet 4)
	Fig. 3.11-1 (Sheet 5)
Fig. 3.11-4	Fig. 3.11-4
Fig. 3.11-5	Fig. 3.11-5

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 ≥ 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 ≥ 25% rated thermal power.

3.11 FUEL RODS

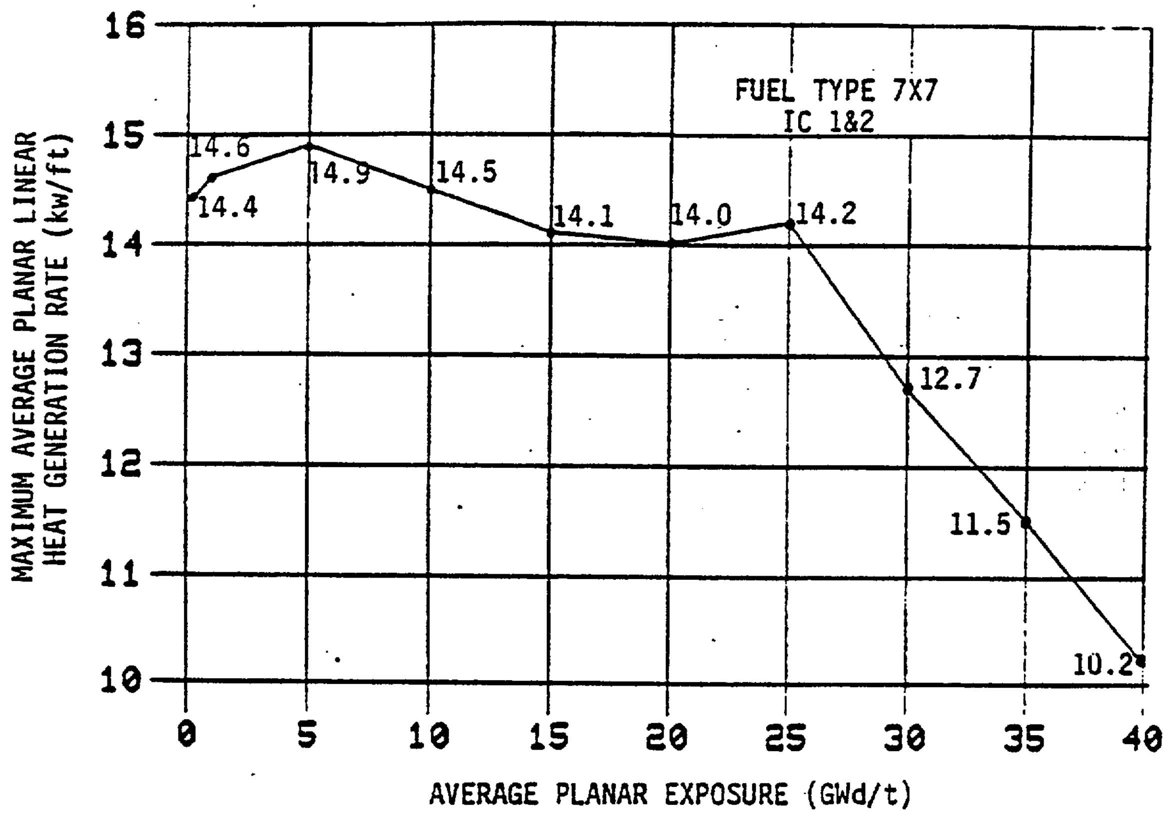
A Average Planar Linear Heat Generation Rate (APLHGR)

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 calculational 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 assume 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).



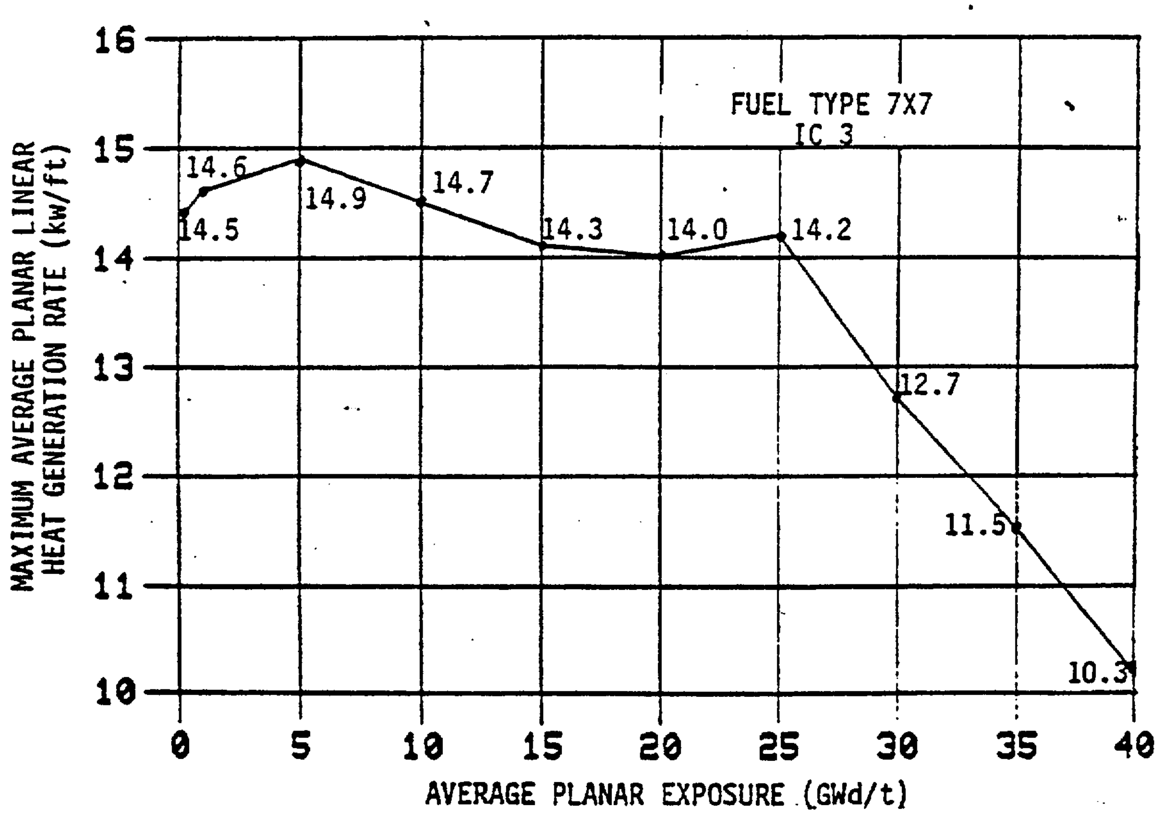
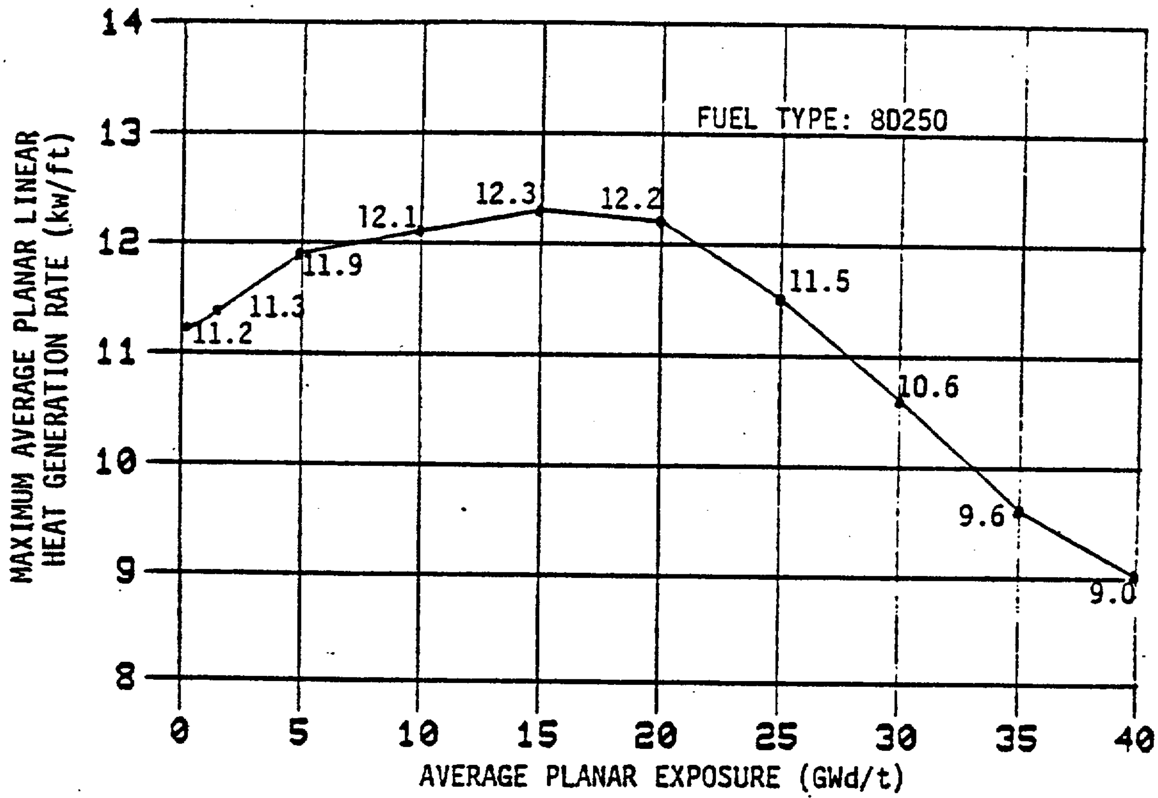
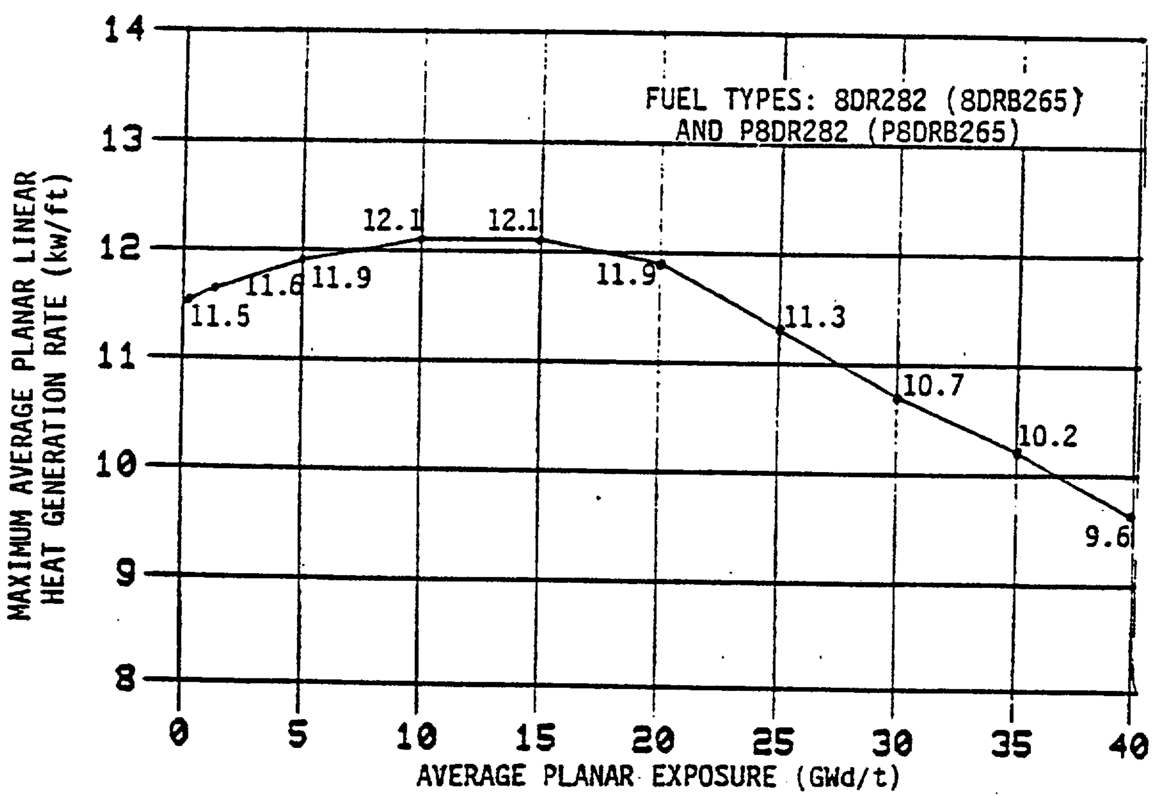


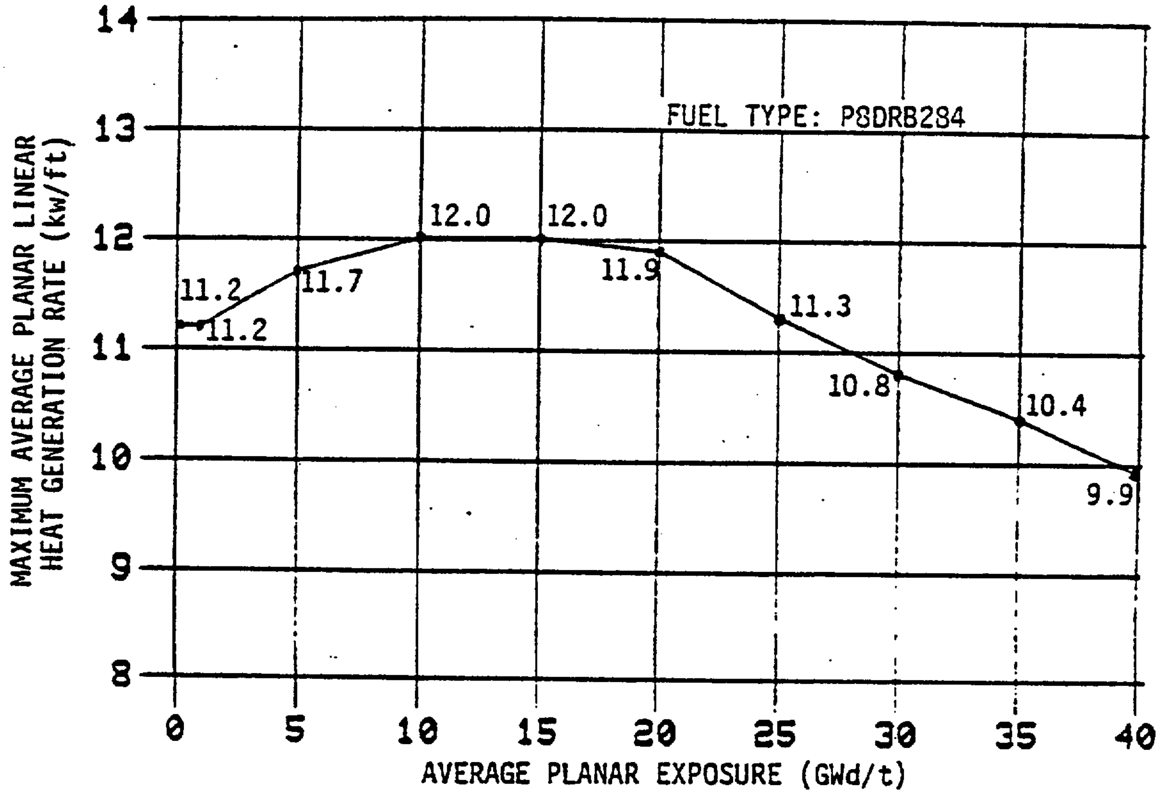
FIGURE 3.11-1 (SHEET 1)





Amendment No. ~~33~~, ~~42~~, ~~32~~, 96

FIGURE 3.11-1 (SHEET 2)



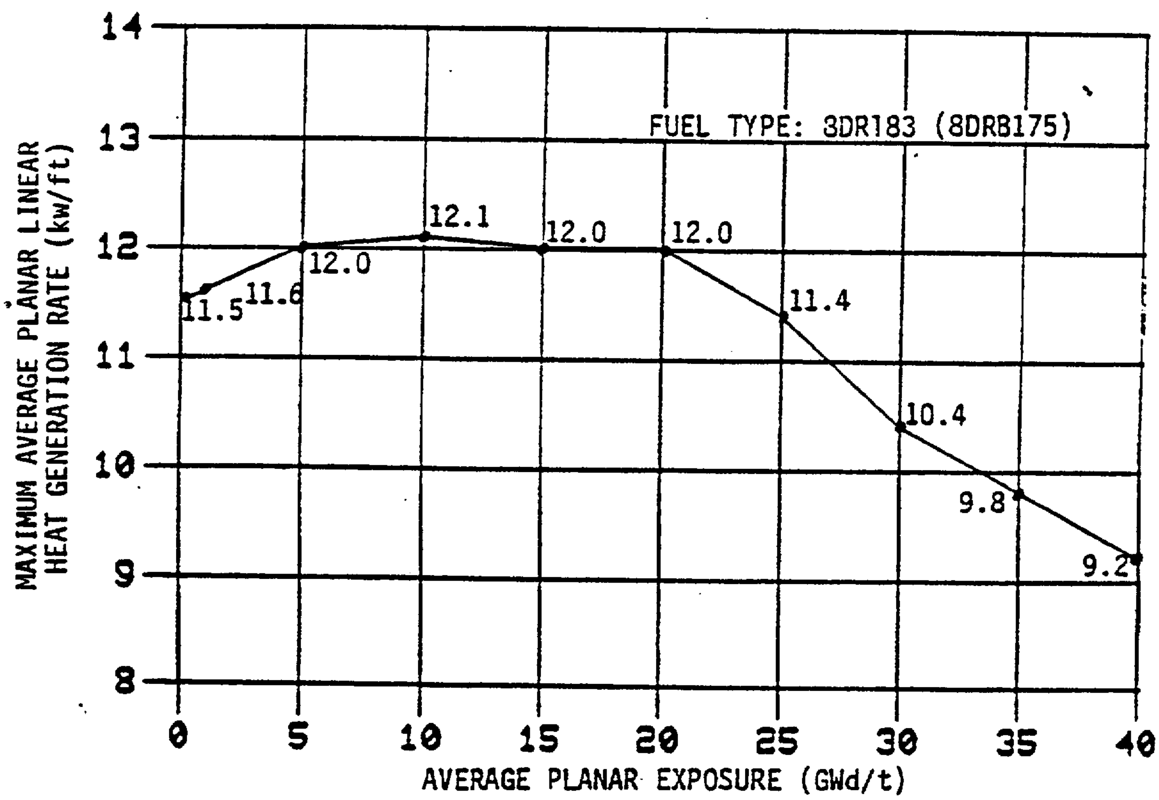
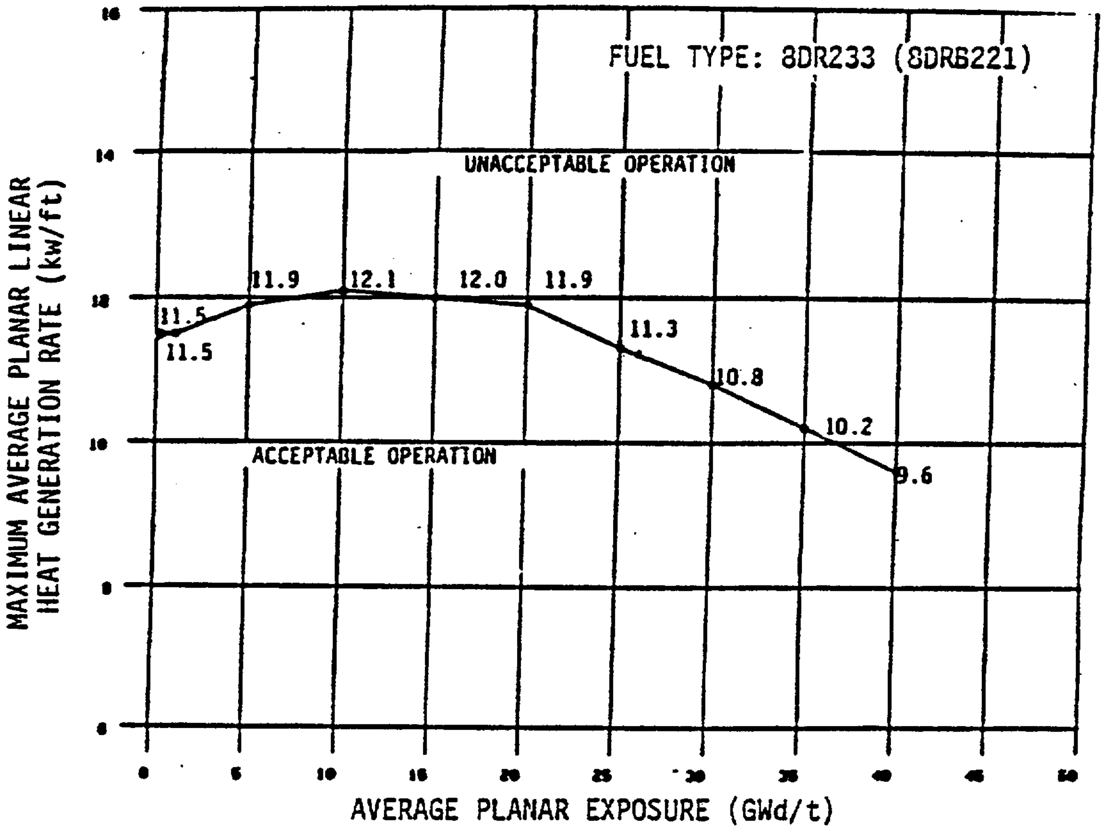
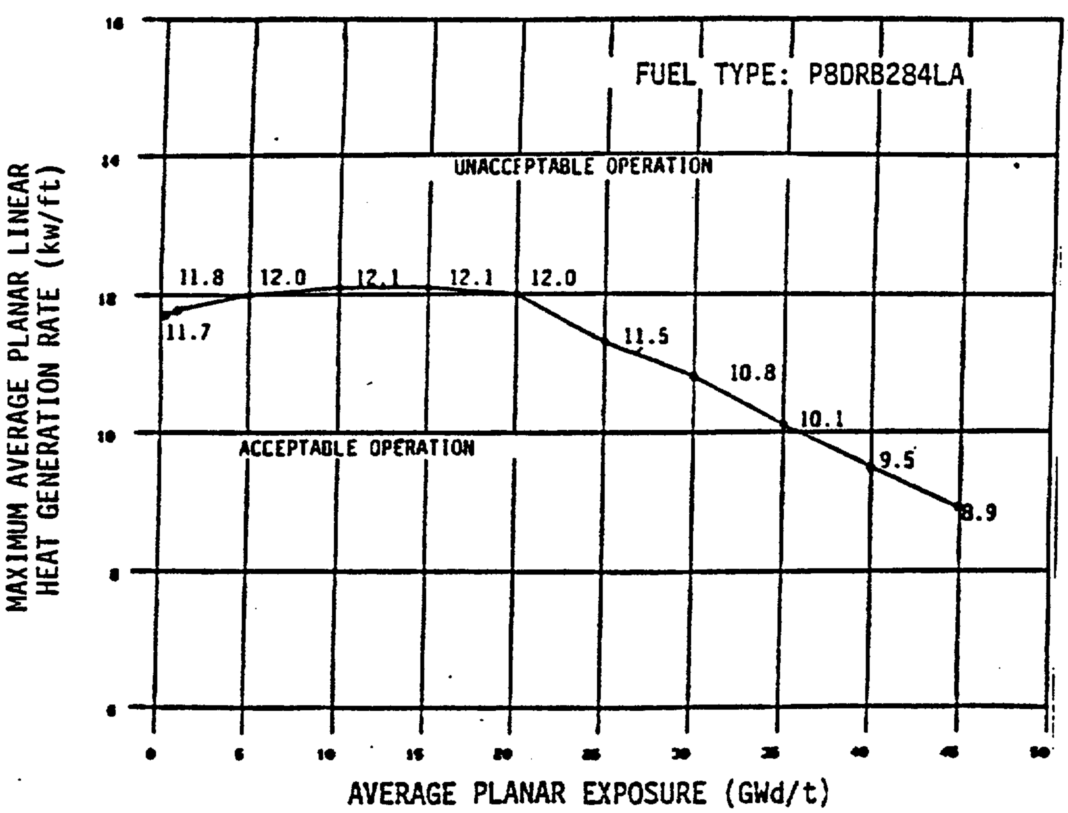


FIGURE 3.11-1 (SHEET 3)





Amendment No. 96

FIGURE 3.11-1 (SHEET 4)

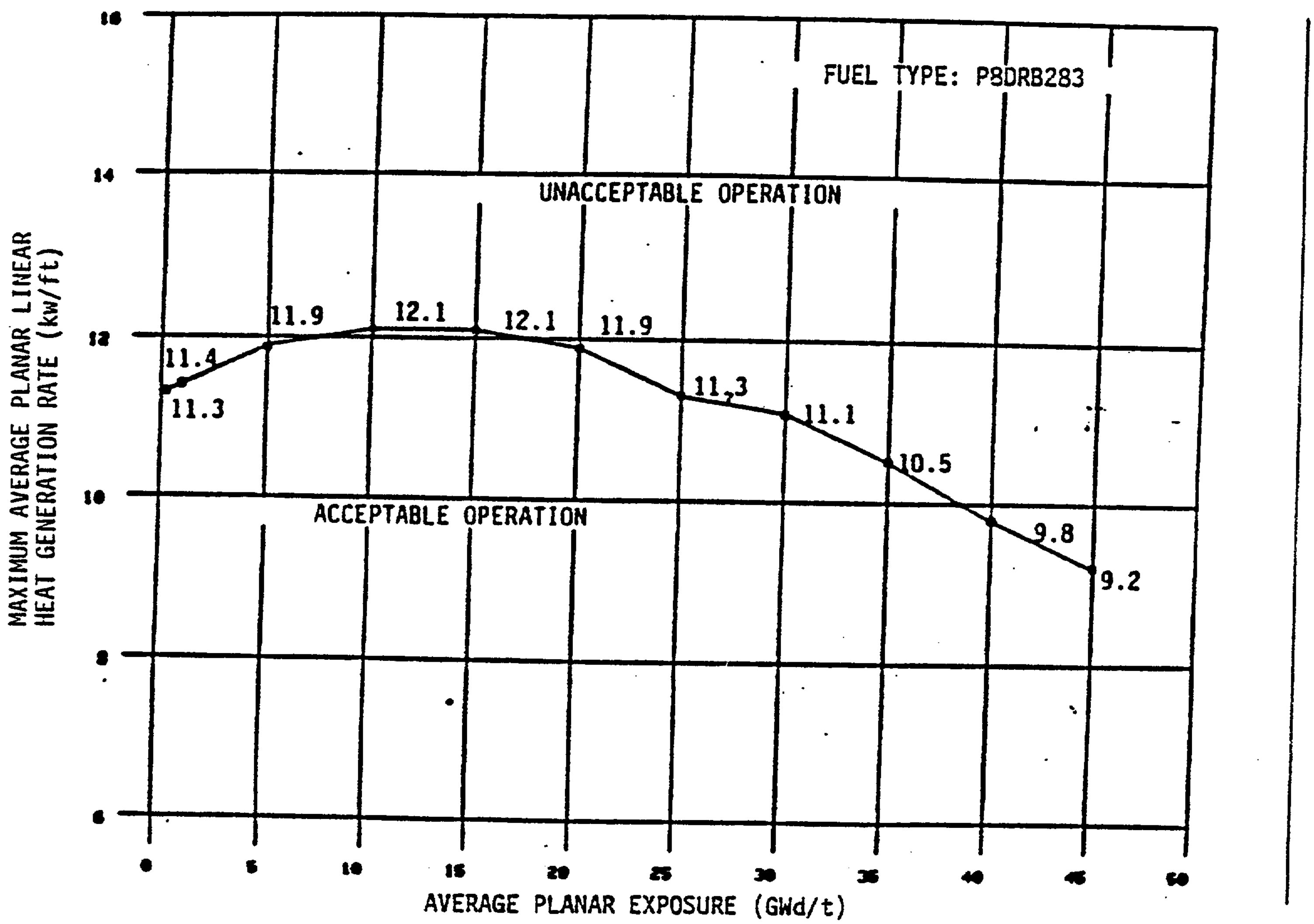
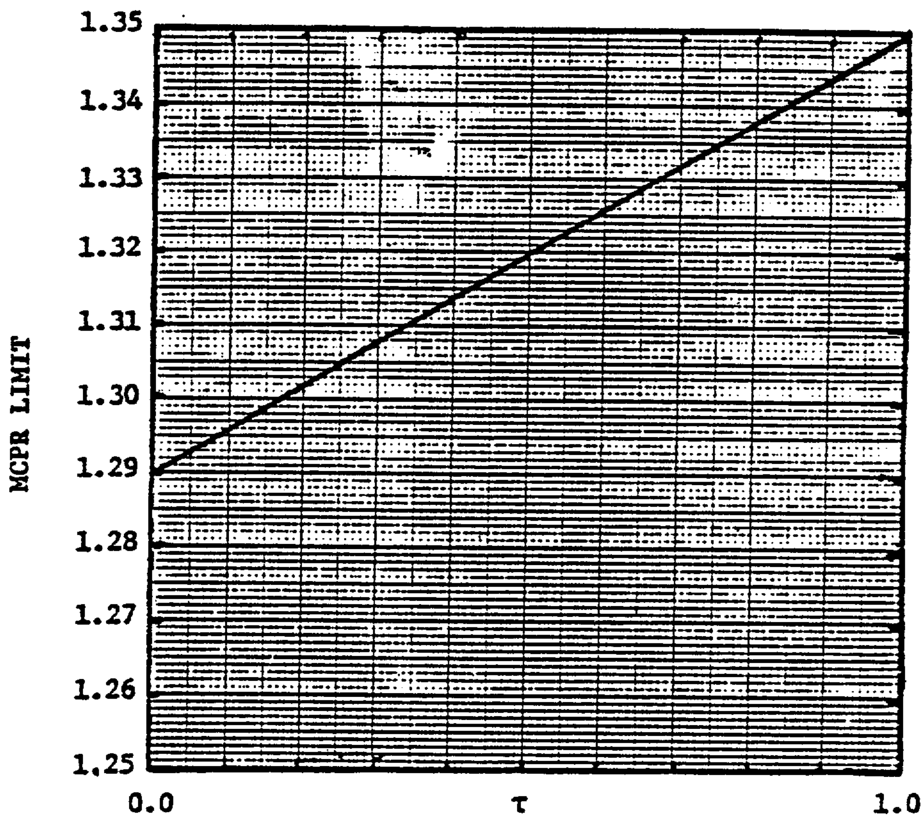
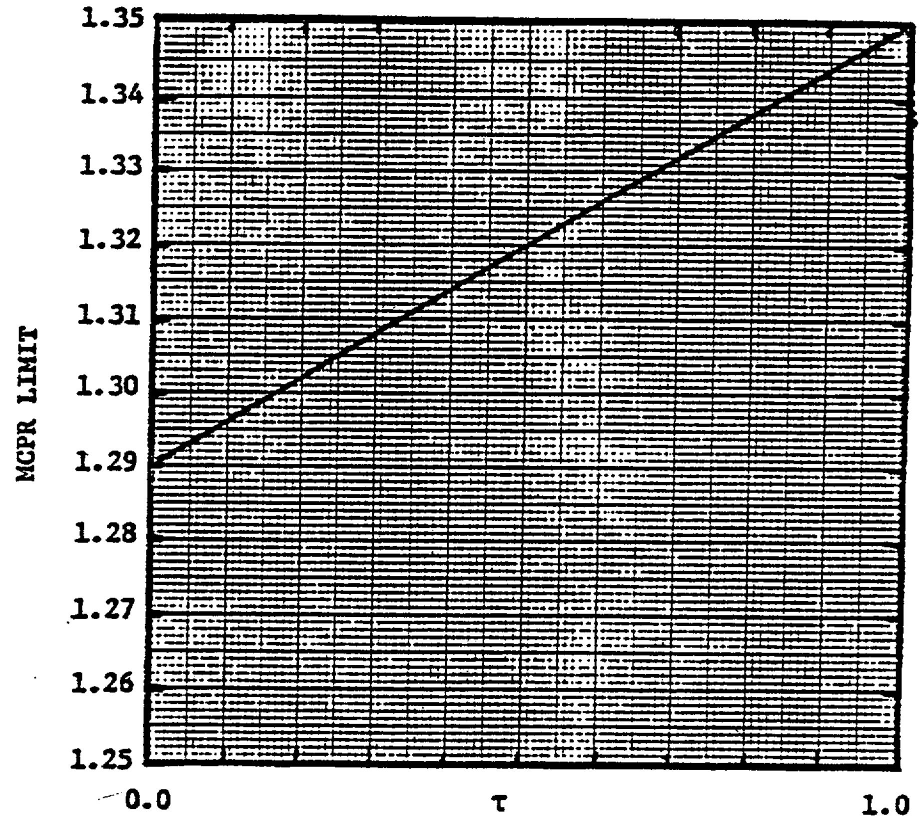


FIGURE 3.11-1 (SHEET 5)



MCPR LIMIT FOR 8X8R FUEL
FIGURE 3.11.4



MCPR LIMIT FOR P8X8R FUEL
FIGURE 3.11.5

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 96 TO FACILITY OPERATING LICENSE NO. DPR-57

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 1

DOCKET NO. 50-321

1.0 INTRODUCTION

By letter dated September 29, 1983 (Ref. 1) Georgia Power Company (the licensee) submitted a request for an amendment of the Technical Specifications contained in Appendix A to Facility Operating License No. DPR-57 for the Edwin I. Hatch Nuclear Plant, Unit No. 1. These Technical Specification changes are to provide (1) maximum average planar linear heat generation rate (MAPLHGR) limits for nodal exposure greater than 30 Gwd/t; (2) MAPLHGR limits for additional fuel types P8DRB284LA and P8DRB283; and (3) maximum critical power ratio (MCPR) operating limits for the 8X8R and P8X8R fuel. The purpose of these revisions is to allow increased flexibility in the core design for the core reconstitution to replace damaged fuel.

2.0 Evaluation

Our evaluation of the proposed Technical Specification amendment is as follows:

2.1 MAPLHGR LIMITS

There are three issues involving the MAPLHGR changes:

The first adds new MAPLHGR curves (Figures 3.11-1, Sheets 4 and 5) for fuel assemblies previously used in Hatch Unit 2. Their use in Unit 1 was evaluated by the General Electric Company (GE) using standard approved analysis methods and found to be bounding. This change is therefore acceptable.

The second involves changes to pages 3.11-1 and 3.11-3 to adequately reference the new MAPLHGR curves. Since this change is administrative, it is acceptable.

The third extends the MAPLHGR limits of Figures 3.11-1, Sheets 1, 2 and 3, beyond 30 Gwd/t based upon analyses performed by GE following approved methodology and also previously approved by the NRC staff (Ref. 2). This change is therefore acceptable.

8312200089 831206
PDR ADOCK 05000321
P PDR

2.2 FUEL RECONSTITUTION

In response to a question from the NRC staff, the licensee provided (Ref. 3) information on the core reconstitution performed to allow Hatch Unit 1 to complete its current operating cycle. The licensee's response indicates that it believes fuel failures from crud induced localized corrosion (CILC) caused an increase in off-gas activity leading to the current outage. The licensee states that it will inform us of its findings if other failure mechanisms are found in ongoing tests.

The licensee further indicates it is in the process of sipping all fuel in the core. The licensee intends not to reload any identified leaking fuel rod in the core, and to the extent feasible and consistent with the revised core design, will not reload fuel judged to be susceptible to CILC. We believe these measures will minimize the possibility of additional fuel failures during the remainder of the cycle, and thus will pose no threat to the health and safety of the public.

2.3 MCPR LIMITS CHANGES

The current Hatch Unit 1 Technical Specifications require the operating limit MCPR of 1.29 for the 8X8R and P8X8R fuel as specified in Figures 3.11.4 and 3.11.5. The licensee proposes to raise the operating limit minimum critical power ratio (OLMCPR) for the 8X8R and P8X8R fuel such that the OLMCPR increases linearly from 1.29 to 1.35 with the increase of the normalized rod scram time, τ, from 0 to 1.0. This proposed increase in OLMCPR is in the conservative direction, and the new MCPR limits are chosen to provide conservative values for general core design. Even though no analysis has been provided to support the new OLMCPR values, a comparison with the Hatch Unit 2 Technical Specifications has shown that the proposed OLMCPR values for Hatch Unit 1 are higher than those for the Hatch Unit 2 8X8R and P8X8R fuel. In addition, the licensee has indicated that it will verify that these MCPR limits bound the results of all transient analyses during the licensing review of each new core design, and that it will submit a Technical Specification change if the results require it. Therefore, we have concluded that the proposed MCPR change is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of the amendment.

4.0 CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

5.0 REFERENCES

1. Letter from G. F. Head (Georgia Power Company) to J. F. Stolz (NRC), "NRC Docket 50-321, Operating License DPR-57, Edwin I. Hatch Nuclear Plant Unit 1, Request for Changes to plant Hatch Unit 1 Technical Specifications," NED-83-483, September 29, 1983.

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

3. Letter from L. T. Gucwa (GPU) to J. F. Stolz (NRC), "Hatch Unit 1 Core Reconstitution Outage," November 15, 1983.

Principal Reviewers: M. Dunenfeld and Y. Hsii.

Dated: December 6, 1983