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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 157 TO

FACILITY OPERATING LICENSE DPR-57

GEORGIA POWER COMPANY
OGLETHORPE POWER CORPORATION
MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA
CITY OF DALTON, GEORGIA

EDWIN I. HATCH NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-321

1.0 INTRODUCTION

By letter dated June 20, 1988, Georgia Power Company (the licensee) requested changes to the Technical Specifications (TS) for the Edwin I. Hatch Nuclear Plant, Unit 1. The changes would allow the use in Hatch Unit 1 of General Electric (GE) GE8x8EB fuel and Lead Fuel Assemblies (LFAs) produced by Advanced Nuclear Fuels (ANF). Specifically, the proposed changes would:

a. Add new Average Planar Linear Heat Generation Rate (APLHGR) limits and a Linear Heat Generation Rate (LHGR) limit for the new GE8x8EB fuel type BD296A.

b. Add new APLHGR limits for the ANF 9x9 LFAs.

c. Revise the Bases section of the TS to include information on the new APLHGR and LHGR limits.

d. Revise the Minimum Critical Power Ratio (MCPR) and flow-dependent APLHGR limit multiplier ($MAPFAC_F$) figures to show their applicability to the new fuel types.

e. Remove from the TS information regarding fuel types no longer used in the Unit 1 core, and make several editorial corrections.

2.0 EVALUATION

a. Add new APLHGR and LHGR limits for GE8x8EB type BD296A fuel.

The GE8x8EB fuel type BD296A is a new fuel type not previously used at the Hatch plant. The proposed APLHGR and LHGR limits for this fuel were evaluated by GE using NRC-approved methods documented in the "General Electric Standard Application for Reactor Fuel," NEDE-24011-P-A-8 (GESTAR-II). Calculations using the "Edwin I. Hatch Nuclear Plant Units 1 and 2 SAFER/GESTR-LOCA Loss-

of-Coolant Accident (LOCA) Analysis," NEDC-31376P, demonstrated that the power level of GE8x8EB fuel types will not be limited by LOCA considerations as long as approved LHGR limits are met. A description of the BD296A fuel is presented in a new Appendix E to NEDC-31376P, provided as an enclosure to the licensee's June 20, 1988 submittal. This description is acceptable. The BD296A fuel includes more than one lattice type, and each lattice type has a different exposure-dependent APLHGR limit. The TS APLHGR limits for the BD296A fuel will be those for the most limiting enriched lattice in that assembly.

The proposed LHGR limit for the GE8x8EB fuel is 14.4 kw/ft (rather than the 13.4 kw/ft for other GE fuel). This LHGR has been reviewed and accepted for this fuel in the GE extended burnup fuel review (see letter and attachment from C. Thomas, NRC, to J. Charnley, G. E., dated May 28, 1985, "Acceptance for Referencing of Licensing Topical Report NEDE-24011-P-A-6, Amendment 10", particularly References 18 and 19 therein. These references are responses to questions and presentations relating to the GE8x8EB fuel which provide information on the 14.4 kw/ft LHGR). This LHGR is acceptable for the GE8x8EB fuel type BD296A to be installed in Hatch Unit 1. The LHGR limit of 14.4 kw/ft for the GE8x8EB fuel, in conjunction with the APLHGR limit, ensures that acceptable fuel mechanical design limits given in GESTAR-II are met.

The calculations for the APLHGR and LHGR limits are consistent with NRC-approved methodology and demonstrate that Unit 1 will remain in conformance with the acceptance criteria of 10 CFR 50.46 and Appendix K. Accordingly, we find these limits are acceptable.

A new TS Figure 3.11-1 (Sheet 5) is added to depict the APLHGR limits for the BD296A fuel. This change is acceptable.

b. Add new APLHGR limits for the ANF 9x9 LFAs.

The ANF 9x9 LFAs have been evaluated by ANF for use in the Hatch reactors. The analysis of these fuel elements is presented in an ANF report, "Hatch 9x9 Lead Fuel Assemblies, Safety Analysis Report," ANF-87-95, Revision 3, 29 March 1988, which was submitted as an enclosure to the licensee's June 20, 1988 request for license amendment. These fuel assemblies are designed to be neutronically similar to the GE B/P8DRB284H fuel such that the existing APLHGR limit (when adjusted to account for the different number of rods) and MCPR thermal limits for B/P8DRB284H fuel are applicable also to the 9x9 LFAs. Analyses of anticipated operational occurrences and postulated accidents presented in the ANF Report, ANF-87-95, show the LFAs will provide equivalent or improved performance as compared with the GE P8DRB284H fuel. The staff has previously evaluated the ANF 9x9 fuel, and approved its use in Hatch Unit 2 by Amendment No. 89 to the Unit 2 TS. On this basis, we find the ANF 9x9 LFAs acceptable for use also in Hatch Unit 1. A new TS Figure 3.11-1 (Sheet 4) is added to depict the APLHGR limits for 9x9 LFAs and is acceptable.

The licensee intends to load the LFAs in core locations that are analyzed to have sufficient margin so that the LFAs are not expected to be the limiting assemblies in the core on either a nodal or bundle power basis. We find this loading strategy to be conservative and acceptable.

c. Revise the Bases section to include information on the new APLHGR and LHGR limits.

Two new paragraphs would be added to TS 3.11.A to describe the planar power limits for the 9x9 LFAs and to describe the lattice-type dependency of the new GE8x8EB fuel. TS 3.11.B would be modified to delete material regarding 7x7 fuel which is no longer used at the plant (see item e following). TS 3.11.C would be modified to delete a reference to TS Figure 3.11.5 which pertained to 7x7 fuel and which would be deleted by this amendment (see item e below).

These changes make the Bases section consistent with the changes in fuel types that would be authorized by this amendment and are, therefore, acceptable.

d. Revise the MCPR and $MAPFAC_F$ figures to show their applicability to the new fuel types.

The legend on TS Figure 3.11-1 (Sheet 8) would be revised to eliminate specific reference to fuel type, since the limits are applicable to all fuel types now in use at the plant as well as for the proposed GE8x8EB fuel and the ANF 9x9 LFAs. Coefficients on the existing figure which refer to the older 7x7, 8x8, and 8x8R fuel types are deleted since these fuel types are no longer used at the plant. The resultant proposed Figure 3.11-1 (Sheet 8) would have no fuel type labels since the coefficients shown on the figure are applicable to all fuel used in the Unit 1 reactor core. This proposed change simplifies the figure and is acceptable.

TS Figure 3.11-4 would be modified to indicate that the MCPR limit applies to all 8x8 fuel types and to all 9x9 fuel types. The MCPR safety limits are valid for the GE8x8EB fuel types according to GESTAR-II. The existing MCPR operating limits are expected to conservatively bound the results of the Unit 1 reload transient analyses. The licensee has committed to verify that the MCPR limits do, in fact, conservatively bound the analysis results for each cycle. On this basis, we find that the modified TS Figure 3.11-4 will present MCPR limits for all fuel in use at the plant, and the change is, therefore, acceptable.

e. Remove obsolete information from the TS and make several editorial changes.

The older 7x7, 8x8, and 8x8R fuel types will no longer be used at the plant. As a result, the licensee proposes to remove information pertaining to these fuel types. References to the 7x7 fuel would be deleted from TS 3.11.B and TS 3.11.C, as discussed in item c above, and from the corresponding Bases. TS Figures 3.11-2 and 3.11-5, which pertain to 7x7 fuel, would also be deleted. As discussed in item d, above, TS Figure 3.11-1 (Sheet 8) also would be modified to remove references and data pertaining to the fuel types no longer used. Pages x and xi would be modified to take account of the deletions and additions to the TS figures as noted herein. All of these changes are editorial in nature and are acceptable.

In addition, several other editorial type changes are proposed to TS pages x and xi to correct errors in figure titles and numbers. These changes make the TS List of Figures consistent with the actual figures in the body of the TS, and are acceptable. Similarly, TS 3/4.C would be modified to correct the designation of figure numbers. These corrections also are acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

4.0 CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register on August 10, 1988 (53 FR 30132), and consulted with the state of Georgia. No public comments were received, and the state of Georgia did not have any comments.

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 the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Dated: September 12, 1988

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AMENDMENT NO. 157TO FACILITY OPERATING LICENSE DPR-57, EDWIN I. HATCH, UNIT 1

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1/1