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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 24 TO FACILITY OPERATING LICENSE NPF-68

AND AMENDMENT NO. 5 TO FACILITY OPERATING LICENSE NPF-81

GEORGIA POWER COMPANY, ET AL.

DOCKET NOS. 50-424 AND 50-425

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

1.0 INTRODUCTION

By letter dated June 12, 1989, and supplemented July 17 and September 25, 1989, Georgia Power Company, et al., (the licensee) requested a change to the Technical Specifications (TS) for Vogtle Electric Generating Plant (VEGP), Units 1 and 2. The proposed change would revise TS 5.3.1, "Fuel Assemblies," to increase the maximum enrichment of reload fuel from 3.5 weight percent U-235 to 4.55 weight percent U-235. Associated with the higher enriched fuel is an increase in allowed batch average burnup from 33,000 MWD/MTU to 36,000 MWD/MTU.

The letter of September 25, 1989 provided additional information regarding fuel burnup. The additional information did not substantially affect the amendments request as noticed or the staff's initial determination; therefore, the request for amendments was not renoticed.

2.0 EVALUATION

The licensee has provided the following information in support of their request:

> The proposed amendment is necessary in order that higher enrichment fuel may be used starting with Cycle 3 for VEGP Unit 1. The reload fuel, to be loaded into the VEGP Unit 1 reactor core at the beginning of Cycle 3, will be of the standard Westinghouse design which is currently licensed for use in VEGP Units 1 and 2. Cycle 3 is a transitional cycle to higher burnup and longer operating cycles. The batch average burnup for fuel to be discharged at the end of Cycle 3 will be about 35,000 MWD/MTU, which is below the value of 38,000 MWD/MTU which is considered the transition point to extended burnup fuel. Batch average burnup refers to those fuel assemblies having the same enrichment and initial loading date. The average burnup of all fuel assemblies to be replaced at the end of Unit 1 Cycle 3 will be approximately 37,000 MWD/MTU.
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> Core fission product inventories, given in table 15A-3 of the Final Safety Analysis Report (FSAR), are based on a three region equilibrium cycle core at end of life and assumes that the three regions have operated at a specific power of 40.03 MW/MTU for 300, 600 and 900 EFPDs, respectively,

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for a core average burnup of approximately 24,000 MWD/MTU. The core average burnup of VEGP Unit 1 at the end of Cycle 3 is anticipated to be in the range of 29,000 to 30,000 MWD/MTU. It should be noted that VEGP operates at a specific power of approximately 38.4 MW/MTU at 100% rated thermal power, compared to the 40.03 MW/MTU used for FSAR table 15A-3. This conservatism more than compensates for any effects of the burnup increase, and represents significant conservatism when compared to the relatively small effects of increased burnup associated with Cycle 3 of VEGP Unit 1.

It is noted that the source terms in table 15A.4 of the FSAR which were used for the Fuel Handling Accident are consistent with those presented in Westinghouse Topical report WCAP-10125 "Extended Burnup Evaluation of Westinghouse Fuel" for a burnup of 48,000 MWD/MTU.

Parameters such as shutdown margin, reactivity coefficients and power peaking factors are not affected by this change. The specification of the fuel enrichment in the Design Features section alone does not uniquely determine nor limit the values of the reactor core parameters contained elsewhere in the Technical Specifications. Each reload design is evaluated to confirm that the cycle core design adheres to the limits that exist in the current accident analyses and Technical Specifications. With respect to increasing the maximum enrichment which can be stored in new fuel or spent fuel storage racks, criticality analyses have been performed to demonstrate that applicable NRC licensing criteria are met for the receipt and storage of 4.55 weight percent U-235 fuel.

The NRC staff has reviewed the criticality analyses for the VEGP Units 1 and 2 spent fuel storage racks and finds that the results show that Keff remains less than 0.95 for Westinghouse 17 x 17 Standard or Optimized fuel assemblies with an enrichment of 4.50 weight percent U-235 plus an uncertainty of .05 weight percent U-235. The NRC staff has also reviewed the criticality analyses for the new fuel storage racks and finds that the results show that Keff remains below 0.95 or 0.98 for optimum moderation for Westinghouse 17 x 17 Standard or Optimized fuel assemblies with an enrichment of 5.0 weight percent U-235 plus an uncertainty of .05 weight percent U-235. These analyses results are in accordance with the Standard Review Plan, NUREG-0800, and are acceptable to the NRC staff.

The licensee has stated that the operating specific power of 38.4 MW/MTU more than compensates for any increased burnup effects. The NRC staff finds this acceptable.

Based on the above, the NRC staff finds that the proposed amendments are acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact has been prepared and was published in the Federal Register (54 FR 34265) on August 18, 1989. Accordingly, based upon

the environmental assessment, the Commission has determined that the issuance of these amendments will not have a significant effect on the quality of the human environment.

4.0 CONCLUSION

The Commission made a proposed determination that the amendments involve no significant hazards consideration which was published in the Federal Register on August 9, 1989 (54 FR 32711), and consulted with the state of Georgia. No public comments were received, and the state of Georgia did not have any comments.

The staff has 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.

Principal Contributor: Jon B. Hopkins, PDII-3/DRP-I/II

Dated: October 10, 1989