

7/18/78

Docket No. 50-321

Georgia Power Company  
Oglethorpe Electric Membership Corporation  
Municipal Electric Association of Georgia  
City of Dalton, Georgia  
ATTN: Mr. Charles F. Whitmer  
Vice President - Engineering  
Georgia Power Company  
Atlanta, Georgia 30302

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Gentlemen:

The Commission has issued the enclosed Amendment No. 58 to Facility Operating License No. DPR-57 for the Edwin I. Hatch Nuclear Plant Unit No. 1. The amendment consists of changes to the Technical Specifications and is in response to your request of April 27, 1978.

The amendment consists of changes to the Technical Specifications to provide for a maximum total peaking factor of 2.48 for 8x8R fuel.

Copies of the Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Enclosures:

1. Amendment No. 58 to DPR-57
2. Safety Evaluation
3. Notice

cc w/enclosure:  
see next page

Const. 1  
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Georgia Power Company  
Oglethorpe Electric Membership Corporation  
Municipal Electric Association of Georgia  
City of Dalton, Georgia

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

GEORGIA POWER COMPANY  
OGLETHORPE ELECTRIC MEMBERSHIP CORPORATION  
MUNICIPAL ELECTRIC ASSOCIATION 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. 58  
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 April 27, 1978, complies with the standards and the 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 amendment will not be inimical to the 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:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 58, 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 the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: July 18, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 58

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 vertical lines indicating the area of change.

Remove

1.1-2  
1.1-3  
1.1-13

Replace

1.1-2  
1.1-3  
1.1-13

## SAFETY LIMITS

## LIMITING SAFETY SYSTEM SETTINGS

1.1.D. Reactor Water Level (Hot or Cold Shutdown Condition)

Whenever the reactor is in the Hot or Cold Shutdown Condition with irradiated fuel in the reactor vessel, the water level shall be > 378 inches above vessel invert when fuel is seated in the core.

2.1.A.1.c. APRM High High Flux Scram Trip Setting (Run Mode) (Continued)

$$S \leq 0.66 W + 54\%$$

where:

S = Setting in percent of rated thermal power (2436 MWt)

W = Loop recirculation flow rate in percent of rated (rated loop recirculation flow rate equals  $34.2 \times 10^6$  lb/hr)

In the event of operation with a maximum total peaking factor (MTPF) greater than the design value, the setting shall be modified as follows:

$$S \leq (0.66 W + 54\%) \frac{A}{MTPF}$$

where:

MTPF = The value of the existing maximum total peaking factor

A = 2.60 for 7x7 fuel  
2.42 for 8x8 fuel  
2.48 for 8x8R fuel

For no combination of loop recirculation flow rate and core thermal power shall the APRM flux scram trip setting be allowed to exceed 120% of rated thermal power.

Surveillance requirements for MTPF are given in Specification 4.1.B.

2.1.A.1.d. APRM Rod Block Trip Setting

The APRM rod block trip setting shall be:

$$\text{SRB} \leq 0.66 W + 42\%$$

where:

SRB = Rod block setting in percent of rated thermal power (2436 MWt)

W = Loop recirculation flow rate in percent of rated (rated loop recirculation flow rate equals  $34.2 \times 10^6$  lb/hr)

In the event of operation with a maximum total peaking factor (MTPF) greater than the design value, the setting shall be modified as follows:

$$\text{SRB} \leq (0.66 W + 42\%) \frac{A}{\text{MTPF}}$$

where:

MTPF = The value of the existing maximum total peaking factor

A = 2.60 for 7x7 fuel  
2.42 for 8x8 fuel  
2.48 for 8x8R fuel

2. Reactor Water Low Level Scram Trip Setting (LL1)

Reactor water low level scram trip setting (LL1) shall be  $\geq 12.5$  inches (narrow range scale).

3. Turbine Stop Valve Closure Scram Trip Setting

Turbine stop valve closure scram trip setting shall be  $\leq 10$  percent valve closure from full open. This scram is only effective when turbine steam flow is above 30% of rated, as measured by turbine first stage pressure.

2.1.A.1.c. APRM High High Flux Scram Trip Setting (Run Mode) (Continued)

An increase in the APRM scram trip setting would decrease the margin present before the fuel cladding integrity Safety Limit is reached. The APRM scram trip setting was determined by an analysis of margins required to provide a reasonable range for maneuvering during operation. Reducing this operating margin would increase the frequency of spurious scrams which have an adverse effect on reactor safety because of the resulting thermal stresses. Thus, the APRM scram trip setting was selected because it provides adequate margin for the fuel cladding integrity Safety Limit yet allows operating margin that reduces the possibility of unnecessary scrams.

The scram trip setting must be adjusted to ensure that the LHGR transient peak is not increased for any combination of MTPF and reactor core thermal power. The scram setting is adjusted in accordance with the formula in Specification 2.1.A.1.c., when the maximum total peaking factor is greater than 2.60 for 7x7 fuel, 2.42 for 8x8 fuel and 2.48 for 8x8R fuel.

Analyses of the limiting transients show that no scram adjustment is required to assure MCPR > 1.07 when the transient is initiated from the operating MCPR limit.

d. APRM Rod Block Trip Setting

Reactor power level may be varied by moving control rods or by varying the recirculation flow rate. The APRM system provides a control rod block to prevent rod withdrawal beyond a given point at constant recirculation flow rate, and thus to protect against the condition of a MCPR less than 1.07. This rod block trip setting, which is automatically varied with recirculation loop flow rate, prevents an increase in the reactor power level to excessive values due to control rod withdrawal. The flow variable trip setting provides substantial margin from fuel damage, assuming a steady-state operation at the trip setting, over the entire recirculation flow range. The margin to the Safety Limit increases as the flow decreases for the specified trip setting versus flow relationship; therefore the worst case MCPR which would occur during a steady-state operation is at 108% of rated thermal power because of the APRM rod block trip setting. The actual power distribution in the core is established by specified control rod sequences and is monitored continuously by the in-core LPRM system. As with the APRM scram trip setting, the APRM rod block trip setting is adjusted downward if the maximum total peaking factor exceeds 2.60 for 7x7 fuel, 2.42 for 8x8 fuel and 2.48 for 8x8R fuel, thus preserving the APRM rod block safety margin.

2. Reactor Water Low Level Scram Trip Setting (LL1)

The trip setting for low level scram is above the bottom of the separator skirt. This level is > 14 feet above the top of the active fuel. This level has been used in transient analyses dealing with coolant inventory decrease. The results reported in FSAR Section 14.3 show that a scram at this level adequately protects the fuel and the pressure barrier. The scram trip setting is approximately 33 inches below the normal operating range and is thus adequate to avoid spurious scrams.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 58 TO FACILITY OPERATING LICENSE NO. DPR-57

GEORGIA POWER COMPANY  
OGLETHORPE ELECTRIC MEMBERSHIP CORPORATION  
MUNICIPAL ELECTRIC ASSOCIATION OF GEORGIA  
CITY OF DALTON, GEORGIA

EDWIN I. HATCH NUCLEAR PLANT UNIT NO. 1

DOCKET NO. 50-321

Introduction

By letter dated April 27, 1978, Georgia Power Company (the licensee) proposed an amendment to the Technical Specifications appended to Operating License No. DPR-57 for the Edwin I. Hatch Nuclear Plant Unit No. 1. The proposed amendment would provide for a maximum total peaking factor (MTPF) of 2.48 for 8x8R fuel.

Background

By Amendment No. 52 to DPR-57, the Commission authorized operation of Hatch Unit No. 1 with up to 168 improved two water rod 8x8R reload fuel bundles. Since the licensee had not requested a specific MTPF for 8x8R fuel bundles, Amendment No. 52 did not differentiate between the MTPF for 8x8 and 8x8R bundles. This assumption was verified to be conservative by the staff.

Evaluation

The MTPF is a design limit which is dependent on the specific plant and fuel type. This factor is calculated from first principles and involves the design linear heat generation rate limit, number of fuel bundles of all types in the core, number of active fuel rods per bundle for each type, active fuel length, rated thermal power and the fraction of heat flux through the cladding.

Basically, the MTPF is the largest design linear heat generation (LHGR) for any fuel rod in the core divided by the average LHGR of that core for a given fuel type. The MTPF is compared to measured fuel rod total peaking factors, and when the measured value exceeds this design MTPF, the average power range monitor (APRM) high flux scram and rod block setpoints are lowered to compensate for this increased peaking. The methodology by which MTPF are calculated is identical to that previously reviewed and approved by the staff in the development of MTPF for 7x7 and 8x8 fuel<sup>(1)</sup>. We have reviewed the licensee's submittal and, based on the 8x8R fuel design characteristics, have determined that a MTPF of 2.48 is acceptable for Hatch Unit No. 1.

#### 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 this amendment.

#### Conclusion

We have concluded, based on the considerations discussed above, that (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: July 18, 1978

<sup>(1)</sup> Safety Evaluation by NRR supporting Amendment No. 42 to DPR-57, dated May 6, 1977

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-321GEORGIA POWER COMPANY, ET ALNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 58 to Facility Operating License No. DPR-57 issued to Georgia Power Company, Oglethorpe Electric Membership Corporation, Municipal Electric Association of Georgia and City of Dalton, Georgia, which revised Technical Specifications for operation of the Edwin I. Hatch Nuclear Plant, Unit No. 1, located in Appling County, Georgia. The amendment is effective as of its date of issuance.

The amendment consists of changes to the Technical Specifications to provide for a maximum total peaking factor of 2.48 for 8x8R fuel.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §1.5(d)(4) an environmental impact statement or negative

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declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated April 27, 1978, (2) Amendment No. 58 to License No. DPR-57 and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Appling County Public Library, Parker Street, Baxley, Georgia 31513. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 18 day of July 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors