

March 25, 1991

Docket No. 50-366

DISTRIBUTION
See Next Page

Mr. W. G. Hairston, III
Senior Vice President -
Nuclear Operations
Georgia Power Company
P.O. Box 1295
Birmingham, Alabama 35201

Dear Mr. Hairston:

SUBJECT: ISSUANCE OF AMENDMENT NO. 111 TO FACILITY OPERATING LICENSE NPF-5 -
EDWIN I. HATCH NUCLEAR PLANT, UNIT 2 (TAC 77917)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 111 to Facility Operating License NPF-5 for the Edwin I. Hatch Nuclear Plant, Unit 2. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated October 16, 1990.

The amendment increases the TS Minimum Critical Power Ratio (MCPR) safety limit for Unit 2 from the current value of 1.04 to 1.06 for two-loop operation and from 1.05 to 1.07 for single-loop operation, and in addition, changes the associated Bases.

A copy of the related Safety Evaluation is also enclosed. Notice of issuance of the amendments will be included in the Commission's biweekly Federal Register notice.

Sincerely,



Kahtan Jabbour, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No.111 to NPF-5
- 2. Safety Evaluation

cc w/enclosures:
See next page

OFC	:LA:PDII-3	:PM:PDII-3	:PM:PDII-3	:NRR/SRXB	:OGC	:D:PDII-3
NAME	:R Ingram	:FRinaldi	:KJabbour	:RJones	:NRC	:D Matthews
DATE	:2/4/91	:2/4/91	:4/4/91	:2/5/91	:2/11/91	:2/26/91

OFFICIAL RECORD COPY
Document Name: HATCH MCPR AMENDMENT

NRC FILE CENTER COPY

DATED: March 25, 1991

AMENDMENT NO. TO FACILITY OPERATING LICENSE DPR-57 - Edwin I. Hatch
Nuclear Plant, Unit 1
AMENDMENT NO.111 TO FACILITY OPERATING LICENSE NPF-5 - Edwin I. Hatch
Nuclear Plant, Unit 2

DISTRIBUTION:

Docket File	
NRC PDR	
Local PDR	
PD II-3 R/F	
Hatch R/F	
S. Varga	14-E-4
G. Lainas	14-H-3
D. Matthews	9-H-3
R. Ingram	9-H-3
PM	9-H-3
OGC-WF	15-B-18
D. Hagan	MNBB 4702
G. Hill (8)	P1-37
W. Jones	MNBB 7103
J. Calvo	11-F-22
ACRS (10)	P-135
GPA/PA	17-F-2
OC/LFMB	MNBB 4702
R. Jones	8-E-23

Mr. W. G. Hairston, III
Georgia Power Company

Edwin I. Hatch Nuclear Plant,
Units Nos. 1 and 2

cc:

Mr. Ernest L. Blake, Jr.
Shaw, Pittman, Potts and Trowbridge
2300 N Street, N.W.
Washington, D.C. 20037

Mr. R. P. McDonald
Executive Vice President -
Nuclear Operations
Georgia Power Company
P.O. Box 1295
Birmingham, Alabama 35201

Mr. J. T. Beckham
Vice President - Plant Hatch
Georgia Power Company
P.O. Box 1295
Birmingham, Alabama 35201

Mr. Alan R. Herdt, Chief
Project Branch #3
U.S. Nuclear Regulatory Commission
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. S. J. Bethay
Manager Licensing - Hatch
Georgia Power Company
P.O. Box 1295
Birmingham, Alabama 35201

Mr. Dan Smith
Program Director of
Power Production
Oglethorpe Power Corporation
100 Crescent Centre
Tucker, Georgia 30085

Mr. L. Sumner
General Manager, Nuclear Plant
Georgia Power Company
Route 1, Box 439
Baxley, Georgia 31513

Charles A. Patrizia, Esq.
Paul, Hastings, Janofsky & Walker
12th Floor
1050 Connecticut Avenue, N.W.
Washington, D.C. 20036

Resident Inspector
U.S. Nuclear Regulatory Commission
Route 1, Box 725
Baxley, Georgia 31513

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street, Suite 2900
Atlanta, Georgia 30323

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

Mr. J. Leonard Ledbetter, Director
Environmental Protection Division
Department of Natural Resources
205 Butler Street, S.E., Suite 1252
Atlanta, Georgia 30334

Chairman
Appling County Commissioners
County Courthouse
Baxley, Georgia 31513



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. 50-366
EDWIN I. HATCH NUCLEAR PLANT, UNIT 2
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 111
License No. NPF-5

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit 2 (the facility), Facility Operating License No. NPF-5 filed by Georgia Power Company, acting for itself, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees), dated October 16, 1990, 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 set forth in 10 CFR Chapter I;
 - 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 hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-5 is hereby amended to read as follows:

Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 111, 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 and shall be implemented prior to Unit 2 startup from the spring 1991 refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION



David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification Changes

Date of Issuance: March 25, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 111

FACILITY OPERATING LICENSE NO. NPF-5

DOCKET NO. 50-366

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 areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

Remove Pages

2-1
B 2-1
B 3/4 2-3

Insert Pages

2-1
B 2-1
B 3/4 2-3

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

THERMAL POWER (Low Pressure or Low Flow)

2.1.1 THERMAL POWER shall not exceed 25% of RATED THERMAL POWER with the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow.

APPLICABILITY: CONDITIONS 1 and 2.

ACTION:

With THERMAL POWER exceeding 25% of RATED THERMAL POWER and the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours.

THERMAL POWER (High Pressure and High Flow)

2.1.2 The MINIMUM CRITICAL POWER RATIO (MCPR) shall not be less than 1.06 for two-loop recirculation or 1.07 for single-loop recirculation operation with the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow.

APPLICABILITY: CONDITIONS 1 AND 2.

ACTION:

With MCPR less than 1.06 for two-loop recirculation or 1.07 for single-loop recirculation operation and the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours.

REACTOR COOLANT SYSTEM PRESSURE

2.1.3 The reactor coolant system pressure, as measured in the reactor vessel steam dome, shall not exceed 1325 psig.

APPLICABILITY: CONDITIONS 1, 2, 3 and 4.

ACTION:

With the reactor coolant system pressure, as measured in the reactor vessel steam dome, above 1325 psig, be in at least HOT SHUTDOWN with reactor coolant system pressure \leq 1325 psig within 2 hours.

2.1 SAFETY LIMITS

BASES

2.0 The fuel cladding, reactor pressure vessel and primary system piping are the principal barriers to the release of radioactive materials to the environs. Safety Limits are established to protect the integrity of these barriers during normal plant operations and anticipated transients. The fuel cladding integrity Safety Limit is set such that no fuel damage is calculated to occur if the limit is not violated. Because fuel damage is not directly observable, a step-back approach is used to establish a Safety Limit such that the MCPR is not less than 1.06 for two-loop operation and 1.07 for single-loop operation. These limits represent a conservative margin relative to the conditions required to maintain fuel cladding integrity. The fuel cladding is one of the physical barriers which separate the radioactive materials from the environs. The integrity of this cladding barrier is related to its relative freedom from perforations or cracking. Although some corrosion or use related cracking may occur during the life of the cladding, fission product migration from this source is incrementally cumulative and continuously measurable. Fuel cladding perforations, however, can result from thermal stresses which occur from reactor operation significantly above design conditions and the Limiting Safety System Settings. While fission product migration from cladding perforation is just as measurable as that from use related cracking, the thermally caused cladding perforations signal a threshold beyond which still greater thermal stresses may cause gross rather than incremental cladding deterioration. Therefore, the fuel cladding Safety Limit is defined with a margin to the conditions which would produce onset of transition boiling, MCPR of 1.0. These conditions represent a significant departure from the condition intended by design for planned operation.

The evaluations which justify normal operation, abnormal transient, and accident analyses for two-loop operation are discussed in detail in Reference 1. Evaluation for single-loop operation demonstrates that two-loop transient and accident analyses are more limiting than single-loop (Reference 2).

2.1.1 THERMAL POWER (Low Pressure or Low Flow)

The use of the NRC-approved transition boiling correlation is not valid for all critical power calculations at pressures below 785 psig or core flows less than 10% of rated flow. Therefore, the fuel cladding integrity Safety Limit is established by other means. This is done by establishing a limiting condition on core THERMAL POWER with the following basis. Since the pressure drop in the bypass region is essentially all elevation head, the core pressure drop at low power and flows will always be greater than 4.5 psi. Analyses show that with a bundle flow of 28×10^3 lbs/hr, bundle pressure drop is nearly independent of bundle power and has a value of 3.5 psi. Thus, the bundle flow with a 4.5 psi driving head will be greater than 28×10^3 lbs/hr. Full scale ATLAS test data taken at pressures from 14.7 psia to 800 psia indicate that the fuel assembly critical power at this flow is approximately 3.35 MWt. With the design peaking factors, this corresponds to

POWER DISTRIBUTION LIMITS

BASES

3/4.2.2 APRM SETPOINTS

This section deleted.

3/4.2.3 MINIMUM CRITICAL POWER RATIO

The required operating limit MCPRs at steady state operating conditions as specified in Specification 3.2.3 are derived from the established fuel cladding integrity Safety Limit MCPR of 1.06 for two-loop operation and 1.07 for single-loop operation, and an analysis of abnormal operational transients (Reference 1). For any abnormal operating transient analysis evaluation with the initial condition of the reactor being at the steady state operating limit (specified in the CORE OPERATING LIMITS REPORT), it is required that the resulting MCPR does not decrease below the Safety Limit MCPR at any time during the transient assuming instrument trip setting as given in Specification 2.2.1.

To assure that the fuel cladding integrity Safety Limits are not violated during any anticipated abnormal operational transient, the most limiting transients have been analyzed to determine which results in the largest reduction in CRITICAL POWER RATIO (CPR). The type of transients evaluated were loss of flow, increase in pressure and power, positive reactivity insertion, and coolant temperature decrease.

Details of how evaluations are performed, the methods used, and how the MCPR limit is adjusted for operation at less than rated power and flow conditions are given in Reference 1 and in the CORE OPERATING LIMITS REPORTS.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 111 TO FACILITY OPERATING LICENSE NPF-5

GEORGIA POWER COMPANY, ET AL.

EDWIN I. HATCH NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-366

1.0 INTRODUCTION

By letter dated October 16, 1990, Georgia Power Company (the licensee) requested changes to the Technical Specification (TS) Minimum Critical Power Ratio (MCPR) safety limit for the Edwin I. Hatch Nuclear Plant, Unit 2. The requested changes would increase the MCPR safety limit from its current value of 1.04 to 1.06 for two-loop operation (TLO) and from 1.05 to 1.07 for single-loop operation (SLO), and in addition, would change the associated Bases.

2.0 EVALUATION

The licensee proposes the use of GE-9 fuel bundles in Plant Hatch Unit 2 for operation in Cycle 10. This change requires an increase in the MCPR safety limits, as stated above, to all fuel types in the core. The MCPR safety limits protect the fuel cladding and provide assurance that less than 0.1 percent of the rods in the core experience boiling transition during the worst anticipated operational event. The MCPR safety limits are fuel-type dependent since the mechanical and thermal-hydraulic design of the assemblies controls the results. GE has determined that the proposed MCPR TLO and SLO limits of 1.06 and 1.07, respectively, bound several standard GE fuel designs (high R-factor GE7, GE8, and GE9). The NRC staff has documented agreement with the codes and methods utilized by GE and documented in its Licensing Topical Report entitled, "General Electric Standard Application for Reactor Fuel," NEDE-24011-P-A-9 (GESTAR-II). Also, the licensee has stated that revised MCPR TLO and SLO limits will be submitted for staff approval if the proposed limits are determined as not conservative for new fuel types.

On the basis of the NRC staff's previous approval of GE's topical report and the various TLO (1.04 to 1.07) and SLO (1.05 - 1.08) values resulting from its application, the staff finds acceptable the licensee's proposal to increase the MCPR safety limits from 1.04 to 1.06 for TLO and 1.05 to 1.07 for SLO. In addition, the change placing these values in the related Bases is also acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

The amendment involves changes in requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20. 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's proposed determination that the amendment involves no significant hazards consideration was published in the Federal Register (55 FR 53071) on December 26, 1990. The Commission 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Frank Rinaldi, PDII-3/DRP-I/II

Dated: March 25, 1991