July 9, 1996

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

SUBJECT: ENVIRONMENTAL ASSESSMENT OF REQUEST FOR EXEMPTION FROM 10 CFR 70.24 CRITICALITY MONITORING REQUIREMENTS - EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 (TAC NOS. M95725 AND M95726)

Dear Mr. Beckham:

Enclosed for your information is a copy of an "Environmental Assessment and Finding of No Significant Impact." This assessment relates to your application dated June 4, 1996, which requested an exemption from certain requirements of 10 CFR 70.24, "Criticality Accident Requirements." This section requires a criticality monitoring system for the receipt, possession, inspection, and storage of special nuclear materials in the form of unirradiated fuel assemblies that are not handled or stored beneath water shielding, and requires maintaining emergency procedures for responding to the criticality monitoring system alarm, conducting drills to meet the emergency procedures, and designating responsible individuals to determine the cause of the alarm.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

original signed by
Kahtan N. Jabbour, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-321
and 50-366

Enclosure: Environmental Assessment

cc w/encl: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Georgia Power Company

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UNITED STATES NUCLEAR REGULATORY COMMISSION

GEORGIA POWER COMPANY, ET AL.

DOCKET NOS. 50-321 AND 50-366

EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from certain requirements of its regulations for Facility Operating License Nos. DPR-57 and NPF-5, issued to Georgia Power Company, et al. (the licensee), for operation of the Edwin I. Hatch (Hatch) Nuclear Plants, Units 1 and 2, located in Appling County, Georgia.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action:

The proposed action would exempt the licensee from the requirements of 10 CFR 70.24, which requires, in each area in which special nuclear material is handled, used, or stored, a monitoring system that will energize clearly audible alarms if accidental criticality occurs. The proposed action would also exempt the licensee from the requirements of 10 CFR 70.24(a)(3) to maintain emergency procedures for each area in which this licensed special nuclear material is handled, used, or stored to ensure that all personnel withdraw to an area of safety upon the sounding of the alarm and to conduct drills and designate responsible individuals for such emergency procedures.

The proposed action is in accordance with the licensee's application for exemption dated June 4, 1996.

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The Need for the Proposed Action:

Power reactor license applications are evaluated for the safe handling, use, and storage of special nuclear materials. The proposed exemption from criticality accident requirements is based on the original design for radiation monitoring at Hatch. Exemptions from the requirements of 10 CFR 70.24(a) "Criticality Accident Requirements" were granted in the Special Nuclear Material (SNM) licenses for each unit as part of the 10 CFR Part 70 license. However, with the issuance of the Part 50 license this exemption expired because it was inadvertently omitted in that license. Therefore, the exemption is needed to clearly define the design of the plant as evaluated and approved for licensing.

Environmental Impacts of the Proposed Action:

The NRC staff has completed its evaluation of the proposed action and concludes that there is no significant environmental impact if the exemption is granted. Inadvertent or accidental criticality will be precluded through compliance with the Hatch Technical Specifications, the geometric spacing of fuel assemblies in the new fuel storage facility and spent fuel storage pool, and administrative controls imposed on fuel handling procedures.

Inadvertent or accidental criticality of SNM while in use in the reactor vessel is precluded through compliance with the Hatch Technical Specifications, including reactivity requirements (e.g., shutdown margins, limits on control rod movement), instrumentation requirements (e.g., reactor power and radiation monitors), and controls on refueling operations (e.g., control rod interlocks and source range monitor requirements). In addition, the operators' continuous attention directed toward instruments monitoring behavior of the nuclear fuel in the reactor assures that the facility is

operated in such a manner as to preclude inadvertent criticality. Finally, since access to the fuel in the reactor vessel is not physically possible while in use and is procedurally controlled during refueling, there are no concerns associated with loss or diversion of the fuel.

SNM as a nuclear fuel is stored in one of two locations—the spent fuel pool or the new fuel vault. The spent fuel pool is used to store irradiated fuel under water after its removal from the reactor. The pool is designed to store fuel in a geometric array that precludes criticality. In addition, existing Technical Specification limits on k_{eff} are maintained less than or equal to 0.95, even in the event of a fuel handling accident.

The new fuel vault is used to receive and store new fuel in a dry condition upon arrival on site and prior to loading in the reactor. The new fuel vault is designed to store new fuel in a geometric array that precludes criticality. In addition, existing safety evaluations demonstrate that an effective multiplication factor is maintained less than or equal to 0.95 when the new fuel racks are fully loaded and dry or flooded with unborated water, or in the event of a fuel handling accident.

New fuel is shipped in a plastic wrap. When the fuel is removed from its transportation cask, the wrap is removed and the fuel is placed in the fuel inspection stand. Following inspection, the new fuel can either be placed in the new fuel storage vault or in the spent fuel pool (typically placed in the spent fuel pool). In no case is the plastic wrap reinserted on the fuel. Removal of the wrap requires it to be slit down the length of the new fuel assembly, thereby making its reuse highly unlikely. Therefore, there is no concern that the plastic wrap used as part of the new fuel package will be capable of holding water from flooding from overhead sources.

Additionally, as discussed above, the new fuel storage racks were analyzed for a postulated flooded condition, and the results show that k_{eff} is maintained less than or equal to 0.95.

Both irradiated and unirradiated fuel is moved to and from the reactor vessel and the spent fuel pool to accommodate refueling operations. Also, unirradiated fuel can be moved to and from the new fuel vault. In addition, fuel movements into the facility and within the reactor vessel and the spent fuel pool occur. In all cases, fuel movements are procedurally controlled and designed to preclude conditions involving criticality concerns. Moreover, previous accident analyses demonstrate that a fuel handling accident (i.e., a dropped fuel element) will not create conditions that exceed design specifications. In addition, the Technical Specifications and Technical Requirements Manuals specifically address refueling operations and limit the handling of fuel to ensure against an accidental criticality and preclude certain movements over the spent fuel pool and the reactor vessel.

In summary, exemptions from the requirements of 10 CFR Part 70, Section 70.24 approved by the NRC in connection with the SNM licenses for Hatch Units 1 and 2 were based upon NRC's finding that the inherent features associated with the storage and inspection of unirradiated fuel established good cause for granting the exemption and that granting such an exemption at this time will not endanger public life or property or the common defense and security and is otherwise in the public interest. The training provided to all personnel involved in fuel handling operations, the administrative controls, the Technical Specifications requirements, and the design of the fuel storage racks preclude inadvertent or accidental criticality. Since the facilities, storage, and inspection and procedures currently in place are

consistent with those in place at the time the exemptions were granted in connection with the SNM licenses, an exemption from 10 CFR 70.24 is appropriate.

The proposed exemption will not affect radiological plant effluents nor cause any significant occupational exposures. Only a small amount, if any, of radioactive waste is generated during the receipt and handling of new fuel (e.g., smear papers or contaminated packaging material). The amount of waste would not be changed by the exemption.

With regard to potential nonradiological impacts, the proposed exemption involves systems located within the restricted area as defined in 10 CFR Part 20. It does not affect nonradiological plant effluents and has no other environmental impact. Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed action.

Alternatives to the Proposed Action:

Since the Commission has concluded that there is no measurable environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. The principal alternative would be to deny the requested exemption. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the Final Environmental Statement related to an operating license for the Edwin I. Hatch Nuclear Plant, Unit 1, and of a construction permit for Unit 2, dated October 1972, and the Final Environmental Statement

related to the operation of Edwin I. Hatch Nuclear Plant, Unit 2, dated March 1978.

Agencies and Persons Consulted:

In accordance with its stated policy, on June 24, 1996, the staff consulted with the Georgia State official, Mr. James L. Setser, of the Georgia Department of Natural Resources, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

Based upon the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated June 4, 1996, which is available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC and at the local public document room located at the Appling County Public Library, 301 City Hall Drive, Baxley, Georgia.

Dated at Rockville, Maryland, this 9th day of July 1996.

FOR THE NUCLEAR REGULATORY COMMISSION

Kahtan N. Jabbour

Kahtan N. Jabbour, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation