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Dockets Nos. 50-321
and 50-366

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Mr. J. T. Beckham, Jr.
Vice President - Nuclear Generation
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Dear Mr. Beckham:

The Commission has issued the enclosed Amendments Nos. 88 and 27 to Facility Operating Licenses Nos. DPR-57 and NPF-5 for the Edwin I. Hatch Nuclear Plant Units Nos. 1 and 2. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated July 22, 1977, as supplemented October 9, 1980, May 21, October 2 and December 2, 1981, and January 26, 1982.

These changes to the TSs result from the reanalysis and modification of plant systems and components deemed necessary in order to avoid the consequences of a degraded grid voltage condition to the electrical components of the Hatch Plant engineered safety features.

We have completed our review of your analyses and modifications submitted as part of the above referenced documents and conclude, based on the enclosed Safety Evaluation, that the Hatch Plant Units 1 and 2 are acceptable with respect to degraded grid voltage protection for the Class 1E power system.

CP
1

A copy of the Notice of Issuance is also enclosed.

Sincerely,

Original signed by

Morton B. Fairtile, Project Manager
Operating Reactors Branch #4
Division of Licensing

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Enclosures:
1. Amendment No. 88 to DPR-57
2. Amendment No. 27 to NPF-5
3. Safety Evaluation
4. Notice

cc w/enclosures:
See next page

concur to form of amend & notice only; or condition "TSs" changed to Technical Specifications in Notice

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NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY USGPO: 1981—335-960 cc w/enclosure(s):

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10/9/80, 5/21, 10/2 & 12/2/81, 1/26/82

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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. 50-321

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 88
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 July 22, 1977, as supplemented October 9, 1980, May 21, 1981, October 2, 1981, December 2, 1981, and January 26, 1982, 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;

   D. The issuance of this 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 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. 88, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 6, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 88

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	Insert
vii	vii
viii	viii
3.2-1	3.2-1*
--	3.2-23a
--	3.2-23b
--	3.2-49a
--	3.2-49b
3.2-68	3.2-68
--	3.2-68a
3.2-69	3.2-69*
3.9-4	3.9-4
3.9-4a	3.9-4a
3.9-12	3.9-12

*The overleaf pages are provided to maintain document completeness.

LIST OF TABLES

LIST OF TABLES
(Concluded)

3.2 PROTECTIVE INSTRUMENTATION

Applicability

The Limiting Conditions for Operation apply to the plant instrumentation which performs a protective function.

Objective

The objective of the Limiting Conditions for Operation is to assure the operability of protective instrumentation.

Specifications

The Limiting Conditions for Operation of the protective instrumentation affecting each of the following protective actions shall be as indicated in the corresponding LCO table.

4.2 PROTECTIVE INSTRUMENTATION

Applicability

The Surveillance Requirements apply to the instrumentation which performs a protective function.

Objective

The objective of the Surveillance Requirements is to specify the type and frequency of surveillance to be applied to protective instrumentation.

Specifications

The check, functional test, and calibration minimum frequency for protective instrumentation affecting each of the following protective actions shall be as indicated in the corresponding SR table.

	Protective Action	LCO Table	SR Table
A.	Initiates Reactor Vessel and Containment Isolation	3.2-1	4.2-1
B.	Initiates or Controls HPCI	3.2-2	4.2-2
C.	Initiates or Controls RCIC	3.2-3	4.2-3
D.	Initiates or Controls ADS	3.2-4	4.2-4
E.	Initiates or Controls the LPCI Mode of RHR	3.2-5	4.2-5
F.	Initiates or Controls Core Spray	3.2-6	4.2-6
G.	Initiates Control Rod Blocks	3.2-7	4.2-7
H.	Limits Radioactivity Release	3.2-8	4.2-8
I.	Initiates Recirculation Pump Trip	3.2-9	4.2-9
J.	Monitors Leakage Into the Drywell	3.2-10	4.2-10
K.	Provides Surveillance Information	3.2-11	4.2-11
L.	Initiates Disconnection of Offsite Power Sources	3.2-12	4.2-12
M.	Initiates Energization by Onsite Power Sources	3.2-13	4.2-13

Table 3.2-1

INSTRUMENTATION WHICH INITIATES REACTOR VESSEL AND PRIMARY CONTAINMENT ISOLATION

Ref. No. (a)	Instrument	Trip Condition Nomenclature	Required Operable Channels per Trip System (b)	Trip Setting	Action to be taken if number of channels is not met for both trip systems (c)	Remarks (d)
1	Reactor Water Level	Low (LL1) Narrow Range	2	$\geq$12.5 inches	Initiate an orderly shutdown and achieve the Cold Shutdown Condition within 24 hours or isolate the shutdown cooling system.	Starts the standby gas treatment system, initiates Group 2 & 5 isolation and initiates secondary containment isolation.
		Low Low (LL2) Yarway	2	$\geq$-38 Inches	Initiate an orderly shutdown and achieve the Cold Shutdown Condition within 24 hours.	Initiates Group 1 isolation. Trips the recirculation pumps.
2	Reactor Pressure (Shutdown Cooling Mode)	High	1	$\leq$135 psig	Isolate shutdown cooling.	Isolates the shutdown cooling suction valves of the RHR system.
3	Drywell Pressure	High	2	$\leq$2 psig	Initiate an orderly shutdown and achieve the Cold Shutdown Condition within 24 hours	Starts the standby gas treatment system, initiates Group 2 isolation and secondary containment isolation.
4	Main Steam Line Radiation	High	2	$\leq$3 times normal full power background	Initiate an orderly load reduction and close MSIVs within 8 hours.	Initiates Group 1 isolation.

TABLE 3.2-12

INSTRUMENTATION WHICH INITIATES THE DISCONNECTION
OF OFFSITE POWER SOURCES

Ref. No. (a)	Instrument (b)	Required Operable Channels	Channels Required To Trip	Trip Setting	Action to be Taken if the Number of Required Operable Channels Is Not Met
1	4.16 kv Emergency Bus Undervoltage Relay (Loss of Voltage Condition)	2/Bus	2/Bus	greater than or equal to 2800 volts. At 2800 volts time delay will be less than or equal to 6.5 sec.	(c)
2	4.16 kv Emergency Bus Undervoltage Relay (Degraded Voltage Condition)	2/Bus	2/Bus	greater than or equal to 3280 volts. At 3280 volts time delay will be less than or equal to 21.5 sec.	(c)

NOTES FOR TABLE 3.2-12

a. The column entitled "Ref. No." is only for convenience so that a one-to-one relationship can be established between items in Table 3.2-12 and items in Table 4.2-12.

b. This instrumentation is required to be operable during reactor startup, power operation, and hot shutdown.

c. With the number of operable channels one less than the required operable channels, operation may proceed until performance of the next required instrument functional test provided a trip signal is placed in the LOSP lock-out relay logic for the applicable inoperable channel.

TABLE 3.2-13

INSTRUMENTATION WHICH INITIATES ENERGIZATION BY
ONSITE POWER SOURCES

Ref. No. (a)	Required Instrument (b)	Required Operable Channels	Channels Required To Trip	Trip Setting	Action to be Taken if the Number of Required Operable Channels Is Not Met
1	Start up auxiliary transformer 1C loss of voltage condition	2	1	Trip setting greater than or equal to 3280 volts. At 3280 volts trip of relay will be instantaneous (no time delay).	(c)

NOTES FOR TABLE 3.2-13

a. The column entitled "Ref. No." is only for convenience so that a one-to-one relationship can be established between items in Table 3.2-13 on items in Table 4.2-13.

b. This instrumentation is required to be operable during reactor startup, power operation, and hot shutdown.

c. With the number of operable channels one less than the required operable channels, operation may proceed provided the relay is removed from its case. Removing the relay accomplishes the same action as an operable relay operating to open its trip circuit.

TABLE 4.2-12

INSTRUMENTATION WHICH INITIATES THE DISCONNECTION
OF OFFSITE POWER SOURCES

Ref. No. (a)	Instrument (b)	Instrument Check Minimum Frequency	Instrument Functional Test Minimum Frequency	Instrument Calibration Minimum Frequency
1	4.16 Kv Emergency Bus Undervoltage Relay (Loss of Voltage Condition)	N/A	Once/month	Once/operating cycle
2	4/16 kv Emergency Bus Undervoltage Relay (Degraded Voltage Condition)	N/A	Once/month	Once/operating cycle

NOTES FOR TABLE 4.2-12

a. The column entitled "Ref. No." is only for convenience so that a one-to-one relationship can be established between items in Table 3.2-12 and items in Table 4.2-12.

b. Surveillance of this instrumentation is required during reactor startup, power operation, and hot shutdown.

TABLE 4.2-13

INSTRUMENTATION WHICH INITIATES ENERGIZATION BY ONSITE POWER SOURCES

Ref. No. (a)	Instrument (b)	Instrument Check Minimum Frequency	Instrument Functional Test Minimum Frequency	Instrument Calibration Minimum Frequency
1	Startup auxiliary transformer 1C loss of voltage condition	N/A	Once/Month	Once/Operating cycle

NOTES FOR TABLE 4.2-13

a. The column entitled "Ref. No." is only for convenience so that a one-to-one relationship can be established between items in Table 3.2-13 and items in Table 4.2-13.

b. Surveillance of this instrumentation is required during reactor startup, power operation, and hot shutdown.

3.2.J.4. Scintillation Detector For Monitoring Radioiodine (Continued)

level reading is indicative of a leak in the nuclear system process barrier in the primary containment. A sample that is continuously drawn from the primary containment is collected on an iodine filter and monitored by a gamma sensitive scintillation detector. Radiation levels are read out by a log rate meter and recorded on a strip chart located in the control room. A high radiation level alarm and a failure alarm are also provided and are annunciated in the control room. Also, a high-low flow alarm is annunicated in the control room.

5. GM Tubes for Monitoring Noble Gases

A set of GM tubes contained in an instrument rack are used to monitor the release of noble gases in the drywell and torus. A high radiation level reading is indicative of a leak in the nuclear system process barrier in the primary containment. A sample that's continuously drawn from the primary containment is passed through a shielded sample chamber which contains the beta sensitive GM tubes. Radiation levels are read out by a log rate meter and recorded on a strip chart located in the control room. A high radiation level alarm and failure alarm are provided and are annunciated in the control room. Also, a high-flow alarm is annunciated in the control room.

K. Instrumentation Which Provides Surveillance Information (Table 3.2-11)

For each parameter monitored, as listed in Table 3.2-11, there are two channels of instrumentation except for the control rod positions indicating system. By comparing readings between the two channels, a near continuous surveillance of instrument performance is available. Any significant deviation in readings will initiate an early recalibration, thereby maintaining the quality of the instrument readings.

The hydrogen and oxygen analyzing systems consist of two redundant, separate systems and are each capable of analyzing the hydrogen and oxygen content of the drywell-torus simultaneously. They are designed to be completely testable at both the analyzer rack and in the control room. With an oxygen concentration of less than 4% by volume, a flammable mixture with hydrogen is not possible.

L. Instrumentation Which Initiates Disconnection of Offsite Power Sources (Table 3.2-12)

The undervolta[illegible] relays shall automatically initiate the disconnection of offsite power sources whenever the voltage setpoint and time delay limits have been exceeded. This action shall provide voltage protection for the emergency power systems by preventing sustained degraded voltage conditions due to the offsite power source and interaction between the offsite and onsite emergency power systems. The undervoltage relays have a time delay characteristic that provides protection against both a loss of voltage and degraded voltage condition and thus minimizes the effect of short duration disturbances without exceeding the maximum time delay, including margin, that is assumed in the FSAR accident analyses.

M. Instrumentation Which Initiates Energization by Onsite Power Sources (Table 3.2-13)

The undervoltage relays shall automatically trip the loss of offsite power (LOSP) lockout relays if voltage is lost on the emergency buses and low voltage is sensed on start-up transformer 1C (SUT 1C). This lockout will, if a loss of coolant accident (LOCA) has previously occurred, cause energization of the emergency 4160 volt buses by the Diesel Generators (D/Gs). If the LOSP and LOCA occur simultaneously, the lockout relay will provide a permissive allowing D/G output breaker closure when the D/G voltage is up to normal. The undervoltage relays will have no time delay. The absence of time delay provides a faster response time if the diesel generator has been previously initiated and prevents an additional time delay if it has not. This scheme prevents the connection of the D/G to the offsite power source.

3.2.1 References

1. FSAR Appendix G, Plant Nuclear Safety Operational Analysis

2. FSAR Section 7.3, Primary Containment and Reactor Vessel Isolation Control System

3. FSAR Section 14, Plant Safety Analysis

4. FSAR Section 6, Core Standby Cooling Systems

5. FSAR Section 14.4.4, Refueling Accident

6. FSAR Section 6.5.3, Integrated Operation of the Core Standby Cooling Systems

7. FSAR Section 6.5.3.1, Liquid Line Breaks

8. 10 CFR 100

4.2 PROTECTIVE INSTRUMENTATION

The instrumentation listed in Tables 4.2-1 thru 4.2-13 will be functionally tested and calibrated at regularly scheduled intervals. The same design reliability goal as the Reactor Protection System of 0.99999 is generally applied for all applications of one-out-of-two-taken-twice logic. Therefore, on-off sensors are tested once every three months, and bi-stable trips associated with analog sensors and amplifiers are tested once per week.

Those instruments which, when tripped, result in a rod block have their contacts arranged in a one-out-of-n logic, and all are capable of being bypassed. For such a tripping arrangement with bypass capability provided, there is an optimum test interval that should be maintained in order to maximize the reliability of a given channel (Reference 1). This takes account of the fact that testing degrades reliability and the optimum interval between tests is approximately given by:

$$i = \sqrt{\frac{2t}{r}}$$

Where: i = the optimum interval between tests.

t = the time the trip contacts are disabled from performing their function while the test is in progress.

r = the expected failure rate of the relays.

To test the trip relays requires that the channel be bypassed, the test made, and the system returned to its initial state. It is assumed this task requires an estimated 30 minutes to complete in a thorough and workmanlike manner and that the relays have a failure rate of 10^{-6} failures per hour. Using this data and the above operation, the optimum test interval is:

$$i = \sqrt{\frac{2(0.5)}{10^{-6}}} = 10^3 \text{ hours}$$

$$\approx 42 \text{ days}$$

A test interval of once-per-month will be used initially.

The sensors and electronic apparatus have not been included here as these are analog devices with readouts in the control room and the sensors and electronic apparatus can be checked by comparison with other like instruments. The checks which are made on a daily basis are adequate to assure operability of the sensors and electronic apparatus, and the test interval given above provides for optimum testing of the relay circuits.

The above calculated test interval optimizes each individual channel, considering it to be independent of all others. As an example, assume that there are two channels with an individual technician assigned to each. Each technician tests his channel at the optimum frequency, but the two technicians are not allowed to communicate so that one can advise the other that his channel is under test. Under these conditions, it is possible for both channels to be under test simultaneously. Now, assume that the technicians are required to communicate and that two

4.2 PROTECTIVE INSTRUMENTATION (Continued)

channels are never tested at the same time.

Forbidding simultaneous testing improves the availability of the system over that which would be achieved by testing each channel independently. These one out of n trip systems will be tested one at a time in order to take advantage of this inherent improvement in availability.

Optimizing each channel independently may not truly optimize the system considering the overall rules of system operation. However, true system optimization is a complex problem. The optimums are broad, not sharp, and optimizing the individual channels is generally adequate for the system.

The formula given above minimizes the unavailability of a single channel which must be bypassed during testing. The minimization of the unavailability is illustrated by Curve No. 1 of Figure 4.2-1 which assumes that a channel has a failure rate of 0.1×10^{-6}/hour and that 0.5 hours is required to test it. The unavailability is a minimum at a test interval i, of 3.16×10^{3} hours.

If two similar channels are used in a one-out-of-two configuration, test interval for minimum unavailability changes as a function of the rules for testing. The simplest case is to test each one independent of the other. In this case, there is assumed to be a finite probability that both may be bypassed at one time. This case is shown by Curve No.2. Note that the unavailability is lower as expected for a redundant system and the minimum occurs at the same test interval. Thus, if the two channels are tested independently, the equation on the preceding page yields the test interval for minimum unavailability.

A more usual case is that the testing is not done independently. If both channels are bypassed and tested at the same time, the result is shown in Curve No. 3. Note that the minimum occurs at about 40,000 hours, much longer than for Cases 1 and 2. Also, the minimum is not nearly as low as Case 2 which indicates that this method of testing does not take full advantage of the redundant channel. Bypassing both channels for simultaneous testing should be avoided.

The most likely case would be to stipulate that one channel be bypassed, tested, and restored, and then immediately following, the second channel be bypassed, tested, and restored. This is shown by Curve No. 4. Note that there is no true minimum. The curve does have a definite knee and very little reduction in system unavailability is achieved by testing at a shorter interval than computed by the equation for a single channel.

The best test procedure of all those examined is to perfectly stagger the tests. That is , if the test interval is four months, test one or the other channel every two months. This is shown in Curve No. 5. The difference between Cases 4 and 5 is negiligible. There may be other arguments, however, that more strongly support the perfectly staggered tests, including reductions in human error.

The conclusions to be drawn are these:

i. A one-out-of-n system may be treated the same as a single channel in terms of choosing a test interval; and

ii. More than one channel should not be bypassed for testing at any one time.

4.9.A.6. Emergency 250 Volt DC to 600 Volt AC Inverters (Continued)

b. Once every scheduled refueling outage, the emergency 250 volt DC/600 volt AC inverters shall be subjected to a load test to demonstrate operational readiness.

3.9.A.7 Logic Systems

The following logic systems shall be operable:

a. The common accident signal logic system is operable.

b. The undervoltage relays and supporting system are operable.

c. The common accident signal logic system, and undervoltage relays and supporting system are operable.

4.9.A.7 Logic Systems

The logic systems shall be tested in the manner and frequency as follows:

a. Each division of the common accident signal logic system shall be tested every scheduled refueling outage to demonstrate that it will function on actuation of the core spray system to provide an automatic start signal to all 3 diesel generators.

b.1. Once every scheduled refueling outage, the conditions under which the undervoltage logic system is required shall be simulated with an undervoltage on each start bus to demonstrate that the diesel generators will start. The testing of the undervoltage logic shall demonstrate the operability of the 4160 volt load shedding and auto bus transfer circuits. The simulations shall test both the degraded voltage and the loss of off-site power relays.

2. Once per month, the relays which initiate energization of the emergency buses by the Diesel Generators when voltage is lost on the emergency buses and start-up transformer 1C, will be functionally tested.

c.1. Once per operating cycle each diesel generator shall be demonstrated operable by simulating both a loss of off-site power and a degraded voltage condition in conjunction with an accident test signal and verifying:

3.9.A.7 Logic Systems (Continued)

4.9.A.7 Logic Systems (Continued)

de-energization of the emergency buses and load shedding from the emergency buses; the diesel starts from ambient condition on the auto-start signal, energizes the emergency buses and sequentially closes all safety load breakers (load breakers in test position); and that on diesel generator trip that safety load breakers on the emergency bus open, and that with an auto-start signal the diesel restarts and energizes the emergency buses and sequentially closes all safety load breakers (load breakers in test position).

2. The undervoltage relays for the start buses shall be calibrated annually for trip and reset voltages and the measurements recorded.

d. The 600-volt load shedding logic system is operable.

d. Once every scheduled refueling outage, the condition under which the 600-volt load shedding logic system is required shall be simulated to demonstrate that the load shedding logic system will initiate load shedding on the diesel auxiliary boards, react MOV boards, and the 600-volt shutdown boards.

e. 600 volt swing bus transfer circuitry for MCC S018A and S018B.

f. Every two months the swing buses supplying power to the Low Pressure Coolant Injection System valves shall be tested to assure that the transfer circuits operate as designed.

B. Requirements for Continued Operation With Inoperable Components

Whenever the reactor is in the Start & Hot Standby or Run Mode and the reactor water temperature is greater than 212°F, the availability of auxiliary electrical power shall be as specified in 3.9.A, except as specified herein. If the requirements of this Specification cannot be met, an orderly shutdown shall be initiated and the reactor shall be placed in the Cold Shutdown Condition within 24 hours.

B. Requirements for Continued Operation With Inoperable Components

Continued reactor operation is permissible with inoperable components in accordance with Specification 3.9.B provided that the following increased Surveillance Requirements are satisfied.

4.9.A.2.e. Fuel Oil Trans[illegible] Pumps

Following the monthly test of the diesels, the fuel oil transfer pumps shall be operated to refill the day tank and to check the operation of these pumps.

3. 125/250 Volt DC Emergency Power System (Plant Batteries 1A and 1B)

The plant batteries may deteriorate with time, but precipitous failure is unlikely. The type of surveillance described in this specification is that which has been demonstrated through experience to provide an indication of a cell becoming irregular or inoperable long before it fails.

4. Emergency 4160 Volt Buses (1E, 1F, and 1G)

The emergency 4160 volt buses (1E, 1F, and 1G) are monitored to assure readiness and capability of transmitting power to the emergency load.

These buses distribute AC power to the required engineered safety feature equipment. The normal feeds and backup to the emergency buses (1E, 1F, and 1G) are taken from the startup auxiliary transformers. If neither startup auxiliary transformer is available, buses 1E, 1F, and 1G will be energized from the standby diesel generators.

5. Emergency 600 Volt Buses (1C and 1D)

The emergency 600 volt buses (1C and 1D) are monitored to assure readiness and capability of transmitting the emergency load.

6. Emergency 250 Volt DC to 600 Volt AC Inverters

The emergency 250 volt DC to 600 volt AC inverters are monitored to assure readiness and capability of transmitting power to the emergency loads.

7. Logic Systems

The periodic testing of the logic systems will verify the ability of the logic systems to bring the auxiliary electrical systems to running standby readiness with the presence of an accident signal and/or a degraded voltage or LOSP signal.

The periodic testing of the relays which initiate energization of the emergency buses by the diesel generators when voltage is lost on startup transformer 1C will verify operability of these relays.

The periodic simulation of accident signals will confirm the ability of the 600 volt load shedding logic system to sequentially shed and restart 600 volt loads if an accident signal were present and diesel generator voltage were the only source of electrical power.

D. RPS MG Sets

The surveillance requirements for the RPS power supply equipment will ensure the timely detection of potential component failures that might be caused by a sustained over-voltage or under-voltage conditions.

E. References

1. "Proposed IEEE Criteria for Class 1E Electric Systems for Nuclear Power Generating Stations" (IEEE Standard No. 308), June, 1969.

2. American Society for Testing and Materials, 1970 Annual Book of ASTM Standards, Part 17.

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 NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 27
License No. NPF-5

1. The Nuclear Regulatory Commission (the Commission) has found that:

    A. The application for amendment by Georgia Power Company, et al., (the licensee) dated October 2, 1981, as supplemented January 26, 1982, 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;

    D. The issuance of this 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 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. NPF-5 is hereby amended to read as follows:

    (2) Technical Specifications

    The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 27, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

ATTACHMENT TO LICENSE AMENDMENT NO. 27

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 area of change. The overleaf pages are provided to maintain document completeness.

REMOVE	INSERT
v	v
--	3/4 3-63
--	3/4 3-64
--	3/4 3-65
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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

3/4.3.8 DEGRADED STATION VOLTAGE PROTECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.8 The degraded station voltage relay channels shown in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: CONDITIONS 1, 2, and 3.

ACTION:

With the number of OPERABLE channels one less than the required OPERABLE channels, operation may proceed until performance of the next scheduled instrument functional test provided a trip signal is placed in the LOSP lock-out relay logic for the applicable inoperable channel.

SURVEILLANCE REQUIREMENTS

4.3.8 Each of the above required degraded station voltage relay channels shall be demonstrated OPERABLE by performance of the CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operation at the frequencies shown in Table 4.3.8-1.

TABLE 3.3.8-1

DEGRADED STATION VOLTAGE PROTECTION INSTRUMENTATION

Ref. No. (a)	Instrument	Required Operable Channels	Channels Required To Trip	Trip Setting
1	4.16 kv Emergency Bus Undervoltage Relay (Loss of Voltage Condition)	2/Bus	2/Bus	greater than or equal to 2800 volts At 2800 volts time delay will be less than or equal to 6.5 sec.
2	4.16 kv Emergency Bus Undervoltage Relay (Degraded Voltage Condition)	2/Bus	2/Bus	greater than or equal to 3280 volts At 3280 volts time delay will be less than or equal to 21.5 sec.

NOTES FOR TABLE 3.3.8-1

a. The column entitled "Ref. No." is only for convenience so that a one-to-one relationship can be established between items in Table 3.3.8-1 and items in Table 4.3.8-1.

TABLE 4.3.8-1

DEGRADED STATION VOLTAGE PROTECTION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Ref. No. (a)	Instrument (b)	Instrument Check Minimum Frequency	Instrument Functional Test Minimum Frequency	Instrument Calibration Minimum Frequency
1	4.16 kv Emergency Bus Undervoltage Relay (Loss of Voltage Condition)	N/A	Once/month	Once/operating cycle
2	4/16 kv Emergency Bus Undervoltage Relay (Degraded Voltage Condition)	N/A	Once/month	Once/operating cycle

NOTES FOR TABLE 4.3.8-1

a. The column entitled "Ref. No." is only for convenience so that a one-to-one relationship can be established between items in Table 3.3.8-1 and items in Table 4.3.8-1.

b. Surveillance of this instrumentation is required during reactor startup, power operation, and hot shutdown.

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

a. In accordance with the frequency specified in Table 4.8.1.1.2-1 on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the day fuel tanks.

2. Verifying the fuel level in the plant fuel storage tank.

3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.

4. Verifying the diesel starts from ambient condition and accelerates to synchronous speed in $\leq$ 12 seconds.

5. Verifying the generator is synchronized, loaded to 2764 kw for diesel generator 2A,2360 kw for diesel generator 1B or 2742 kw for diesel generator 2C in $\leq$ 120 seconds, and operates for $\geq$ 60 minutes.

6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

7. Verifying the pressure in both diesel air start receivers to be $\geq$ 225 psig.

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank, obtained in accordance with ASTM-D270-65, is within the acceptable limits specified in Table 1 of ASTM D975-74 when checked for viscosity, water and sediment.

c. At least once per 18 months during shutdown by:

1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.

2. Verifying that the automatic load sequence timer is OPERABLE with the interval between each load block within $\pm$ 10% of its design interval.

3. Verifying the generator capability to reject a load of $\geq$ 798 kw while maintaining voltage at 4160 $\pm$ 400 volts and frequency at 60 $\pm$ 2 Hz.

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying the generator capability to reject a load of 2764 kW for diesel generator 2A, 2360 kW for diesel generator 1B and 2742 kW for diesel generator 2C without exceeding 75% of the difference between nominal speed and the overspeed trip setpoint, or 15% above nominal, whichever is lower.

5. Simulating a loss of offsite power by itself, and:

   a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.

   b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the emergency busses with permanently connected loads, energizing the auto-connected shutdown loads through the load sequencer and operates for $\geq$ 5 minutes while its generator is loaded with the shutdown loads.

6. Verify that on an ECCS actuation test signal, without loss of offsite power, the diesel generator starts on the auto-start signal and operates on standby for $\geq$ 5 minutes.

7. Verifying that on a simulated loss of the diesel generator, with offsite power not available, the loads are shed from the emergency busses and that subsequent loading of the diesel generator is in accordance with design requirements.

8. Simulating with separate tests a 1) degraded voltage condition and 2) loss of offsite power in conjunction with an ECCS actuation test signal, and

   a) Verifying de-energization of the emergency busses and load shedding for the emergency busses.

   b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the emergency busses with permanently connected loads, energizes the auto-connected emergency (accident) loads through the load sequencer and operates for $\geq$ 5 minutes while its generator is loaded with the emergency loads.

   c) Verifying that all diesel generator trips, except engine overspeed, low lube oil pressure and generator differential, are automatically bypassed upon loss of voltage on the emergency bus concurrent with an ECCS actuation signal.

MONITORING INSTRUMENTATION (Continued)

FIRE DETECTION INSTRUMENTATION (Continued)

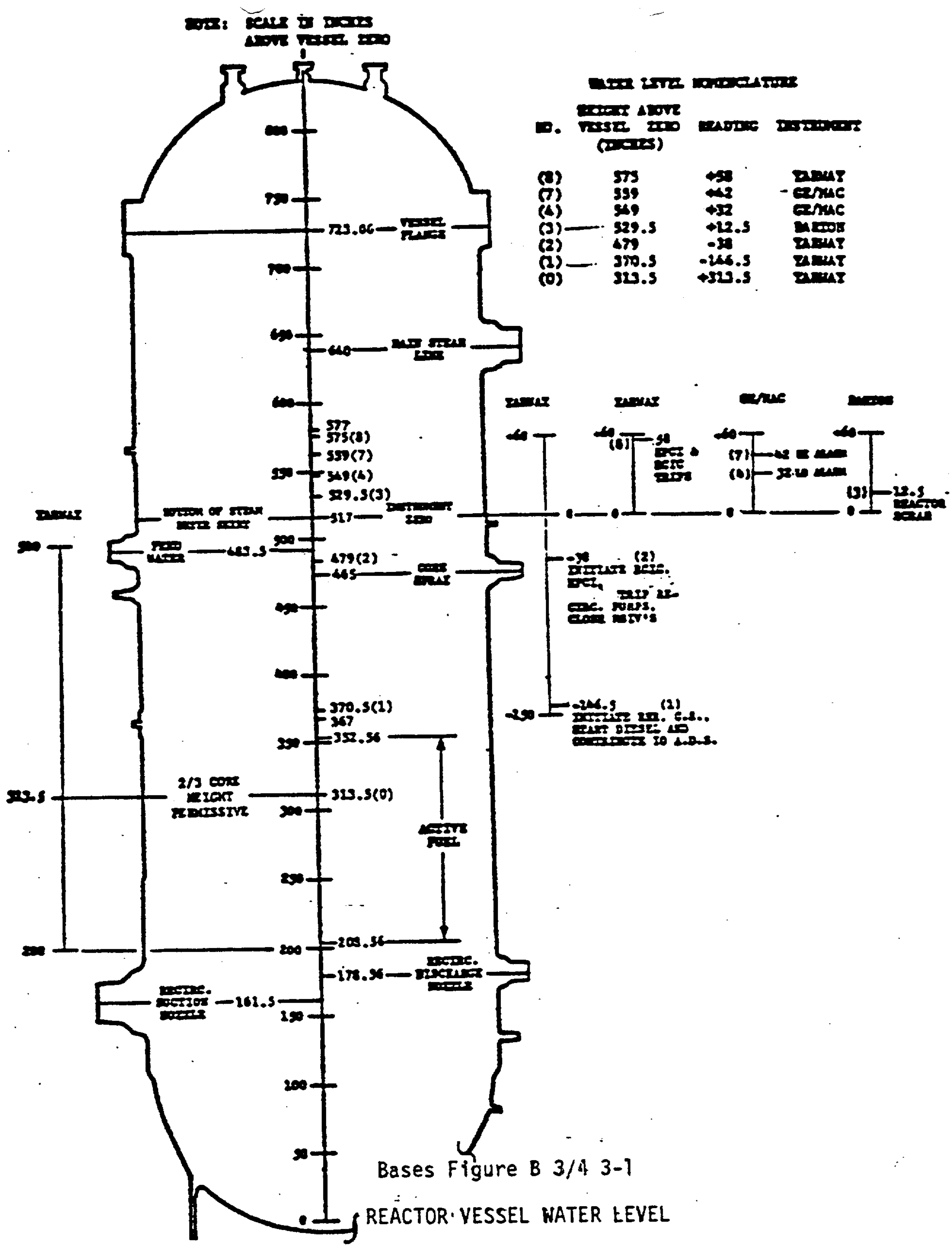
In the event that a portion of the fire detection instrumentation is inoperable, increasing the frequency of fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY.

3/4.3.7 TURBINE OVERSPEED PROTECTION SYSTEM

This specification is provided to ensure that the turbine overspeed protection system instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety-related components, equipment or structures.

3/4.3.8 DEGRADED STATION VOLTAGE PROTECTION INSTRUMENTATION

The undervoltate relays shall automatically initite the disconnection of offsite power sources whenever the voltage setpoint and time delay limits have been exceeded. This action shall provide voltage protection for the emergency power systems by preventing sustained degraded voltage conditions due to the offsite power source and interaction between the offsite and onsite emergency power systems. The undervoltage relays have a time delay characteristic that provides protection against both a loss of voltage and degraded voltage condition and thus minimizes the effect of short duration disturbances without exceeding the maximum time delay, including margin, that is assumed in the FSAR accident analyses.



WATER LEVEL NOMENCLATURE

NO.	HEIGHT ABOVE VESSEL ZERO (INCHES)	READING	INSTRUMENT
(8)	575	+58	YARWAY
(7)	559	+42	GE/MAC
(4)	549	+32	GE/MAC
(3)	529.5	+12.5	BARTON
(2)	479	-38	YARWAY
(1)	370.5	-146.5	YARWAY
(0)	313.5	+313.5	YARWAY

Bases Figure B 3/4 3-1

REACTOR VESSEL WATER LEVEL

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 88 TO FACILITY OPERATING LICENSE NO. DPR-57

AND AMENDMENT NO. 27 TO FACILITY OPERATING LICENSE NO. NPF-5

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

EDWIN I. HATCH NUCLEAR PLANT, UNITS NOS. 1 & 2
DOCKETS NOS. 50-321 AND 50-366

Introduction

By letter dated July 22, 1977, as supplemented October 9, 1980; May 21, October 2 and December 2, 1981; and January 26, 1982, Georgia Power Company (GPC or the licensee) requested changes to the Technical Specifications (TSs) appended to Facility Operating Licenses Nos. DPR-57 and NPF-5 for the Edwin I. Hatch Nuclear Plant, Units Nos. 1 and 2. These changes to the TSs result from the reanalysis and modification of plant systems and components deemed necessary in order to avoid the consequences of a degraded grid voltage condition to the electrical components of the Hatch Plant engineered safety features.

Background

A detailed review and technical evaluation of these proposed modifications and changes to the TSs was performed by EG&G Idaho, Incorporated (EG&G) under contract to the NRC, and with general supervision by the NRC staff. This work is reported by EG&G in "Degraded Grid Protection for Class 1E Power Systems, Edwin I. Hatch Nuclear Power Plant Units 1 and 2". We have reviewed this Technical Evaluation Report (TER) and concur in its conclusion that the proposed electrical design modifications and TS changes are acceptable.

Evaluation

The criteria used by EG&G in its technical evaluation of the proposed changes include the NRC General Design Criterion (GDC) 17, "Electric Power Systems", of Appendix A to 10 CFR 50; IEEE Standard 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations"; IEEE Standard 308-1977, "Voltage Ratings for Electrical Power Systems and Equipment - 60 Hz"; and staff positions defined in the NRC Generic Letter to GPC dated June 2, 1977.

The following electrical system design modifications and TS changes were proposed by GPC:

1. Modify the presently installed first level loss of voltage protective relaying. The existing system contains four CV-7 inverse time relays on each 4160 volt Class 1E bus with a setpoint of 70% of 4160 volts. The circuitry would be modified such that two of the above relays arranged in a two-out-of-two-logic per bus would be used for the first level of

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protection with a nominal setpoint of 67.3% of bus voltage with a time delay of 6.5 seconds. The two remaining relays arranged in a two-out-of-two-logic per bus would be used for the second level degraded grid voltage protection with a nominal setpoint of 78.8% of bus voltage with a time delay of 21.5 seconds. These inverse time relays would actuate with a longer time delay at higher voltages and in a shorter time period at voltages lower than the above stated nominal setpoints. If the voltage on the Class 1E buses should fall below the time dependent setpoint, automatic fast transfer to the alternate offsite power source would occur and the emergency diesel generators would start. If the alternate offsite power source is degraded or not available, the Class 1E buses would load shed, and the safety loads would be sequenced onto the diesel generators when 90% voltage and frequency output is obtained. The licensee has submitted relay operating curves based upon the manufacturer's data and tests performed by GPC which show the relay characteristic above and below the nominal setpoint. The relay setpoints selected are supported by analyses which indicate adequate protection is provided to ensure that acceptable voltage will be available to all Class 1E equipment under the worst case degraded grid voltage conditions analyzed. The licensee has additionally shown that spurious operation of the first and second level undervoltage relays would not occur during anticipated grid swings and starting of large loads. We have reviewed the licensee's data, tests and analyses and find this modification acceptable.

2. The existing design will block load shedding of all essential Class 1E loads while the emergency diesel generator is supplying the Class 1E bus. If the diesel generator breaker should open, the load shed feature would be reinstated. Any reapplication of loads to the emergency diesel generator would be through the load sequencer. We find these design features to be acceptable.

3. Additions and changes to the plant TSs including the surveillance requirements, allowable limits for the setpoint and time delay, and limiting conditions for operation have been provided by the licensee. An analysis to substantiate the limiting condition for operation and the minimum and maximum setpoint limits was included as part of the modification proposal. The changes and additions to the TSs have been reviewed by the NRC staff and found acceptable.

Conclusions on Design and TS Changes

We have reviewed the licensee's submittals and the EG&G TER and conclude that:

(1) The proposed degraded grid modifications will protect the Hatch Plant Class 1E equipment and systems from a sustained degraded voltage on the offsite power sources.

(2) The proposed TSs are acceptable.

(3) The existing load shedding circuit will block load shedding once the emergency diesel generators are supplying the engineered safety features loads. The load shedding feature will be reinstated if the diesel generator breaker should trip.

Based on the above, we conclude that the Edwin I. Hatch design for Units 1 and 2 is acceptable with respect to the degraded grid voltage protection for the Class 1E power system.

Environmental Consideration

We have determined that the amendments do 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 amendments involve 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 these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do 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 these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: May 6, 1982

Morton B. Fairtile and Richard L. Prevatte of the NRC staff prepared this Safety Evaluation.

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKETS NOS. 50-321 AND 50-366

GEORGIA POWER COMPANY, ET AL.

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendments Nos. 88 and 27 to Facility Operating Licenses Nos. DPR-57 and NPF-5, issued to Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia, which revised Technical Specifications (TSs) for operation of the Edwin I. Hatch Nuclear Plant, Units Nos. 1 and 2 (the facility) located in Appling County, Georgia. The amendments are effective as of the date of issuance.

The amendment modifies the TSs to provide limiting conditions of operation, surveillance and test requirements for facility modifications made at Hatch to protect against degraded grid voltage damaging safety related equipment.

The application for the amendments 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 1, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards con dera..on.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR Section 51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of these amendments.

For further details with respect to this action, see (1) the application for amendments dated July 22, 1977, as supplemented October 9, 1980, May 21, 1981, October 2, 1981, December 2, 1981, and January 26, 1982, (2) Amendments Nos. 88 and 27 to Licenses Nos. DPR-57 and NPF-5, 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, 301 City Hall Drive, 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 Licensing.

Dated at Bethesda, Maryland, this 6th day of May 1982.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing