June 13, 1991

Docket Nos. 50-424
and 50-425

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. 39 TO FACILITY OPERATING LICENSE NPF-68 AND AMENDMENT NO. 19 TO FACILITY OPERATING LICENSE NPF-81 - VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2 (TACs77658/77659)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 39 to Facility Operating License No. NPF-68 and Amendment No. 19 to Facility Operating License No. NPF-81 for the Vogtle Electric Generating Plant, Units 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated September 20, 1990.

The amendments provide an additional restriction to the Technical Specification for starting a reactor coolant pump in a Mode 4 water-solid condition.

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,

Darl S. Hood, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 39 to NPF-68
2. Amendment No. 19 to NPF-81
3. Safety Evaluation

cc w/enclosures:
See next page

| LA:PDII3 | SC:SEXB | PM:PDII3 | OGC | D:PDII3 |
|---|---|---|---|---|
| M | MCAEUSO | DHood DSH | Scattered | DMatthews |
| 5/23/91 | MAC 5/25/91 | 5/28/91 | 6/4/91 | 6/13/91 |

OFFICIAL RECORD COPY
Document Name: MODE 4 AMENDMENT

CP-1

9106200263 910613
PDR ADOCK 05000424
P PDR

NRC FILE CENTER COPY

DATED: June 13, 1991

AMENDMENT NO. 39 TO FACILITY OPERATING LICENSE NPF-68 - Vogtle Electric Generating Plant, Unit 1
AMENDMENT NO. 19 TO FACILITY OPERATING LICENSE NPF-81 - Vogtle Electric Generating Plant, Unit 2

DISTRIBUTION:

| | |
|---|---|
| Docket File | |
| NRC PDR | |
| Local PDR | |
| PD II-3 R/F | |
| Vogtle R/F | |
| S. Varga | 14-E-4 |
| G. Lainas | 14-H-3 |
| D. Matthews | 14-H-25 |
| R. Ingram | 14-H-25 |
| D. Hood | 14-H-25 |
| OGC-WF | 15-B-18 |
| D. Hagan | MNBB 4702 |
| G. Hill (8) | P1-37 |
| W. Jones | MNBB 7103 |
| C. Grimes | 11-E-22 |
| ACRS (10) | P-135 |
| GPA/PA | 17-F-2 |
| OC/LFMB | MNBB 4702 |
| L. Reyes | RII |
| L. Tran, SRXB | |

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

Vogtle Electric Generating Plant

cc:
Mr. J. A. Bailey
Manager - Licensing
Georgia Power Company
P. O. Box 1295
Birmingham, Alabama 35201

Mr. W. B. Shipman
General Manager, Vogtle Electric
Generating Plant
P. O. Box 1600
Waynesboro, Georgia 30830

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

Office of the County Commissioner
Burke County Commission
Waynesboro, Georgia 30830

Office of Planning and Budget
Room 615B
270 Washington Street, SW.
Atlanta, Georgia 30334

Mr. C. K. McCoy
Vice President - Nuclear, Vogtle Project
Georgia Power Company
P. O. Box 1295
Birmingham, Alabama 35201

Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 572
Waynesboro, Georgia 30830

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

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

Attorney General
Law Department
132 Judicial Building
Atlanta, Georgia 30334

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

Mr. Dan Smith
Program Director of
Power Production
Oglethorpe Power Corporation
2100 East Exchange Place
P. O. Box 1349
Tucker, Georgia 30085-1349

Charles A. Patrizia, Esq.
Paul, Hastings, Janofsky & Walker
12th Floor
1050 Connecticut Avenue, NW.
Washington, DC 20036

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

June 13, 1991

Docket Nos. 50-424
and 50-425

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. 39 TO FACILITY OPERATING LICENSE NPF-68 AND AMENDMENT NO. 19 TO FACILITY OPERATING LICENSE NPF-81 - VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2 (TACS 77658/77659)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 39 to Facility Operating License No. NPF-68 and Amendment No. 19 to Facility Operating License No. NPF-81 for the Vogtle Electric Generating Plant, Units 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated September 20, 1990.

The amendments provide an additional restriction to the Technical Specifications for starting a reactor coolant pump in a Mode 4 water-solid condition.

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,

Darl Hood

Darl S. Hood, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 39 to NPF-68
2. Amendment No. 19 to NPF-81
3. Safety Evaluation

cc w/enclosures:
See next page

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. 50-424

VOGTLE ELECTRIC GENERATING PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 39
License No. NPF-68

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

   A. The application for amendment to the Vogtle Electric Generating Plant, Unit 1 (the facility) Facility Operating License No. NPF-68 filed by the Georgia Power Company, acting for itself, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees) dated September 20, 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-68 is hereby amended to read as follows:

   Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 39 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. GPC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

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: June 13, 1991

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. 50-425

VOGTLE ELECTRIC GENERATING PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 19
License No. NPF-81

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

   A. The application for amendment to the Vogtle Electric Generating Plant, Unit 2 (the facility) Facility Operating License No. NPF-81 filed by the Georgia Power Company, acting for itself, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees) dated September 20, 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-81 is hereby amended to read as follows:

   Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 19 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. GPC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

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: June 13, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 39

FACILITY OPERATING LICENSE NO. NPF-68

AND LICENSE AMENDMENT NO. 19

FACILITY OPERATING LICENSE NO. NPF-81

DOCKET NOS. 50-424 AND 50-425

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 | Insert Pages |
|---|---|
| 3/4 4-3 and 3/4 4-4* | 3/4 4-3 and 3/4 4-4 |
| B 3/4 4-1 | B 3/4 4-1 |
| B 3/4 4-15* and B 3/4 4-16 | B 3/4 4-15 and B 3/4 4-16 |

*Overleaf pages containing no change

HOT SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.1.3 At least two of the loops/trains listed below shall be OPERABLE and at least one of these loops/trains shall be in operation:*

a. Reactor Coolant Loop 1 and its associated steam generator and reactor coolant pump,**

b. Reactor Coolant Loop 2 and its associated steam generator and reactor coolant pump,**

c. Reactor Coolant Loop 3 and its associated steam generator and reactor coolant pump,**

d. Reactor Coolant Loop 4 and its associated steam generator and reactor coolant pump,**

e. RHR train A, and

f. RHR train B.

APPLICABILITY: MODE 4.

ACTION:

a. With less than the above required loops/trains OPERABLE, immediately initiate corrective action to return the required loops/trains to OPERABLE status as soon as possible; if the remaining OPERABLE loop/train is an RHR train, be in COLD SHUTDOWN within 24 hours.

b. With no loop/train in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required loop/train to operation.

*All reactor coolant pumps and RHR pumps may be deenergized for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

**A reactor coolant pump shall not be started unless the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures. With no reactor coolant pump running, this value is reduced to 25°F at a RCS temperature of 350°F and varies linearly to 50°F at a RCS temperature of 200°F.

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required reactor coolant pump(s), if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.3.2 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 17% of wide range (LI-0501, LI-0502, LI-0503, LI-0504) at least once per 12 hours.

4.4.1.3.3 At least one reactor coolant or RHR train shall be verified in operation and circulating reactor coolant at least once per 12 hours.

## 3/4.4 REACTOR COOLANT SYSTEM

## BASES

### 3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

The plant is designed to operate with all reactor coolant loops in operation and maintain DNBR above 1.30 during all normal operations and anticipated transients. In MODES 1 and 2 with one reactor coolant loop not in operation this specification requires that the plant be in at least HOT STANDBY within 6 hours.

In MODE 3, two reactor coolant loops provide sufficient heat removal capability for removing core decay heat even in the event of a bank withdrawal accident; however, a single reactor coolant loop provides sufficient heat removal capacity if a bank withdrawal accident can be prevented, i.e., by opening the Reactor Trip System breakers.

In MODE 4, and in MODE 5 with reactor coolant loops filled, a single reactor coolant loop or RHR train provides sufficient heat removal capability for removing decay heat; but single failure considerations require that at least two trains/loops (either RHR or RCS) be OPERABLE.

In MODE 5 with reactor coolant loops not filled, a single RHR train provides sufficient heat removal capability for removing decay heat; but single failure considerations, and the unavailability of the steam generators as a heat removing component, require that at least two RHR trains be OPERABLE. The locking closed of the required valves, except valves 1208-U4-176 and 1208-U4-177 for short periods of time to maintain chemistry control, in Mode 5 (with the loops not filled) precludes the possibility of uncontrolled boron dilution of the filled portion of the Reactor Coolant System. These actions prevent flow to the RCS of unborated water in excess of that analyzed. These limitations are consistent with the initial conditions assumed for the boron dilution accident in the safety analysis.

The operation of one reactor coolant pump (RCP) or one RHR pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with boron reduction will, therefore, be within the capability of operator recognition and control.

The restrictions on starting an RCP with one or more RCS cold legs less than or equal to 350°F are provided to prevent RCS pressure transients, caused by energy additions from the Secondary Coolant System, which could exceed the limits of Appendix G to 10 CFR Part 50. The RCS will be protected against overpressure transients and will not exceed the limits of Appendix G by restricting starting of the RCPs to when the secondary water temperature of each steam generator is less than 50°F above each of the RCS cold leg temperatures. In MODE 4 the starting of a RCP, when no other RCP is operating, is restricted to a range of temperatures that are consistent with analysis assumptions used to demonstrate that the RHR design pressure is not exceeded when RHR relief valves are used for RCS overpressure protection.

PRESSURE/TEMPERATURE LIMITS (Continued)

be analyzed in order to assure that at any coolant temperature the lower value of the allowable pressure calculated for steady-state and finite heatup rates is obtained.

The second portion of the heatup analysis concerns the calculation of pressure-temperature limitations for the case in which a 1/4T deep outside surface flaw is assumed. Unlike the situation at the vessel inside surface, the thermal gradients established at the outside surface during heatup produce stresses which are tensile in nature and thus tend to reinforce any pressure stresses present. These thermal stresses, of course, are dependent on both the rate of heatup and the time (or coolant temperature) along the heatup ramp. Furthermore, since the thermal stresses at the outside are tensile and increase with increasing heatup rate, a lower bound curve cannot be defined. Rather, each heatup rate of interest must be analyzed on an individual basis.

Following the generation of pressure-temperature curves for both the steady-state and finite heatup rate situations, the final limit curves are produced as follows. A composite curve is constructed based on a point-by-point comparison of the steady-state and finite heatup rate data. At any given temperature, the allowable pressure is taken to be the lesser of the three values taken from the curves under consideration.

The use of the composite curve is necessary to set conservative heatup limitations because it is possible for conditions to exist such that over the course of the heatup ramp the controlling condition switches from the inside to the outside and the pressure limit must at all times be based on analysis of the most critical criterion.

Next, the composite curves for the heatup rate data and the cooldown rate data are adjusted for possible errors in the pressure and temperature sensing instruments by the values indicated on the respective curves.

Finally, the new 10CFR50 Appendix G Rule which addresses the metal temperature of the closure head flange and vessel flange regions is considered. This rule states that the minimum metal temperature of the closure flange regions should be at least 120°F higher than the limiting $RT_{NDT}$ for these regions when the pressure exceeds 20 percent of the preservice hydrostatic test pressure (621 psig for Westinghouse Plants). For Unit 1 the minimum temperature of the closure flange and vessel flange regions is 140°F, since the limiting $RT_{NDT}$ is 20°F (see Table B 3/4-4.1a). The Vogtle Unit 1 heatup curve shown on Figure 3-4.2a is not impacted by the new 10CFR50 rule. However, the Vogtle Unit 1 cooldown curve shown in Figure 3-4.3a is impacted by the new 10CFR50 rule. For Unit 2, the minimum temperature of the closure flange and vessel flange regions is 130°F, since the limiting $RT_{NDT}$ is 10°F (Table B 3/4-1b). The Unit 2 heatup curve shown in Figure 3.4-2b and the cooldown curve shown in Figure 3.4-3b are not impacted by the new 10 CFR 50 rule.

PRESSURE/TEMPERATURE LIMITS (Continued)

Although the pressurizer operates in temperature ranges above those for which there is reason for concern of nonductile failure, operating limits are provided to assure compatibility of operation with the fatigue analysis performed in accordance with the ASME Code requirements.

COLD OVERPRESSURE PROTECTION SYSTEMS

The OPERABILITY of two PORVs, two RHR suction relief valves or an RCS vent capable of relieving at least 670 gpm water flow at 470 psig ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold legs are less than or equal to 350°F. Either PORV or either RHR suction relief valve has adequate relieving capability to protect the RCS from overpressurization when the transient is limited to either: (1) the start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 50°F above the RCS cold leg temperatures, or (2) the start of all three charging pumps and subsequent injection into a water-solid RCS.

The Maximum Allowed PORV Setpoint for the Cold Overpressure Protection System (COPS) is derived by analysis which models the performance of the COPS assuming various mass input and heat input transients. Operation with a PORV Setpoint less than or equal to the maximum Setpoint ensures that the nominal 16 EFPY Appendix G reactor vessel NDT limits criteria will not be violated with consideration for a maximum pressure overshoot beyond the PORV setpoint which can occur as a result of time delays in signal processing and valve opening, instrument uncertainties, and single failure. To ensure that mass and heat input transients more severe than those assumed cannot occur, Technical Specifications require lockout of all safety injection pumps while in MODES 4, 5, and 6 with the reactor vessel head installed and disallow start of an RCP if secondary temperature is more than 50°F above primary temperature. Additional temperature limitations are placed on the starting of a Reactor Coolant Pump in Specification 3.4.1.3. These limitations assure that the RHR system remains within its ASME design limits when the RHR relief valves are used to prevent RCS overpressurization.

The Maximum Allowed PORV Setpoint for the COPS will be updated based on the results of examinations of reactor vessel material irradiation surveillance specimens performed as required by 10 CFR Part 50, Appendix H, and in accordance with the schedule in Table 16.3-3 of the VEGP FSAR.

3/4.4.10 STRUCTURAL INTEGRITY

The inservice inspection and testing programs for ASME Code Class 1, 2, and 3 components ensure that the structural integrity and operational readiness of these components will be maintained at an acceptable level throughout the life of the plant. These programs are in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g) except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i).

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 39 TO FACILITY OPERATING LICENSE NPF-68

AND AMENDMENT NO. 19 TO FACILITY OPERATING LICENSE NPF-81

GEORGIA POWER COMPANY, ET AL.

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

DOCKET NOS. 50-424 AND 50-425

## 1.0 INTRODUCTION

By letter dated September 20, 1990, Georgia Power Company, et al. (the licensee) proposed license amendments to change Technical Specification (TS) 3.4.1.3. TS 3.4.1.3 prohibits the starting of a reactor coolant pump (RCP) with the reactor coolant system (RCS) in hot shutdown (Mode 4) unless the secondary water temperature of each steam generator is less than 50 degrees F above each of the RCS cold leg temperatures. The proposed amendments would supplement this TS requirement by adding that, with no RCP running, this value of 50 degrees F is reduced to 25 degrees F at an RCS temperature of 350 degrees F and varies linearly to 50 degrees F at an RCS temperature of 200 degrees F.

Corresponding TS Bases discussing the 50 degrees F value would also be supplemented accordingly. Bases 3/4.4.1, Reactor Coolant Loops and Coolant Circulation, would reflect that in Mode 4 the starting of an RCP, when no other RCP is operating, is restricted to a range of temperatures that are consistent with analysis assumptions used to demonstrate that the residual heat removal (RHR) design pressure is not exceeded when RHR relief valves are used for RCS overpressure protection. Bases 3/4.4.9, Cold Overpressure Protection Systems, would reflect that additional temperature limitations are placed on the starting of an RCP to ensure that the RHR system remains within ASME design limits when the RHR relief valves are used to prevent RCS overpressurization.

## 2.0 BACKGROUND

Westinghouse has identified a discrepancy in the original design basis for the RHR relief valves and the cold overpressurization mitigating system (COMS). The COMS analysis takes credit for the use of two RHR relief valves. However, the sizing of the RHR relief valves for the protection of the RHR pressure boundary was based on a different set of analyses than the analyses used by COMS. This resulted in a TS that is not consistent with the analysis assumptions used to demonstrate that the RHR system is not overpressurized as a result of the COMS design basis heat addition transient, when only one train of RHR is in service.

The heat addition transient analysis for the COMS design assumes that with no other RCP running, one RCP is started with a secondary side water temperature

50 degrees F higher than that of the primary side. If it is assumed that one train of the RHR is in operation and that the other RHR train is isolated from the RCS, the resulting pressure could exceed the allowable RHR pressure although it would not exceed the RCS pressure limit. The TS allows operation with only one train of RHR when two PORVs are available for COMS, however, the PORV setpoint is higher than the RHR design pressure.

To preclude this situation, the licensee proposed to modify the Technical Specifications to restrict starting an RCP during Mode 4 when no other RCP is in operation and the RCS is water solid. For the condition specified, the maximum allowable delta-T varies between 25 degrees F and 50 degrees F according to the RCS temperature to prevent exceeding the RHR design pressure during the time when the COMS protection is being provided by the PORVs and only one RHR relief valve is available.

## 3.0 EVALUATION

By prohibiting the start of an RCP unless the secondary water temperature in the steam generator (SG) is less than 50 degrees F higher than the RCS temperature, the current TS ensures that the RHR system remains within its Appendix G and ASME design limits when the RHR relief valves are used to prevent RCS overpressurization.

The licensee stated that analyses have been completed which show that two RHR relief valves have adequate capacity to mitigate the heat injection event for a primary-to-secondary delta-T of up to 50 degrees F over the entire range of RCS temperature for which COMS is applicable. However, TS 3/4.1.3 allows the use of one train of RHR to cooldown in Mode 4. With one train in Mode 4, the licensee's analyses demonstrate that one RHR relief valve has adequate capacity to mitigate the design basis heat addition event for a primary-to-secondary delta-T of up to 50 degrees F for a primary temperature of 200 degrees F.

For the primary temperature range from 200 degrees F to 350 degrees F, a single RHR relief valve has adequate capacity to mitigate the heat addition event for a primary-to-secondary delta-T which varies linearly with RCS temperature from 50 degrees F to 25 degrees F since the actual pressure increase is proportional to the initial reactor coolant temperature.

Overpressurization of the RHR system would require a combination of conditions which, although currently allowed by the TS, are unlikely to occur simultaneously. The conditions are 1) the reactor must be in Mode 4 with no RCPs operating, 2) the secondary side must be 25 degrees F to 50 degrees F hotter than the primary side, 3) the RCS must be water solid, 4) an RCP must be started, and 5) the overpressure protection must be provided by the two PORVs while only one train of RHR is isolated from the RCS.

The licensee notes that plant operating procedures do not produce this combination of conditions because they require at least one RCP to be in operation when the RCS temperature is greater than 160 degrees F and the delta-T to be less than 10 degrees F when starting an RCP. Furthermore, by operating procedure, the RCS is not normally water solid except when below 200 degrees F.

The NRC staff has reviewed the proposed changes and concludes that the temperature restriction for starting the RCP when no other RCP is running and the RCS is water solid is appropriate and acceptable. Because the current TS for Mode 4 limits the initial temperature difference for starting an RCP to 50 degrees F regardless of whether or not another RCP is operating and regardless of the initial temperature, we find that the proposed change makes the TS consistent with the prevention of the RHR system overpressurization when only one train of RHR is in operation.

## 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Georgia State official was notified of the proposed issuance of the amendments. The State official had no comments.

## 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (56 FR 20036). Accordingly, the amendments meet 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 amendments.

## 6.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: L. Tran, SRXB/NRR
D. Hood, PDII-3/NRR

Date: June 13, 1991