December 4, 1987

Docket No.: 50-416

DISTRIBUTION

See Attached List

Mr. Oliver D. Kingsley, Jr.
Vice President, Nuclear Operations
System Energy Resources, Inc.
Post Office Box 23054
Jackson, Mississippi 39205

Dear Mr. Kingsley:

SUBJECT: ISSUANCE OF AMENDMENT NO. 38 TO FACILITY OPERATING LICENSE NO. NPF-29 - GRAND GULF NUCLEAR STATION, UNIT 1, REGARDING ONE-TIME EXCEPTIONS TO TECHNICAL SPECIFICATION 3.0.4 (TAC NO. 65724)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 38 to Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station, Unit 1. This amendment consists of changes to the Technical Specifications (TS) in response to your application dated July 6, 1987, as superseded October 23, 1987, and as supplemented November 19, 1987.

The amendment provides one-time exceptions to Technical Specification 3.0.4 for use during the second refueling outage. The exceptions will allow entry into specified operational conditions without meeting the Limiting Condition for Operation, provided the requirements of associated action statements are met.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,

/S/

Lester L. Kintner, Project Manager
Project Directorate II-1
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 38 to NPF-29
2. Safety Evaluation

cc w/enclosures:
See next page

LA:PD21:DRPR	PM:PD21:DRPR	RSB	D:PD21:DRPR
PAnderson	LKintner/dsf	WHodges	EAdensam
11/27/87	11/27/87	11/30/87	11/27/87

8712090177 871204
PDR ADOCK 05000416
P PDR

Mr. Oliver D. Kingsley, Jr.
System Energy Resources, Inc.

Grand Gulf Nuclear Station (GGNS)

cc:
Mr. Ted H. Cloninger
Vice President, Nuclear Engineering
and Support
System Energy Resources, Inc.
Post Office Box 23054
Jackson, Mississippi 39205

Robert B. McGehee, Esquire
Wise, Carter, Child, Steen and Caraway
P.O. Box 651
Jackson, Mississippi 39205

Nicholas S. Reynolds, Esquire
Bishop, Liberman, Cook, Purcell
and Reynolds
1200 17th Street, N.W.
Washington, D. C. 20036

Mr. Ralph T. Lally
Manager of Quality Assurance
Middle South Utilities System
Services, Inc.
P.O. Box 61000
New Orleans, Louisiana 70161

Mr. John G. Cesare
Director, Nuclear Licensing
System Energy Resources, Inc.
P.O. Box 23054
Jackson, Mississippi 39205

Mr. R. W. Jackson, Project Engineer
Bechtel Power Corporation
15740 Shady Grove Road
Gaithersburg, Maryland 20877-1454

Mr. Ross C. Butcher
Senior Resident Inspector
U.S. Nuclear Regulatory Commission
Route 2, Box 399
Port Gibson, Mississippi 39150

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

Mr. James E. Cross
GGNS Site Director
System Energy Resources, Inc.
P.O. Box 756
Port Gibson, Mississippi 39150

Mr. C. R. Hutchinson
GGNS General Manager
System Energy Resources, Inc.
Post Office Box 756
Port Gibson, Mississippi 39150

The Honorable William J. Guste, Jr.
Attorney General
Department of Justice
State of Louisiana
Baton Rouge, Louisiana 70804

Office of the Governor
State of Mississippi
Jackson, Mississippi 39201

Attorney General
Gartin Building
Jackson, Mississippi 39205

Mr. Jack McMillan, Director
Division of Solid Waste Management
Mississippi Department of Natural
Resources

Post Office Box 10385
Jackson, Mississippi 39209

Alton B. Cobb, M.D.
State Health Officer
State Board of Health
P.O. Box 1700
Jackson, Mississippi 39205

President
Claiborne County Board of Supervisors
Port Gibson, Mississippi 39150

AMENDMENT NO. 38 TO FACILITY OPERATING LICENSE NO. NPF-29 - GRAND GULF, UNIT 1

DISTRIBUTION:

Docket No. 50-416
NRC PDR
Local PDR
PD21 r/f
S. Varga
G. Lainas
P. Anderson
L. Kintner
OGC-B
D. Hagan
E. Jordan
J. Partlow
T. Barnhart (4)
Wanda Jones
E. Butcher
ACRS (10)
GPA/PA
ARM/LFMB

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

MISSISSIPPI POWER & LIGHT COMPANY

SYSTEM ENERGY RESOURCES, INC.

SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION

DOCKET NO. 50-416

GRAND GULF NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 38
License No. NPF-29

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

   A. The application for amendment by System Energy Resources, Inc., (the licensee), dated July 6, 1987, as superseded October 23, 1987, and as supplemented November 19, 1987, 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-29 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 38 , are hereby incorporated into this license. System Energy Resources, Inc. 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.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/

Elinor G. Adensam, Director
Project Directorate II-1
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 4, 1987

LA:PD21:DRPR	PM:PD21:DRPR	D:PD21:DRPR	OGC-B
PAnderson	LKintner/dsf	EAdensam	
11/30/87	11/30/87	11/30/87	11/ /87

ATTACHMENT TO LICENSE AMENDMENT NO. 38

FACILITY OPERATING LICENSE NO. NPF-29

DOCKET NO. 50-416

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf page(s) have been provided to maintain document completeness.

Remove	Insert
3/4 4-27	3/4 4-27
3/4 5-6	3/4 5-6
3/4 7-1	3/4 7-1
3/4/ 7-2	3/4 7-2
3/4 9-17	3/4 9-17 (overleaf)
3/4 9-18	3/4 9-18
3/4 9-19	3/4 9-19
3/4 9-20	3/4 9-20 (overleaf)

COLD SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.9.2 Two# shutdown cooling mode loops of the residual heat removal (RHR) system shall be OPERABLE and, unless at least one recirculation pump is in operation, at least one shutdown cooling mode loop shall be in operation*,## with each loop consisting of at least:

a. One OPERABLE RHR pump, and

b. One OPERABLE RHR heat exchanger.

APPLICABILITY: OPERATIONAL CONDITION 4.

ACTION:

a. With less than the above required RHR shutdown cooling mode loops OPERABLE, within one hour and at least once per 24 hours thereafter, demonstrate the operability of at least one alternate method capable of decay heat removal for each inoperable RHR shutdown cooling mode loop.

b. With no RHR shutdown cooling mode loop in operation, within one hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature and pressure at least once per hour.

c. The provisions of Specification 3.0.4 are not applicable.**

SURVEILLANCE REQUIREMENTS

4.4.9.2 At least one shutdown cooling mode loop of the residual heat removal system or alternate method shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

#One RHR shutdown cooling mode loop may be inoperable for up to 2 hours for surveillance testing provided the other loop is OPERABLE and in operation.

*The shutdown cooling pump may be removed from operation for up to 2 hours per 8 hour period provided the other loop is OPERABLE.

##The shutdown cooling mode loop may be removed from operation during hydrostatic testing.

**This exception is applicable until startup from the second refueling outage.

3/4 5.2 ECCS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.5.2 At least two of the following shall be OPERABLE:

a. The low pressure core spray (LPCS) system with a flow path capable of taking suction from the suppression pool and transferring the water through the spray sparger to the reactor vessel.

b. Low pressure coolant injection (LPCI) subsystem "A" of the RHR system with a flow path capable of taking suction from the suppression pool upon being manually realigned and transferring the water to the reactor vessel.

c. Low pressure coolant injection (LPCI) subsystem "B" of the RHR system with a flow path capable of taking suction from the suppression pool upon being manually realigned and transferring the water to the reactor vessel.

d. Low pressure coolant injection (LPCI) subsystem "C" of the RHR system with a flow path capable of taking suction from the suppression pool upon being manually realigned and transferring the water to the reactor vessel.

e. The high pressure core spray (HPCS) system with a flow path capable of taking suction from one of the following water sources and transferring the water through the spray sparger to the reactor vessel:

   1. From the suppression pool, or
   2. When the suppression pool level is less than the limit or is drained, from the condensate storage tank containing at least 170,000 available gallons of water, equivalent to a level of 18 feet.

APPLICABILITY: OPERATIONAL CONDITION 4 and 5*.

ACTION:

a. With one of the above required subsystems/systems inoperable, restore at least two subsystems/systems to OPERABLE status within 4 hours or suspend all operations that have a potential for draining the reactor vessel. The provisions of Specification 3.0.4 are not applicable.#

b. With both of the above required subsystems/systems inoperable, suspend CORE ALTERATIONS and all operations that have a potential for draining the reactor vessel. Restore at least one subsystem/system to OPERABLE status within 4 hours or establish SECONDARY CONTAINMENT INTEGRITY within the next 8 hours.

*The ECCS is not required to be OPERABLE provided that the reactor vessel head is removed, the cavity is flooded, the upper containment fuel pool gates are removed, the spent fuel pool gates are removed, and water level is maintained within the limits of Specifications 3.9.8 and 3.9.9.

#This exception is applicable until startup from the second refueling outage.

3/4.7 PLANT SYSTEMS

3/4.7.1 SERVICE WATER SYSTEMS

STANDBY SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.1 Each of the following independent standby service water (SSW) system subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE SSW pump, and
b. An OPERABLE flow path capable of taking suction from the associated SSW cooling tower basin and transferring the water through the RHR heat exchangers and to associated plant equipment, as required, shall be OPERABLE as follows:
   1. In OPERATIONAL CONDITIONS 1, 2, and 3: two subsystems; and
   2. In OPERATIONAL CONDITIONS 4, 5, and *: the subsystems associated with the systems and components required to be OPERABLE by Specifications 3.4.9.2, 3.5.2, 3.8.1.2, 3.9.11.1 or 3.9.11.2.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5 and *.

ACTION:

a. In OPERATIONAL CONDITION 1, 2 or 3:
   1. With one SSW subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
   2. With both SSW subsystems inoperable, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN** within the following 24 hours.
b. In OPERATIONAL CONDITION 3 or 4 with the SSW subsystem, which is associated with an RHR loop required OPERABLE by Specification 3.4.9.1 or 3.4.9.2, inoperable, declare the associated RHR loop inoperable and take the ACTION required by Specification 3.4.9.1 or 3.4.9.2, as applicable. The provisions of Specification 3.0.4 are not applicable for entry into OPERATIONAL CONDITION 4.#
c. In OPERATIONAL CONDITION 4 or 5 with the SSW subsystem, which is associated with an ECCS pump required OPERABLE by Specification 3.5.2, inoperable, declare the associated ECCS pump inoperable and take the ACTION required by Specification 3.5.2. The provisions of Specification 3.0.4 are not applicable.#

---

*When handling irradiated fuel in the primary or secondary containment.

**Whenever both SSW subsystems are inoperable, if unable to attain COLD SHUTDOWN as required by this ACTION, maintain reactor coolant temperature as low as practical by use of alternate heat removal methods.

#This exception is applicable until startup from the second refueling outage.

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

d. In OPERATIONAL CONDITION 5 with the SSW subsystem, which is associated with an RHR system required OPERABLE by Specification 3.9.11.1 or 3.9.11.2, inoperable, declare the associated RHR system inoperable and take the ACTION required by Specification 3.9.11.1 or 3.9.11.2, as applicable. The provisions of Specification 3.0.4 are not applicable.#

e. In OPERATIONAL CONDITION *, with the SSW subsystem, which is associated with a diesel generator required OPERABLE by Specification 3.8.1.2, inoperable, declare the associated diesel generator inoperable and take the ACTION required by Specification 3.8.1.2. The provisions of Specification 3.0.3 are not applicable.

f. In OPERATIONAL CONDITIONS 1, 2, 3, 4, or 5 with the SSW subsystem, which is associated with a diesel generator required OPERABLE by Specification 3.8.1.1 or 3.8.1.2, inoperable, declare the associated diesel generator inoperable and take the ACTION required by Specification 3.8.1.1 or 3.8.1.2 as applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.1 At least the above required standby service water system subsystem(s) shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve in the flow path that is not locked, sealed or otherwise secured in position, is in its correct position.

b. At least once per 18 months during shutdown by verifying that each automatic valve servicing safety related equipment actuates to its correct position on an actuation test signal.

#This exception is applicable until startup from the second refueling outage.

SURVEILLANCE REQUIREMENTS

4.9.10.2.1 Within 4 hours prior to the start of removal of control rods and/or control rod drive mechanisms from the core and/or reactor pressure vessel and at least once per 24 hours thereafter until all control rods and control rod drive mechanisms are reinstalled and all control rods are inserted in the core, verify that:

a. The reactor mode switch is OPERABLE and locked in the Shutdown position or in the Refuel position per Specification 3.9.1.

b. The SRM channels are OPERABLE per Specification 3.9.2.

c. The SHUTDOWN MARGIN requirements of Specification 3.1.1 are satisfied.

d. All other control rods are either inserted or have the surrounding four fuel assemblies removed from the core cell.

e. The four fuel assemblies surrounding each control rod and/or control rod drive mechanism to be removed from the core and/or reactor vessel are removed from the core cell.

f. All fuel loading operations are suspended unless all control rods are inserted in the core.

4.9.10.2.2 Following replacement of all control rods and/or control rod drive mechanisms removed in accordance with this specification, perform a functional test of the "one-rod-out" Refuel position interlock, if this function had been bypassed.

3/4.9.11 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.11.1 At least one shutdown cooling mode train of the residual heat removal (RHR) system shall be OPERABLE and in operation* with at least:

a. One OPERABLE RHR pump, and

b. One OPERABLE RHR heat exchanger train.

APPLICABILITY: OPERATIONAL CONDITION 5, when irradiated fuel is in the reactor vessel and the water level is greater than or equal to 22 feet 8 inches above the top of the reactor pressure vessel flange.

ACTION:

a. With no RHR shutdown cooling mode train OPERABLE, within one hour and at least once per 24 hours thereafter, demonstrate the OPERABILITY of at least one alternate method capable of decay heat removal. Otherwise, suspend all operations involving an increase in the reactor decay heat load and establish SECONDARY CONTAINMENT INTEGRITY within 4 hours.

b. With no RHR shutdown cooling mode train in operation, within one hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour.

c. The provisions of Specification 3.0.4 are not applicable.#

SURVEILLANCE REQUIREMENTS

4.9.11.1 At least one shutdown cooling mode train of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

*The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.

#This exception is applicable until startup from the second refueling outage.

LIMITING CONDITION FOR OPERATION

3.9.11.2 Two shutdown cooling mode trains of the residual heat removal (RHR) system shall be OPERABLE and at least one train shall be in operation,* with each train consisting of at least:

a. One OPERABLE RHR pump, and

b. One OPERABLE RHR heat exchanger train.

APPLICABILITY: OPERATIONAL CONDITION 5, when irradiated fuel is in the reactor vessel and the water level is less than 22 feet 8 inches above the top of the reactor pressure vessel flange.

ACTION:

a. With less than the above required shutdown cooling mode trains of the RHR system OPERABLE, within one hour and at least once per 24 hours thereafter, demonstrate the OPERABILITY of at least one alternate method capable of decay heat removal for each inoperable RHR shutdown cooling mode train.

b. With no RHR shutdown cooling mode train in operation, within one hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour.

c. The provisions of Specification 3.0.4 are not applicable.#

SURVEILLANCE REQUIREMENTS

4.9.11.2 At least one shutdown cooling mode train of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

*The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.

#This exception is applicable until startup from the second refueling outage.

3/4.9.12 HORIZONTAL FUEL TRANSFER SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.12 The horizontal fuel transfer system (HFTS) may be in operation provided that:

a. Room 1A525, Auxiliary Building, elevation 182'0", the room through which the transfer system penetrates, is sealed.

b. All interlocks with the refueling and fuel handling platforms are OPERABLE.

c. All HFTS primary carriage position indicators are OPERABLE.

APPLICABILITY: OPERATIONAL CONDITION 4* and 5*.

ACTION:

With the requirements of the above specification not satisfied, suspend HFTS operation with the HFTS at either the Spent Fuel Building pool or the Reactor Containment Building pool terminal point.

SURVEILLANCE REQUIREMENTS

4.9.12 Within 24 hours prior to the operation of HFTS and at least once per 7 days thereafter, verify that:

a. Room 1A525, Auxiliary Building, elevation 182'0", the room through which the transfer system penetrates, is sealed.

b. All interlocks with the refueling and fuel handling platforms are OPERABLE.

c. All HFTS primary carriage position indicators are OPERABLE.

*When the reactor mode switch is in the Refuel position.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 38 TO FACILITY OPERATING LICENSE NO. NPF-29

MISSISSIPPI POWER & LIGHT COMPANY

SYSTEM ENERGY RESOURCES, INC.

SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated July 6, 1987, as superseded October 23, 1987, and supplemented November 19, 1987, System Energy Resources, Inc. (SERI or the licensee), requested an amendment to Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station, Unit 1. The proposed amendment would provide one time exceptions to Section 3.0.4 in the Technical Specifications (TS) for use during the second refueling outage. The exceptions would allow entry into certain operational conditions without meeting the Limiting Conditions for Operation (LCO), provided the requirements of associated action statements are met. The action statements require alternate methods of decay heat removal and reactor coolant circulation when the residual heat removal (RHR) system or ECCS subsystems required by the LCOs are inoperable.

The licensee supplemented its application by letter dated November 19, 1987, in response to staff's request for additional information. This November 19, 1987 submittal, which provided a more detailed description and analysis of alternate methods for residual heat removal and reactor coolant circulation, did not alter the staff's proposed no significant hazards determination as noticed in the Federal Register on November 4, 1987 (52 FR 42363).

2.0 EVALUATION

Section 3.0.4 in the Technical Specifications states:

> 3.0.4 Entry into an OPERATIONAL CONDITION or other specified condition shall not be made unless the conditions for the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements. This provision shall not prevent passage through or to OPERATIONAL CONDITIONS as required to comply with ACTION requirements. Exceptions to these requirements are stated in the individual Specifications.

The proposed changes to the TS would provide exceptions to Specification 3.0.4 during the second refueling outage for the following TS.

° The first proposed change will add a new Action "c" and "**" footnote to Specification 3.4.9.2, Reactor Coolant System - Cold Shutdown, to state that the provisions of Specification 3.0.4 are not applicable and that the change is applicable until startup from the second refueling outage.

° The second proposed change will add a statement to Action "a" of Specification 3.5.2, Emergency Core Cooling System (ECCS) - Shutdown, to state that the provisions of Specification 3.0.4 are not applicable. A "#" footnote will also be added to state that the change is applicable until startup from the second refueling outage.

° The third proposed change will add statements to Actions "b," "c," and "d" of Specification 3.7.1.1, Standby Service Water (SSW) System, to state that the provisions of Specification 3.0.4 are not applicable. The change to Action "b" will only be applicable for entry into Operational Condition 4. Also added is a "*" footnote to state that the change is applicable until startup from the second refueling outage.

° The fourth and fifth proposed changes will add new Actions "c" to Specifications 3.9.11.1 and 3.9.11.2, Refueling Operations - Residual Heat Removal (RHR) and Coolant Circulation, to state that the provisions of Specification 3.0.4 are not applicable. Also added are "#" footnotes to state that the changes are applicable until startup from the second refueling outage.

During the second refueling outage, presently scheduled to extend from November 6, 1987 through January 8, 1988, various combinations of ECCS systems and RHR trains will be made inoperable to perform required maintenance, surveillance testing and inspections and to make design changes. These activities will require the plant to enter action statements for shutdown cooling and ECCS at various times during the outage. These proposed changes will provide one-time exceptions to Specification 3.0.4 for these specifications for the second refueling outage only, to allow the plant to enter Operational Conditions 4 and 5 and to allow reactor head tensioning, reactor cavity flooding and reactor cavity draining while in these action statements. With the present TS, these ECCS and RHR maintenance and testing activities would have to be interrupted during head tensioning and reactor cavity flooding and draining in order to make the ECCS and RHR operable as required by the LCO of the TS. After completing the head tensioning, reactor cavity flooding and reactor cavity draining, the ECCS and RHR systems would again be made inoperable and the action statements entered to complete maintenance and testing activities.

In addition to the TS requirements, the licensee's outage policy is to maintain at least one ECCS system and one fuel pool cooling and cleanup system functional at all times. The term "functional" means that the system can perform its intended safety function (i.e., ECCS can inject water into the reactor at rated flow and decay heat removal systems can perform at rated capacity), although some manual actions may be required, such as closing breakers or realigning valves. Also, at least one shutdown cooling mode train of RHR will be functional throughout the outage unless required maintenance or testing activities preclude this. The diesel generator associated with each of the above systems is also required to be functional. In accordance with this outage policy, the current outage schedule (which will utilize these proposed TS changes) provides for separate outage intervals for the two RHR shutdown cooling trains, ensuring that the time interval when both trains are inoperable is minimized and is scheduled at a time when the reactor cavity is flooded.

By letter dated November 19, 1987, the licensee has described how the proposed exceptions would be used in the second refueling outage and the alternate methods of decay heat removal and reactor coolant circulation which would be used to fulfill action statement requirements. The dates used are based on the current schedule for the second refueling outage and are subject to change.

During the period from November 20 through December 8, 1987, inclusive, Specification 3.9.11.1 would be applicable and would require one RHR shutdown cooling train to be operable and in operation. Both shutdown cooling trains are scheduled to be inoperable, requiring entry into the action statements of Specification 3.9.11.1. One action statement requires an alternate method of decay heat removal and the other action statement requires an alternate reactor coolant circulation method. The alternate method of decay heat removal scheduled is the fuel pool cooling and cleanup (FPCCU) system and the reactor water cleanup (RWCU) system used concurrently. Alternate coolant circulation is achieved by the RWCU system.

For the period from December 8, 1987 through December 23, 1987, inclusive, two RHR shutdown cooling trains are required to be operable with one in operation (Specification 3.9.11.2). Over this period RHR train B is scheduled to be operable and in operation and RHR train A is scheduled to be inoperable. The RWCU system and the Control Rod Drive (CRD) System (concurrently) would be utilized as an alternate decay heat removal method, as required by the action statement of Specification 3.9.11.2.

Exceptions to Specification 3.0.4 are scheduled to be utilized on December 8 and December 22, 1987. On December 8, SERI has scheduled draining of the reactor cavity water level below the 22 feet 8 inch level to decontaminate the cavity, remove vibration instrumentation and replace the reactor vessel head. This requires movement from Specification 3.9.11.1 to Specification 3.9.11.2. The Limiting Conditions for Operation are not met without relying on the action statement of Specification 3.9.11.2 requiring an exception to Specification 3.0.4.

Specification 3.5.2 in conjunction with Specification 3.0.4, requires two ECCS systems to be operable in order to drain the reactor cavity below 22 feet 8 inches. Low pressure coolant injection (LPCI) Train B is required to be made inoperable after the cavity draining in order to perform maintenance on a valve that cannot be serviced with the cavity flooded. The proposed Specification 3.0.4 exception to Specification 3.5.2 is required to prevent the evolution of declaring LPCI Train B operable to allow cavity draining, then declaring LPCI Train B inoperable to permit valve maintenance. This valve maintenance will not affect RHR Train B since the valve requiring maintenance can be isolated from the RHR system.

Additionally, during the cavity draining on December 8, standby service water (SSW) Train A is scheduled to be inoperable for acid cleaning, flushing, and inspection. Specification 3.9.11.2 requires two RHR trains to be operable, which in turn requires two SSW systems to be operable by Specification 3.7.1.1. The Limiting Condition for Operation of Specification 3.7.1.1 will not be met for the inoperable RHR Train described above (Specification 3.9.11.2). This 3.0.4 exception will be used at this time, since SSW B will be the only operable SSW loop.

A Specification 3.0.4 exception is scheduled for use on December 22. On this date, reactor head studs are scheduled to be tensioned causing entry into Operational Condition 4. Specification 3.4.9.2 requires two RHR trains to be operable in Operational Condition 4. The RHR Train A is scheduled to be inoperable at that time.

The November 19, 1987 letter also provided the results of analyses to demonstrate the adequacy of these alternate methods for decay heat removal and reactor coolant circulation. Decay heat as a function of time after shutdown was computed for the fuel in the reactor and the fuel in the spent fuel pool. Fuel will be located in the spent fuel pool and the reactor vessel during the periods that alternate methods of decay heat removal will be utilized. When using alternate decay heat removal systems, irradiated fuel is not scheduled to be located in the upper containment pool.

The licensee's analyses show that the heat removal capacities of the scheduled alternate methods of decay heat removal exceed the decay heat loads in the spent fuel pool and the reactor core at the times after reactor shutdown when they would be used. The reactor water cleanup (RWCU) system is used as an alternate reactor coolant circulation system (drawing water from recirculation lines and injecting it into the feedwater line). The RWCU system takes suction and discharges coolant at the same location as the RHR system when it is operated in the shutdown-cooling mode.

The licensee has considered steps that could be taken in the event of failure of the alternate methods of decay heat removal. In case of a loss of offsite power, the fuel pool cooling and cleanup (FPCCU) system may be restored to service for cooling spent fuel in the spent fuel pool and the reactor when flooded to 22 feet 8 inches or above, because SERI has scheduled the emergency diesel generator associated with the one required ECCS and FPCCU train to be functional. If heat loads are such that FPCCU cannot remove decay heat sufficiently to maintain coolant temperature less than 140°F, a "feed and bleed" type decay heat removal method would be utilized, injecting water into the cavity or reactor and draining excess water to the suppression pool. If offsite power is available, normal pool makeup from the condensate and refueling water system or from makeup water treatment system can be used. In case of a loss of off site power, control rod drive pumps, ECCS pumps, ECCS jockey pumps, and/or the SSW pumps can be used. In case of a station blackout, procedures are established for providing water from the diesel driven fire pump to the pools and/or reactor vessel. Drain paths can be established through normal cavity drains, RWCU, RHR, or other means. In addition, during the period of November 30 through December 8, RHR Train B will be undergoing tests and surveillances which involve system lineups associated with those tests. These lineups preclude the use of RHR Train B as an operable shutdown cooling subsystem; however, if necessary, RHR Train B can be lined up for shutdown cooling and put into operation (although until the tests and surveillances are completed, it could not be declared operable).

Two tests to demonstrate alternate decay heat removal methods are scheduled for the two reactor cavity levels prior to the use of these methods. The tests will be run with an RHR train secured but operable. The first test will demonstrate that the FPCCU system with the RWCU system can cool the fuel remaining in the vessel and the irradiated fuel in the spent fuel pool, with the reactor head off and upper containment pool flooded up to or above 22 feet 8 inches. This test will utilize the system operating instructions for FPCCU system and RWCU system. Temperature monitors in the spent fuel pool, the reactor water cleanup suction, the reactor head drain and recirculation loop, the upper containment fuel pool, the fuel pool cooling drain tank, and the fuel pool heat exchanger outlet will be utilized for acceptance of the test results. Acceptance will be based on determination that the temperature measured by all of the above temperature monitors is decreasing or stable, and below 140°F.

The second test will utilize the RWCU and CRD systems as an alternate decay heat removal method with the reactor head off, the reactor cavity drained, and irradiated fuel moved to the spent fuel pool. This test will also utilize the system operating instructions for the RWCU and CRD systems to demonstrate the capability to remove decay heat from the reactor vessel. Temperature monitors for the reactor water clean-up suction, the reactor vessel from bottom head drain and the recirculating loop will be utilized for acceptance of the test results. Acceptance will be based on a determination that the temperature measured by these temperature monitors is decreasing or stable and below 140°F.

Alternate methods of decay heat removal have been previously demonstrated at Grand Gulf Nuclear Station (GGNS).

The calculated results regarding alternate decay heat removal should bound the test results of alternate decay heat removal. However, the purpose of the calculation is to indicate the point during the outage at which the proposed alternate is capable of removing the required decay heat. Satisfactory test results will prove the alternate method of decay heat removal capacity before it is put into use.

The NRC staff has reviewed the licensee's submittals requesting one-time exceptions to Specification 3.0.4 during the second refueling outage. The licensee has planned the outage to minimize the time when the ECCS systems, the RHR trains and the FPCCU trains will be inoperable because of required maintenance or testing. When these systems or trains are inoperable, the licensee will maintain them functional, as much as possible, so they can be used with some manual actions involved in realigning valves or closing breakers. The licensee has analyzed the performance of alternate methods of decay heat removal (RWCU, CRD, and FPCCU systems) to determine when during the outage they have the capability to maintain reactor coolant average temperature and the spent fuel pool temperature less than 140°F, as required by the TS. Tests of heat removal capability will be run for these alternate methods of decay heat removal prior to their use in the refueling outage, to demonstrate that the TS limiting temperature of 140°F can be achieved.

The use of the proposed exceptions to TS Section 3.0.4 in the manner proposed by the licensee will not change the safety margins for shutdown cooling and coolant injection, which would be available without the use of the exceptions. Further, the licensee has planned the outage to utilize the ECCS, the RHR and the FPCCU systems as much as possible, with due consideration for necessary maintenance. Accordingly, the staff concludes that the one-time exceptions to TS Section 3.0.4 proposed by the licensee for use during the second refueling outage at GGNS Unit 1 are acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to the installation or use of a facility component 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 off site; and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration, and there has been no public comment on such finding. Accordingly, this 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 this amendment.

4.0 CONCLUSION

The Commission made a proposed determination that this amendment involves no significant hazards consideration, which was published in the Federal Register (52 FR 42363) on November 4, 1987, and consulted with the State of Mississippi. No public comments or requests for hearing were received and the State of Mississippi 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 the security, or to the health and safety of the public.

Principal Contributor: L. L.Kintner

Dated: December 4, 1987