

July 7, 1987

Docket No.: 50-416

DISTRIBUTION

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Dear Mr. Kingsley:

SUBJECT: DELETION OF LICENSE CONDITION NO. 2.C.(20) CONCERNING THE STANDBY SERVICE WATER SYSTEM (TAC NO. 65156)

RE: GRAND GULF NUCLEAR STATION, UNIT 1 (GGNS-1)

The Commission has issued the enclosed Amendment No. 34 to Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station, Unit 1. This amendment consists of changes to an operating license condition in response to your application dated April 8, 1987.

This amendment deletes License Condition 2.C.(20) which prohibited placement of irradiated fuel in the GGNS-1 spent fuel storage pool prior to completion of modifications to the standby service water system. Modifications to the standby service water system have been completed.

A copy of our 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-2
Division of Reactor Projects-I/II

Enclosures:

1. Amendment No. 34 to License No. NPF-29
2. Safety Evaluation

cc w/enclosures:
See next page

LA:PD22
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6/7/87

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Grand Gulf Nuclear Station (GGNS)

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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. 34
License No. NPF-29

1. The Nuclear Regulatory Commission (the Commission) has found that
 - A. The application for amendment by Mississippi Power & Light Company, System Energy Resources, Inc. and South Mississippi Electric Power Association, (the licensees) dated April 8, 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.

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P PDR

2. Accordingly, paragraph 2.C.(20) of Facility Operating License No. NPF-29 is hereby amended to read as follows:

Standby Service Water System (Section 9.2.1 SER, SSER #2)

[Deleted]

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Lester S. Rubenstein, Director
Project Directorate II-2
Division of Reactor Projects-I/II

Date of Issuance: July 7, 1987



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 34 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 April 8, 1987, System Energy Resources, Inc. (the licensee)* requested an amendment to Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station, Unit 1 (GGNS-1). The proposed amendment would delete License Condition 2.C.(20) which prohibits placement of irradiated fuel in the GGNS-1 spent fuel storage pool prior to completion of modifications to the standby service water (SSW) system. The SSW system contains redundant loops (Loop A and Loop B), with each loop having a pump and components for cooling essential equipment. Major components in each loop include a residual heat removal (RHR) system heat exchanger (7900 gpm), an emergency diesel generator jacket water cooler (2400 gpm), a spent fuel pool cooler (1065 gpm), a control room air conditioner (161 gpm) and a drywell purge compressor (70 gpm). ESF room coolers and other small components, each having design flows equal to or less than 40 gpm, are also supplied by each loop.

The license condition which was included in the GGNS-1 operating license when it was issued stated:

"No irradiated fuel may be stored in the Unit 1 spent fuel pool prior to completion of modifications to the standby service water (SSW) system and verification that the design flow can be achieved to all SSW system components. However, should a core offloading be necessary prior to completion of these modifications (scheduled for the first scheduled refueling outage), irradiated fuel may be placed in the spent fuel pool when the RHR system operating in the spent fuel pool cooling mode is available. Until the SSW system is modified, the spent fuel pool cooler shall be isolated from the SSW system by locked closed valves. The position of these valves shall be verified every 31 days until the design flowrate for SSW system is demonstrated."

*On December 20, 1986, the Commission issued License Amendment No. 27 which authorized the transfer of control and performance of licensed activities from Mississippi Power & Light Company to System Energy Resources, Inc. (SERI). "The licensee" refers to Mississippi Power & Light Company before December 20, 1986 and to SERI on or after December 20, 1986.

As indicated in the staff's Supplement No. 2 to the Safety Evaluation Report (NUREG-0831) dated June 1982, this license condition was imposed because preoperational flow testing of the SSW system showed that some of the components would not receive the nominal design flow if all the SSW components were connected to the system. By isolating the fuel pool coolers from the SSW system, the remainder of the components would receive design flow. Since the fuel pool coolers would be needed during and after the first refueling, the modifications to the SSW system to achieve design flow in all SSW components were scheduled for the first refueling outage.

In the fall of 1985, the licensee scheduled and performed modifications to SSW Loop B including installation of a larger SSW pump motor and impeller to increase Loop B flow rates to design values with all components connected to the loop. In order to allow testing of the modified Loop B, the licensee requested that the license condition be changed as indicated below by the underlined portion. This amended license condition was issued in Amendment 5 to the operating license (underlining is added to show changes from the initial license condition).

"No irradiated fuel may be stored in the Unit 1 spent fuel pool prior to completion of modifications to the standby service water (SSW) system and verification that the design flow can be achieved to all SSW system components. However, should a core offloading be necessary prior to completion of these modifications (scheduled for the first scheduled refueling outage), irradiated fuel may be placed in the spent fuel pool when the RHR system operating in the spent fuel pool cooling mode is available. Until the SSW system is modified, the spent fuel pool cooler shall be isolated from the SSW system by locked closed valves or the associated SSW subsystem shall be declared inoperable. The position of these valves shall be verified every 31 days until the design flowrate for SSW system is demonstrated. The surveillance to be performed is to verify the valves are locked closed and to verify that any SSW loop with valves which are not locked closed is declared inoperable."

For the first refueling outage, the licensee requested another change to the license condition which would allow spent fuel to be placed in the spent fuel pool with only one of the SSW loops modified to supply design flows to all components connected to that loop. This changed license condition, which was issued in Amendment 18 to the operating license and is reproduced below, would permit modifications to be made to SSW Loop A concurrently with fuel unloading operations (underlining is added to show changes from the license condition issued in Amendment 5).

"No irradiated fuel may be stored in the Unit 1 spent fuel storage pool prior to completion of modifications to either loop A or loop B of the standby service water (SSW) system and verification that the design flow can be achieved to all essential SSW system components in the modified loop. However, should a core offloading be necessary prior to completion of these modifications (scheduled for the first refueling outage), irradiated fuel may be placed in the spent fuel pool when the RHR system operating in the spent fuel pool cooling mode is available. Until the SSW loops are modified, the spent fuel pool cooler in an unmodified loop shall be isolated from the loop by locked closed valves or the loop shall be declared inoperable. The position of these valves

shall be verified every 31 days until the design flowrate for the SSW loop is demonstrated. The surveillance to be performed is to verify that any unmodified SSW loop with valves which are not locked closed is declared inoperable."

The NRC staff accepted the licensee's plan to unload fuel concurrently with modifications to Loop A and the associated license condition, provided the licensee would request deletion of the license condition within 90 days following restart after the first refueling outage. Deletion of the license condition would assure that the license condition would not be available for use after the modifications to both loops were satisfactorily completed following the first refueling outage.

During the first refueling outage in the fall of 1986, the licensee made modifications to Loop A of the SSW system, including installation of a larger SSW pump motor and impeller. The modified SSW loops were flow tested. On January 9, 1987, GGNS-1 was restarted, and by letter dated April 8, 1987, the licensee requested deletion of the license condition.

2.0 EVALUATION

License Condition 2.C.(20) requires completion of modifications to the SSW system and verification that design flow can be achieved to all essential SSW components.

The NRC staff has verified that modifications and testing of the SSW pumps and loops were completed (Inspection Report 50-416/86-34). Tests of the larger pump motors and impellers showed that with all components connected to the system, flow to all the components, except Loop A control room air conditioner and certain small coolers, was larger than the design values as listed in the Updated Final Safety Analysis Report (UFSAR) Table 9.2-16. However, measured flows to the Loop A control room air conditioner and certain small coolers were less than the nominal design values listed in the UFSAR due to flow impediments (License Event Report 86-029-05, dated March 19, 1987). These flow impediments were caused by partial blockage of small diameter piping due to microbiological induced corrosion and sedimentation from the plant service water (PSW). For normal plant operation, the PSW system is connected to these components and for a loss-of-coolant-accident, the PSW system is isolated and the SSW system is connected to these components. Flows to these components were increased by hydrolazing and flushing the PSW and SSW piping to reduce the blockage; however, some of these components still had flowrates below the design values. The licensee's engineering department reviewed the design of the components and determined minimum flowrates required for the component to perform its design safety function.

The measured flows to these components were found to be greater than 1.05 times the minimum required flowrates. The NRC staff reported the satisfactory completion of these design calculations and acceptable flow measurements prior to restart from the first refueling outage (Inspection Report 50-416/86-39, dated January 16, 1987).

Modifications have been made to the small piping which supplies water to the components having less than design flow. Flush and drain connections have been installed for periodic flushing to remove sedimentation. Some of the piping to the room coolers was replaced with larger diameter piping. Permanent flow monitoring instrumentation has been installed in the piping to facilitate periodic flow monitoring.

A flow monitoring program has been established to assure that flowrates are maintained greater than the minimum required flows. Threshold flow values greater than the minimum required flow values have been established. Flows are measured weekly. If flows are less than the threshold values, action is taken to restore flows, such as flushing the piping. If flows are less than the minimum required flows, the associated SSW system must be declared inoperable and the applicable action statement in the Technical Specifications must be entered (Inspection Report 50-416/87-03, dated March 3, 1987).

In conclusion, the NRC staff has reviewed the modifications to the standby service water (SSW) system to determine whether License Condition 2.C.(20) has been satisfied. Larger SSW pump motors and impellers have been installed and tested to demonstrate that the modified SSW system flow is adequate to supply design flow to all major components except the Loop A control room air conditioner and small components. For these components, piping modifications have been made and a flow monitoring program has been established to assure that minimum flows required for performance of design safety functions will be maintained. Meeting minimum required flows and having flow monitoring and corrective action programs for these components are acceptable alternatives to meeting design flows for these components, as specified in License Condition 2.C.(20). Accordingly, the staff concludes that License Condition 2.C.(20) has been satisfied and can be deleted.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to 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 and/or changes to the surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that 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 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 nor to the health and safety of the public.

Dated: July 7, 1987

Principal Contributor:

L. L. Kintner, Project Directorate II-2, DRP-I/II