

November 30, 1988

Docket No. 50-416

DISTRIBUTION  
See attached sheet

Mr. W. T. Cottle  
Vice President, Nuclear Operations  
System Energy Resources, Inc.  
Post Office Box 23054  
Jackson, Mississippi 39205

Dear Mr. Cottle:

SUBJECT: ISSUANCE OF AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE  
NO. NPF-29 - GRAND GULF NUCLEAR STATION, UNIT 1, REGARDING  
CONTROL ROD ACCUMULATORS (TAC NO. 67976)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 50 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 April 22, July 8, and August 12, 1988.

The amendment would change Technical Specification 3/4.1.3.3, "Control Rod Scram Accumulators," by adding action statements to provide alternate means for determining accumulator operability if the accumulator pressure and leakage alarm is inoperable.

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,

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

Enclosures:

1. Amendment No.50 to NPF-29
2. Safety Evaluation

cc w/enclosures:  
See next page

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OFC	: LA: PD21: DRPR: PM: PD21: DRPR: D: PD21: DRPR :	:	:	:	:
NAME	: PAnderson : LKintner: ch : EAdensam :	:	:	:	:
DATE	: 11/29/88 : 11/29/88 : 11/29/88 :	:	:	:	:

Mr. W. T. Cottle  
System Energy Resources, Inc.

Grand Gulf Nuclear Station (GGNS)

cc:

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AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE NO. NPF-29 - GRAND GULF

Docket File

NRC PDR

Local PDR

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cc: Licensee/Applicant Service List



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. 5Q  
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 April 22, July 8, and August 12, 1988, 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.

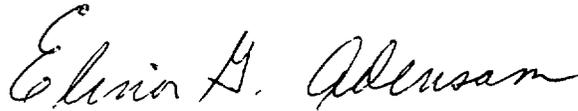
2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-29 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 50, 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



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

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: November 30, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 50

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.

Remove

3/4 1-8

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Insert

3/4 1-8

3/4 1-8a

## REACTIVITY CONTROL SYSTEMS

### CONTROL ROD SCRAM ACCUMULATORS

#### LIMITING CONDITION FOR OPERATION

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3.1.3.3 All control rod scram accumulators shall be OPERABLE:

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 5\*.

ACTION:

- a. In OPERATIONAL CONDITIONS 1 and 2:
  1. With one control rod scram accumulator inoperable, within 8 hours:
    - a) Restore the inoperable accumulator to OPERABLE status, or
    - b) Declare the control rod associated with the inoperable accumulator inoperable.Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.
  2. With more than one control rod scram accumulator inoperable, declare the associated control rods inoperable and:
    - a) If the control rod associated with any inoperable scram accumulator is withdrawn, immediately verify that at least one control rod drive pump is operating by inserting at least one withdrawn control rod at least one notch or place the reactor mode switch in the Shutdown position.
    - b) Insert the inoperable control rods and disarm the associated directional control valves either:
      - 1) Electrically, or
      - 2) Hydraulically by closing the drive water and exhaust water isolation valves.Otherwise, be in at least HOT SHUTDOWN within 12 hours.
- b. In OPERATIONAL CONDITION 5\*:
  1. With one withdrawn control rod with its associated scram accumulator inoperable, insert the affected control rod and disarm the associated directional control valves within one hour, either:
    - a) Electrically, or
    - b) Hydraulically by closing the drive water and exhaust water isolation valves.
  2. With more than one withdrawn control rod with the associated scram accumulator inoperable or with no control rod drive pump operating, immediately place the reactor mode switch in the Shutdown position.

\*At least the accumulator associated with each withdrawn control rod. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

## REACTIVITY CONTROL SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

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- c. The provisions of Specification 3.0.4 are not applicable to ACTIONS a and b.
- d. With one or more accumulator pressure detector or alarm inoperable, verify accumulator pressure to be  $\geq$  1520 psig at least once per 24 hours, or declare the associated accumulator inoperable.
- e. With one or more accumulator leak detector or alarm inoperable, verify accumulator water drained at least once per 48 hours, or declare the associated accumulator inoperable.

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. 50, 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

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

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: November 30, 1988

OFC	:LA:PD21:DRPR:PM:PD21:DRPR:	SRXB:DEST	:SICB:DEST	:D:PD21:DRPR
NAME	:RAnderson	:LWintner:ch:WHodges	:SNewberry	:EAdensam
DATE	:10/25/88	:10/25/88	:10/27/88	:10/10/88 : 10/21/88 : 10/25/88



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 50 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 letters dated April 22, July 8, and August 12, 1988, System Energy Resources, Inc. (the licensee), requested an amendment to Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station (GGNS), Unit 1. The proposed amendment would change Technical Specification 3/4.1.3.3, "Control Rod Scram Accumulators," by adding action statements to provide alternate means for determining accumulators' operability if the accumulator pressure and leakage alarm is inoperable.

2.0 EVALUATION

The surveillance requirements in Technical Specification 3/4.1.3.3 to determine operability of the control rod scram accumulators include functional testing of the leak detector alarm circuits and calibration of the low pressure alarm circuits. The specification requires declaring the scram accumulator inoperable when the alarm circuits fail, even when the scram accumulator could be shown to have adequate pressure and no accumulated water and, therefore, to be operable.

The control rod accumulator leak detection and low pressure alarm circuitry is multiplexed in the field and input to the Rod Control and Information System (RC&IS). Occasions may arise where RC&IS could be affected due to an unrelated failure or maintenance activity such that the alarm circuitry for all scram accumulators may be non-functional. This could require all 193 control rods to be declared inoperable due to inoperable scram accumulators with a subsequent reactor shutdown. This course of events could occur even though each scram accumulator would still be otherwise operable. The alarm circuit can provide early detection of a degraded scram accumulator. However, the alarm itself is nonspecific as to the cause which can be either accumulated water, low pressure or circuit malfunction. In the event of an alarmed condition, an operator would be dispatched to determine the cause.

The licensee has proposed to add Actions "d" and "e" to Specification 3.1.3.3 as follows:

- d. With one or more accumulator pressure detector or alarm inoperable, verify accumulator pressure to be greater than or equal to 1520 psig at least once per 24 hours, or declare the associated accumulator inoperable.
- e. With one or more accumulator leak detector or alarm inoperable, verify accumulated water drained at least once per 48 hours, or declare the associated accumulator inoperable.

The NRC staff has reviewed the licensee's proposed changes to the TS. Proposed Action "d" adds an optional requirement to verify adequate accumulator pressure in the event the proper calibration and functioning of the pressure detectors and alarm circuit is not satisfactory. The new surveillance would require verification of accumulator pressure once per 24 hours. This is done by local examination of pressure gauges on the 193 accumulators inside containment. Proposed Action "e" adds an optional requirement to verify no accumulated water in the gas side of the accumulator in the event the proper functioning of the leak detectors and alarm circuit is not satisfactory. The new surveillance would require verification of accumulator water drained from the 193 accumulators once per 48 hours. This is typically accomplished by hydraulically isolating the scram accumulator and opening the drain located at the base of the accumulator. This procedure results in the loss of some small quantity of the nitrogen pre-charge on the accumulator. Repeated draining will eventually result in low accumulator pressure and the need to recharge. This effect, as well as the involved nature of the draining action, supports a 48 hour surveillance interval, as opposed to the proposed 24 hour interval for pressure monitoring. These proposed alternate surveillance procedures have been reviewed and concurred with by the General Electric Company, vendor for the control rod drive system.

The licensee has provided results of operating experience to demonstrate that these surveillance intervals of 24 hours for accumulator pressure and 48 hours for accumulator leakage provide adequate assurance of operability. A review of the operating experience at GGNS for the first five months of 1988 revealed eight occasions when accumulator recharging was necessary due to low pressure, and five occasions when accumulator draining was necessary. In the five instances of accumulated moisture, four were on the same accumulator (this accumulator was repaired on March 12, 1988 with no further moisture accumulation reported). The intervals observed between draining and subsequent alarm for this accumulator were 17, 13 and 20 days. The 48 hour interval between successive drainings allowed by this proposed change provides sufficient assurance that even in the worst case observed leakage during this period, there is not a significant probability of having accumulated moisture above the alarm setpoint. The recent history of recharging accumulators shows the interval for the single accumulator with the most rapid pressure decay

to be approximately seven days. The proposed 24 hour interval between successive pressure surveillances provides sufficient assurance that even in the worst case of observed pressure decay during this period, there is not a significant probability of developing an inoperable accumulator.

The control rod drive (CRD) accumulators are provided to ensure adequate control rod scram under all operating reactor pressures. At low reactor pressures, they are necessary to scram the control rods within the required insertion times of Technical Specification 3/4.1.3.2. At normal reactor pressure, the reactor coolant pressure by itself is capable of scrambling the control rods within the required insertion times. Therefore, the continuous alarm function in the control room is more important during reactor startup when reactor pressure is low. Accordingly, Technical Specification 3.0.4 is made applicable to the proposed Actions "d" and "e" to assure that the alarm will be operable during reactor startup.

The current Actions "a" and "b" for inoperable accumulators allow mode changes provided the Actions are met (i.e., the provisions of Specification 3.0.4 are not applicable). These Actions either allow a short period of time to repair a single inoperable accumulator, or require the associated control rods to be declared inoperable (additional restrictions must also be met). Specification 3.1.3.1 limits the number of inoperable control rods to eight. Thus, the number of inoperable accumulators is limited to eight. Action "c" will remain numbered as in the current specification and will state that the provisions of Specification 3.0.4 are not applicable to Actions "a" and "b." This precludes mode changes concurrent with loss of continuous alarm capabilities for all rods (or more than eight rods). However, in order to continue to allow a limited number of scram accumulator pressure detectors or leak detectors to be inoperable without precluding mode changes, as currently allowed, an option to declare the associated accumulator inoperable is included in the proposed Actions. These changes will allow up to eight inoperable pressure or leak detectors to be conservatively treated as inoperable accumulators. This would allow the operational flexibility to change modes consistent with the present Technical Specifications.

The licensee has stated it intends to maintain the alarm circuitry operable thereby minimizing containment entries and surveillances and ensuring the availability of the continuous monitoring provided by the alarm function. The optional surveillances provided will allow necessary repairs to be accomplished without undue actions regarding control rod operability by the operating staff.

The staff concludes that the proposed TS changes are acceptable. These changes will allow alternate surveillance procedures if the control room alarm for the accumulator pressure and leakage is inoperable. The basis for the staff's conclusion is that (1) the alternate surveillance

intervals have been demonstrated by operating experience to be short enough to maintain accumulator pressure and accumulated leakage within TS limits and (2) the alarm must be operable for reactor startup when accumulators are necessary to insert control rods within TS limits.

### 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 and changes 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 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 on September 21, 1988 (53 FR 36670), 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, Project Directorate II-1

Dated: November 30, 1988