



**SYSTEM ENERGY
RESOURCES, INC.**

A Middle South Utilities Company

WILLIAM T. COTLE
Vice President
Nuclear Operations

May 8, 1989

U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
Table 1.2 Footnote Change
Proposed Amendment to the Operating
License (PCOL-89/04)
AECM-89/0065

System Energy Resources, Inc. (SERI) is submitting by this letter a proposed amendment to the Grand Gulf Nuclear Station (GGNS) Operating License. In July 1988, SERI evaluated the Technical Specification Position Statements (TSPSs) used at GGNS. This evaluation determined which TSPSs should be retained, those which should be cancelled, and those which should be incorporated into the Technical Specifications. TSPS 089 was identified as one of the TSPSs to be included in Technical Specifications. Following the meeting with the NRC Staff on September 28, 1988 to discuss the resolution of TSPSs at GGNS, SERI committed (AECM-88/0232 dated November 25, 1988) to submit an amendment request to incorporate TSPS 089 into the Technical Specifications.

In accordance with the provisions of 10 CFR 50.4, the signed original of the requested amendment is enclosed and the appropriate copies will be distributed. Attachment 3 provides the technical justification and discussion to support the requested amendment. This amendment has been reviewed and accepted by the Plant Safety Review Committee and the Safety Review Committee.

Based on the guidelines presented in 10 CFR 50.92, SERI has concluded that this proposed amendment involves no significant hazards considerations.

8905230080 890508
PDR ADOCK 05000416
P PNU

Accol
1/1
w/check \$150
02-0045

In accordance with the requirements of 10 CFR 170.21, an application fee of \$150 is attached to this letter.

Yours truly,

W J Cobb

WTC:jjb

Attachments: 1. Remittance of \$150 Application Fee
2. Affirmation per 10 CFR 50.30
3. GGNS PCOL-89/04
4. Technical Specification Position Statement 089

cc: Mr. T. H. Cloninger (w/s)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. H. L. Thomas (w/o)
Mr. H. O. Christensen (w/a)

Mr. Stewart D. Ebnetter (w/a)
Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta St., N.W., Suite 2900
Atlanta, Georgia 30323

Mr. L. L. Kintner, Project Manager (w/a)
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop 14B20
Washington, D.C. 20555

Dr. Alton B. Cobb (w/a)
State Health Officer
State Board of Health
P.O. Box 1700
Jackson, Mississippi 39205

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

LICENSE NO. NPF-29

DOCKET NO. 50-416

IN THE MATTER OF
MISSISSIPPI POWER & LIGHT COMPANY
and
SYSTEM ENERGY RESOURCES, INC.
and
SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION

AFFIRMATION

I, W. T. Cottle, being duly sworn, state that I am Vice President, Nuclear Operations of System Energy Resources, Inc.; that on behalf of System Energy Resources, Inc., and South Mississippi Electric Power Association I am authorized by System Energy Resources, Inc. to sign and file with the Nuclear Regulatory Commission, this application for amendment of the Operating License of the Grand Gulf Nuclear Station; that I signed this application as Vice President, Nuclear Operations of System Energy Resources, Inc.; and that the statements made and the matters set forth therein are true and correct to the best of my knowledge, information and belief.

W T Cottle

W. T. Cottle

STATE OF MISSISSIPPI
COUNTY OF HINDS

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the County and State above named, this 8th day of May, 1989.

(SEAL)

Linda W. Miller
Notary Public

My commission expires:

My Commission Expires Aug. 5, 1991

A. SUBJECT

1. NL 89/04 Table 1.2 Operational Conditions Footnote Change
2. Affected Technical Specifications:
 - a. Table 1.2, OPERATIONAL CONDITIONS, footnote '***' - page 1-11
 - b. Technical Specification 3.9.1 APPLICABILITY - page 3/4 9-1

B. DISCUSSION

In July 1988, System Energy Resources, Inc. (SERI) evaluated the Technical Specification Position Statements (TSPSs) used at the Grand Gulf Nuclear Station (GGNS). This evaluation determined which TSPSs should be retained, those which should be cancelled, and those which should be incorporated into the Technical Specifications. TSPS 089 (see Attachment 4) was identified as one of the TSPSs to be included in Technical Specifications. TSPS 089 was issued in August 1986 to clarify activities which could be performed in accordance with the '***' footnote to Technical Specification Table 1.2. This footnote permits the reactor mode switch to be placed in the refuel position during Operational Conditions 3 and 4 while a single control rod is being recoupled provided that the one-rod-out interlock is operable. TSPS 089 was written so other related activities, such as rod venting, could be performed in conjunction with the coupling verification.

Following the meeting with the NRC Staff on September 28, 1988 to discuss the resolution of TSPSs at GGNS, SERI committed (AECM-88/0232 dated November 25, 1988) to submit an amendment request to incorporate TSPS 089 into the Technical Specifications. The following change is therefore proposed:

1. The '***' footnote to Table 1.2, Operational Conditions, is revised to permit the reactor mode switch to be placed in the refuel position in Operational Condition 3 (HOT SHUTDOWN) and Operational Condition 4 (COLD SHUTDOWN) while a single control rod is being moved provided that the one-rod-out interlock is OPERABLE.
2. Technical Specification 3.9.1, Reactor Mode Switch, is revised to expand its applicability to include Operational Conditions 3 and 4 when the reactor mode switch is in the refuel position.

C. JUSTIFICATION

1. Technical Specification Table 1.2 defines the reactor mode switch positions and average coolant temperatures for the five Operational Conditions at GGNS. The '***' footnote to Table 1.2 is applicable only to Operational Conditions 3 and 4. In the existing specifications, this footnote permits the reactor mode switch to be placed in the refuel position with the plant shutdown and the reactor head tensioned while a single rod is being recoupled provided the

- one-rod-out interlock is operable. This provision is necessary because a control rod can be uncoupled from its drive for drive replacement or maintenance without the reactor head being removed.
2. The reactor mode switch is required by Table 1.2 to be in the shutdown position in Operational Conditions 3 and 4. Control rods cannot be withdrawn with the reactor mode switch in the shutdown position. The reactor mode switch in the shutdown position initiates a control rod block signal in both rod block logic circuits. Operability requirements in Operational Conditions 3 and 4 for the control rod block function of the reactor mode switch are provided in TS Table 3.3.6-1 with associated surveillance requirements in TS Table 4.3.6-1.
 3. The reactor mode switch may be placed in the refuel position in Operational Conditions 3 and 4 per footnote '***'. Any single control rod may then be withdrawn under the one-rod-out interlock associated with the refuel position of the reactor mode switch. This one-rod-out restriction is enforced by a redundant logic circuit that uses the all-rods-in signal and a rod selection signal to prevent the selection of a second control rod for movement when any other control rod is not fully inserted.
 4. Technical Specification 3.1.1 requires SHUTDOWN MARGIN to be maintained in Operational Conditions 1, 2, 3, 4 and 5. SHUTDOWN MARGIN is the amount of reactivity by which the reactor would be subcritical assuming all control rods are fully inserted except for the single control rod having the highest reactivity worth being fully withdrawn. ACTION b for TS 3.1.1 requires all insertable control rods to be inserted and all activities that could reduce the SHUTDOWN MARGIN to be suspended in Operational Conditions 3 and 4 any time the SHUTDOWN MARGIN is less than specified. TS 3.1.1 ensures the reactor will be maintained sufficiently subcritical to preclude inadvertent criticality in the shutdown condition with any single control rod withdrawn.
 5. The one-rod-out interlock associated with the refuel position of the reactor mode switch provides protection against prompt reactivity excursions. This interlock is explicitly assumed in the safety analysis for control rod removal error during refueling. A prompt reactivity excursion could potentially result in fuel failure. The one-rod-out interlock, together with the requirements for adequate SHUTDOWN MARGIN during refueling, provide protection against prompt reactivity excursions by preventing withdrawal of more than one control rod and ensuring the core remains subcritical with any one control rod withdrawn.
 6. The existing footnote '***' to Table 1.2 permits control rod maintenance to be performed in Operational Conditions 3 and 4 provided the one-rod-out interlock is operable, the mode switch is in the refuel position, and the SHUTDOWN MARGIN requirements of TS 3.1.1 are met. Under these conditions, only a single control rod can be withdrawn and the SHUTDOWN MARGIN assures that the reactor will remain subcritical.

7. The proposed revision of footnote '****' to Table 1.2 will still only permit one control rod to be withdrawn under control of the reactor mode switch refuel position one-rod-out interlock in Operational Conditions 3 and 4. However, the reasons for its withdrawal are expanded beyond just recoupling. Examples of activities which could be performed with the proposed change include:
- a. venting of control rods following a reactor scram or control rod drive system outage,
 - b. normal control rod insertion/withdrawal timing and adjustment,
 - c. control rod scram time testing performed in conjunction with the vessel hydrostatic test after refueling, and
 - d. control rod friction testing.

These control rod maintenance and testing activities are currently permitted by Technical Specifications in Operational Conditions 1, 2 and 5. SERI considers the proposed change to represent an operational enhancement in that control rod maintenance and testing conducted under control of the one-rod-out interlock during Operational Conditions 3 and 4 will involve additional restrictions than in effect for these same activities when performed during Operational Conditions 1 and 2.

8. The proposed change would permit control rod performance problems such as faulty position indication and notch movement difficulties to be diagnosed, repaired and retested prior to plant startup from a non-refueling outage. The proposed change would also provide increased flexibility during refueling outages.
9. The proposed change expands the applicability of Technical Specification 3.9.1 to establish appropriate testing requirements for the reactor mode switch refuel position one-rod-out interlock in Operational Conditions 3 and 4. Surveillance Requirement 4.9.1.2 requires the operability of the one-rod-out interlock to be demonstrated prior to a control rod withdrawal and periodically during control rod withdrawals. Surveillance Requirement 4.9.1.3 requires the operability of the one-rod-out interlock to be demonstrated prior to a control rod withdrawal following repair, maintenance or replacement of any component which could affect the interlock. This revision is necessary because TS 3.9.1 is presently applicable only in Operational Condition 5, and these surveillance requirements would otherwise not be required. The proposed change will require the operability of the one-rod-out interlock to be demonstrated prior to control rod withdrawal in Operational Conditions 3 and 4.

10. The proposed revision of footnote '***' to Table 1.2 is similar to Technical Specifications for domestic BWR/6 plants granted full power operating licenses after Grand Gulf (Perry and River Bend). The Technical Specifications for these sites permit the reactor mode switch to be placed in the refuel position while a single control rod is recoupled or withdrawn.

D. NO SIGNIFICANT HAZARDS CONSIDERATIONS

As discussed on 10 CFR 50.92, the following discussions are provided to the NRC Staff in support of no significant hazards considerations.

1. No significant increase in the probability or consequences of an accident previously evaluated results from this change.
 - a. A single control rod can be withdrawn under control of the reactor mode switch refuel position one-rod-out interlock in Operational Conditions 3 and 4. Although this change would allow an increase in the frequency of single control rod withdrawals, the probability of previously analyzed accidents is not affected. The one-rod-out interlock associated with the refuel position of the reactor mode switch provides protection against prompt reactivity excursions. This interlock is explicitly assumed in the safety analysis for control rod removal error during refueling. A prompt reactivity excursion could potentially result in fuel failure. The one-rod-out interlock, together with the requirements for adequate SHUTDOWN MARGIN during refueling, provide protection against prompt reactivity excursions by preventing withdrawal of more than one control rod and ensuring the core remains subcritical with any one control rod withdrawn. The addition of surveillance requirements for the one-rod-out interlock will assure the interlock is operable prior to withdrawal of a control rod in Operational Conditions 3 and 4.
 - b. The consequences of previously analyzed accidents in Operational Conditions 3 and 4 are not affected by this proposed change. The SHUTDOWN MARGIN requirements of TS 3.1.1 require the reactor to be subcritical when all control rods are fully inserted except for the single control rod having the highest reactivity worth being fully withdrawn. The single failure proof one-rod-out interlock of the reactor mode switch refuel position permits only a single control rod to be withdrawn. The proposed change will not result in the reactor having the potential for attaining criticality in Operational Conditions 3 and 4 or affect the initial conditions assumed in any design basis accident analysis.
 - c. Therefore, the probability and consequences of previously analyzed accidents are not increased.

- 2 This change would not create the possibility of a new or different kind of accident from any previously analyzed.
- a. Single control rods can be withdrawn in Operational Conditions 3 and 4 under the existing Technical Specifications to permit control rod recoupling. The proposed change would merely expand this provision to other control rod maintenance and testing activities performed in Operational Conditions 3 and 4. The withdrawal of individual control rods in Operational Conditions 3 and 4 is a mode of operation permitted by the existing Technical Specifications.
 - b. The additional control rod maintenance and testing activities which could be performed in Operational Conditions 3 and 4 are permitted by the existing Technical Specifications in Operational Conditions 1, 2 and 5. Examples of activities which could be performed include venting of control rods following a reactor scram or control rod drive system outage, normal control rod insertion/withdrawal timing and adjustment, control rod scram time testing and control rod friction testing.
 - c. Therefore, this change does not create the possibility of a new or different kind of accident from any previously evaluated.
3. This change would not involve a significant reduction in the margin of safety.
- a. The one-rod-out interlock of the reactor mode switch refuel position and the SHUTDOWN MARGIN requirement of TS 3.1.1 ensure the reactor will be maintained subcritical during single control rod withdrawals. This change will only permit one control rod to be withdrawn when shutdown.
 - b. Therefore, this change will not involve a significant reduction in the margin of safety.