



OLIVER D. KINGSLEY, JR.
Vice President
Nuclear Operations

July 8, 1988

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
Response to Request for Additional
Information
Proposed Amendment to the Operating
License (PCOL-88/04)
AECM-88/0134

References: 1) System Energy Resources, Inc. letter (AECM-88/0071)
dated April 22, 1988
2) NRC letter (MAEC-88/0143) dated June 8, 1988

System Energy Resources, Inc. (SERI) is responding by this letter to a request for additional information by your staff dated June 8, 1988 (Reference 2). SERI previously requested a change to Technical Specification 3/4.1.3.3 (Reference 1). This proposed change provided for alternate surveillance tests when the accumulator pressure and leakage alarm circuit is inoperable. The NRC staff has requested the proposed alternate surveillance tests be made Action statements. Additionally, consideration of four items was requested to be included in the analysis of the issue of no significant hazards consideration.

Reference 1 provided the technical justification and discussion to support the requested amendment. The additional information provided in this letter has been reviewed and accepted by the Plant Safety Review Committee. The Safety Review Committee reviewed the technical content and safety concerns and approved the proposed amendment at the time of the original submittal.

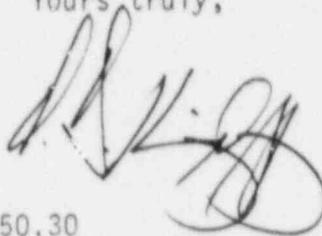
Based on the guidelines presented in 10CFR50.92, SERI has concluded that this proposed amendment involves no significant hazards considerations.

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An application fee has not been enclosed in this submittal because it was previously included in Reference 1.

Yours truly,



ODK:ejm

- Attachments: 1. Affirmation per 10 CFR 50.30
2. Response to requested information
3. Revised no significant hazards consideration
4. Affected Technical Specification pages

Mr. T. H. Cloninger (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
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BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

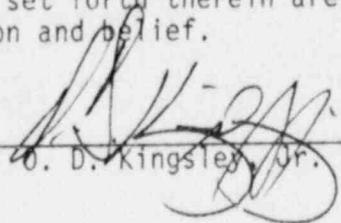
LICENSE NO. NPF-29

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, O. D. Kingsley, Jr., 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.



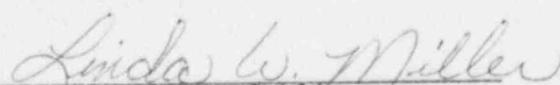
O. D. Kingsley, Jr.

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 July, 1988.

(SEAL)





Notary Public

My commission expires.

My Commission Expires Aug. 5, 1991

ATTACHMENT 2

The Staff's request included four items to be considered in a revision to the no significant hazards considerations. These items and their responses are provided below as well as in the No Significant Hazards Considerations (NSHC) revisions in Attachment 2 (see change bars).

- 1) The magnitude of expected accumulator pressure decay and leakage for the proposed surveillance intervals based on operating experience.

The surveillances performed at GGNS to verify accumulator operability record whether or not the accumulator pressure is ≥ 1520 psig. There is no periodic documentation of actual CRD accumulator pressure. Furthermore, there is no indication of actual level of accumulated moisture. The only available indication of moisture is a level switch set at approximately 50 cc. Therefore, absolute magnitudes are not readily available from operating experience.

However, a review of the operating experience at GGNS for the first 5 months of 1988 revealed 8 occasions when accumulator recharging was necessary due to low pressure, and 5 occasions when accumulator draining was necessary. In the 5 instances of accumulated moisture, 4 were on the same accumulator (This accumulator has since been repaired (3/12/88) 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 7 days. The proposed 24 hour interval between successive pressure surveillances provides sufficient assurance that even in the worst case observed pressure decay during this period, there is not a significant probability of developing an inoperable accumulator.

This discussion has been added to the NSHC.

- 2) The accident or transient which the accumulators are designed to mitigate.

As stated in the UFSAR Section 4.6.1.1.2.5.3 and the GGNS Technical Specification bases, the control rod drive accumulators are necessary to scram the control rods within the required time. Specifically, they are necessary to scram the control rods within the required insertion times of Technical Specification 3/4 1.3.2. The resulting scram negative reactivity insertion rate is designed to prevent the Minimum Critical Power Ratio (MCPR) from becoming less than the Safety Limit of Technical Specification 2.1.2 during the limiting power

transient. Other transients and accidents also assume the scram function brings the reactor subcritical. Also, even though a control rod with an inoperable accumulator may still be slowly scrambled via reactor pressure or inserted with normal drive water pressure, operability of the accumulator ensures that there is a means available to insert the control rod even under the most unfavorable depressurization of the reactor.

This discussion has been added to the NSHC.

- 3) Whether the accident or transient caused by failure of accumulators to function is a new or different kind from any previously evaluated.

Allowing the determination of operability of the CRD accumulators by other than operable alarm circuits is not postulated to cause the failure of any CRD accumulator. This change would allow control rod scram accumulators to be verified operable even though their pressure and/or leak detector alarms may not be functional. The CRD accumulator vendor (General Electric) has concurred with the proposed method of verifying operability and the acceptability of the proposed frequencies.

Additionally, the alarm circuit serves no control function. The Rod Control and Information System (RC&IS), of which the alarm circuit is a part, is not classified as safety related nor essential (see UFSAR 7.7.1.2). Failure of the alarm circuit itself cannot create a new or different kind of accident.

This discussion has been added to the NSHC.

- 4) The margin of safety involved in the function of accumulators (e.g., minimum pressure and maximum leakage) and the effect of the change on this margin.

The operability of the CRD accumulators is provided to ensure adequate control rod scram under all operating reactor pressures. They are necessary to scram the control rods within the required insertion times of Technical Specification 3/4 1.3.2. The resulting scram negative reactivity is designed to prevent the Minimum Critical Power Ratio (MCPR) from becoming less than the Safety Limit of Technical Specification 2.1.2. The margin of safety in the function of the CRD accumulator is maintained provided the CRD accumulator is pressurized to ≥ 1520 psig. There is no specified moisture leakage which will render the accumulator incapable of performing its intended function. Provided sufficient accumulator pressure remains when the moisture is drained the CRD accumulator remains capable of supporting its design function and the margin of safety is assured. The proposed change will maintain the CRD

accumulator free of accumulated moisture and above its design minimum pressure in the event of inoperable alarm circuits at surveillance intervals determined acceptable by the vendor (GE).

This discussion has been added to the NSHC.

ATTACHMENT 3

NO SIGNIFICANT HAZARDS CONSIDERATIONS

As discussed in 10CFR50.92 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. As stated in the UFSAR Section 4.6.1.1.2.5.3 and the GGNS Technical Specification bases, the control rod drive accumulators are necessary to scram the control rods within the required time. Specifically, they are necessary to scram the control rods within the required insertion times of Technical Specification 3/4 1.3.2. The resulting scram negative reactivity insertion rate is designed to prevent the Minimum Critical Power Ratio (MCPR) from becoming less than the Safety Limit of Technical Specification 2.1.2 during the limiting power transient. Other transients and accidents also assume the scram function brings the reactor subcritical. Also, even though a control rod with an inoperable accumulator may still be slowly scrambled via reactor pressure or inserted with normal drive water pressure, operability of the accumulator ensures there is a means available to insert the control rod even under the most unfavorable depressurization of the reactor.

This change would allow control rod scram accumulators to be verified operable even though their pressure and/or leak detector alarms may not be functional. The alarm circuit serves no control function. The Rod Control and Information System (RC&IS), of which the alarm circuit is a part, is not classified as safety related nor essential (see UFSAR 7.7.1.2). Failure of the alarm circuit itself cannot increase the probability or consequences of a previously evaluated accident. Allowing alternate methods to verify operability will reduce the likelihood of unwarranted shutdowns and/or the unnecessary declaring control rods inoperable, thereby reducing unnecessary transients to the reactor systems and fuel.

- b. The proposed change allows for verification of the operability of a scram accumulator in the event the detector and/or alarm circuit has failed. The verification methods involve positive local verification and are reliable for determining operability of the accumulator. A review of the operating experience at GGNS for the first 5 months of 1988 revealed 8 occasions when accumulator recharging was necessary due to low pressure, and 5 occasions when accumulator draining was necessary. The smallest interval observed between draining and subsequent alarm was 13 days. The 48 hour interval between successive drainings allowed by this proposed change provides sufficient assurance that even in the worst case observed leakage, 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 7 days. The 24 hour

interval between successive pressure surveillances provides sufficient assurance that even in the worst case observed pressure decay, there is not a significant probability of developing an inoperable accumulator. The methods of verifying operability of the accumulators and the frequencies proposed were reviewed by the system vendor and were found to be an acceptable alternate when the pressure and/or leak detector alarm circuits are inoperable.

- c. An alternate method has been determined to be sufficiently frequent to detect low accumulator pressure and/or accumulated moisture when the alarm circuitry is inoperable. As such, the determination of operability of the CRD accumulators by this alternate method will not increase the probability of accumulator failures. Because the probability of accumulator failure is not increased, this proposed change will not significantly increase the probability or consequences of an accident previously evaluated.
2. This change would not create the possibility of a new or different kind of accident from any previously evaluated.
 - a. Allowing the determination of operability of the CRD accumulators by other than operable alarm circuits is not postulated to cause the failure of any CRD accumulator. This change would allow control rod scram accumulators to be verified operable even though their pressure and/or leak detector alarms may not be functional. The alarm circuit serves no control function. The Rod Control and Information System (RC&IS), of which the alarm circuit is a part, is not classified as safety related nor essential (see UFSAR 7.7.1.2). Failure of the alarm circuit itself cannot create a new or different kind of accident.
 - b. Control rod scram accumulators will be maintained operable by evaluation against the currently existing criteria. These proposed additional action requirements will allow alternate methods to be used to verify compliance with operability criteria (specifically, minimum pressure and no accumulated water). The CRD accumulator vendor (General Electric) has concurred with the proposed method of verifying operability and the acceptability of the proposed frequencies. These methods are either currently required at longer intervals (verification of pressure) or are consistent with standard practice and vendor recommendations for eliminating a potential inoperable condition (allowing draining to assure no water accumulation).
 - c. Actual function and operating configurations are not affected by this change and therefore would 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 operability of the CRD accumulators is provided to ensure adequate control rod scram under all operating reactor pressures. They are necessary to scram the control rods within the required insertion times of Technical Specification 3/4 1.3.2. The resulting scram negative reactivity is designed to prevent the Minimum Critical Power Rates (MCPR) from becoming less than the Safety Limit of Technical Specification 2.1.2. The margin of safety in the function of the CRD accumulator is maintained provided the CRD accumulator is pressurized to ≥ 1520 psig. There is no specified maximum moisture leakage which will render the accumulator incapable of performing its intended function. Provided sufficient accumulated pressure remains when the moisture is drained the CRD accumulator remains capable of supporting its design function and therefore maintaining its margin of safety. The proposed change will maintain the CRD accumulator free of accumulated moisture and above its design minimum pressure in the event of inoperable alarm circuits at surveillance intervals determined acceptable by the vendor (General Electric).
 - b. The determination of operability based on frequent verification is judged by the vendor to be an acceptable alternative to a continuous alarm indication for detecting low accumulator pressure or accumulator seal degradation during the time period required to repair the alarm circuitry.
 - c. The function of the vast majority of equipment required operable relies on periodic surveillance without requiring reliance on continuous alarm capability. In this change the continuous monitoring capability of the alarm circuit is maintained (and is preferred), but provisions for alternate periodic surveillance will also be provided in the form of action requirements.
 - d. These changes will minimize unnecessary challenges to plant systems including the scram accumulators due to unwarranted shutdowns and/or declaration of control rod inoperability when the accumulator can be verified operable.

Therefore, this change will not involve a significant reduction in the margin of safety.

ATTACHMENT 4