



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 94 TO FACILITY OPERATING LICENSE NO. NPF-29
ENTERGY OPERATIONS, INC., ET AL.
GRAND GULF NUCLEAR STATION, UNIT 1
DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated February 27, 1991, the licensee (Entergy Operations, Inc.), submitted a request for changes to the Grand Gulf Nuclear Station, Unit 1 License. The requested changes would replace current License Condition 2.C(36), Attachment 1, Item (c)(4), which requires implementation of the requirements of Regulatory Guide (RG) 1.97 for flux monitoring prior to startup following the fifth refueling outage. The proposed new license condition would allow implementation of the RG 1.97 flux monitoring to be deferred until after the NRC staff has finished reviewing the BWR Owners' Group (BWROG) appeal of the RG 1.97 requirements.

2.0 EVALUATION

The post-accident neutron monitoring system is intended to warn that the reactor is returning to a critical state. Under anticipated design basis events, a return to a critical state would not be expected once all the rods have been inserted. However, in certain hypothetical situations, rods could drift out or fuel could undergo physical changes. In these cases, the proposed system would provide 8 decades (10E-6% to 100% power) of power status information, allowing the approach to criticality to be detected over a greater operating range. The earlier warning would give the operators more time to initiate mitigative actions.

The current margin of safety is established by the existing operating neutron monitoring system and the shutdown margin of the control rod system. The post-accident monitoring system required by RG 1.97 provides additional information for the operator to respond to undefined post-accident reactivity anomalies. Until the post-accident qualified neutron flux monitoring system is installed and operational, the licensee will continue to use the presently installed neutron flux monitoring system and other post-accident qualified instrumentation. The presently installed system is expected to indicate subcritical reactor power during the initial phase of an accident (including a LOCA). Long-term monitoring is available through the the APRM channels where

operator action is required at the APRM down scale alarm. However, because of Category 1 requirements, long-term direct monitoring in a harsh environment may not be available over the entire RG 1.97 range. In that event, other provisional measures and indications are available to the operator:

- (a) The present control rod position indication system provides the reactor operator with the information that all rods are inserted.
- (b) Qualified instrumentation, such as for reactor pressure, suppression pool temperature, and safety relief valve actuation, provides the reactor operator with post-accident information to assess reactor power if direct neutron monitoring capability is not available.
- (c) The Emergency Procedures (EP) are symptom-based and provide appropriately conservative actions if reactor power cannot be directly measured in a post-accident situation. The EP contain action steps that mitigate the symptomatic effects of design basis events (such as LOCA) and events beyond design basis events (such as ATWS).

These compensatory measures ensure that the consequences of an accident previously evaluated will not be significantly increased by the absence of a post-accident neutron flux monitoring system while the NRC staff completes its review of the BWR0G appeal of RG 1.97 requirements.

Based on the above evaluation, the staff concludes that the existing neutron flux monitoring instrumentation is acceptable for interim use. The staff expects the licensee to comply with the resolution of the BWR0G appeal.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Mississippi State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (57 FR 6037). Accordingly, the 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 the amendment.

5.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: March 23, 1992