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SOUTHERN COMPANY
Energy to Serve Your World℠

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50-364

10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Joseph M. Farley Nuclear Plant
Request For Technical Specification Changes
Diesel Generator Load Rejection Testing

Ladies and Gentlemen:

In accordance with the provisions of 10 CFR 50.90, Southern Nuclear Operating Company (SNC) proposes to amend the Farley Nuclear Plant (FNP) Unit 1 and Unit 2 Technical Specifications (TS), Appendix A to Operating Licenses NPF-2 and NPF-8. This amendment revises and clarifies surveillance requirements (SRs) for the Emergency Diesel Generators (EDGs) that are shared between Unit 1 and Unit 2.

Recent NRC inspections have raised questions regarding the proper application of TS SR 4.8.1.1.2.e, for load rejection testing of the two shared EDGs at FNP. The proposed change inserts a footnote to clarify that load rejection testing of the shared EDG set on either unit may be used to satisfy TS 4.8.1.1.2.e surveillance requirements for both units. This clarifies that each EDG is only required to be tested once every five years.

Enclosure 1 provides a safety assessment for the proposed changes. Enclosure 2 provides the basis for a determination that the proposed changes do not involve significant hazards considerations pursuant to 10 CFR 50.92. Enclosure 3 provides the proposed changes to the Unit 1 TS. Enclosure 4 provides the proposed changes to the Unit 2 TS. Enclosure 5 provides the Units 1 and 2 marked-up TS pages.

As denoted in 10 CFR 50.92(c), SNC has determined the proposed changes to the TS do not involve a significant hazards consideration. The basis for this evaluation is provided in Enclosure 2. SNC has also determined that the proposed changes will not significantly affect the quality of the human environment. A copy of the proposed changes has been sent to Dr. D. E. Williams, the Alabama State Designee, in accordance with 10 CFR 50.91(b)(i).

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SNC requests that the NRC review and approve the proposed TS changes on an expedited basis. SNC plans to implement the proposed changes within 30 days of issuance by the NRC.

Mr. D. N. Morey states that he is a vice president of SNC, and is authorized to execute this oath on behalf of SNC and that, to the best of his knowledge and belief, the facts set forth in this letter and enclosures are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

D N Morey

Dave Morey

Sworn to and subscribed before me this 28th day of May 1997

Martha Gayle Dow

Notary Public

My Commission Expires: November 1, 1997

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Enclosures:

1. Basis for the TS Change
2. 10 CFR 50.92 Evaluation
3. Unit 1 Technical Specification Pag
4. Unit 2 Technical Specification Pages
5. Units 1 and 2 Marked-Up Technical Specification Pages

cc: Mr. L. A. Reyes, Region II Administrator
Mr. J. I Zimmerman, NRR Project Manager
Mr. T. M Ross, Plant Sr. Resident Inspector
Dr. D. E. Williamson, State Department of Public Health

Enclosure 1

Joseph M. Farley Nuclear Plant
Emergency Diesel Generator Load Rejection Testing
Technical Specification Changes

Basis for the TS Change

Enclosure 1

Joseph M. Farley Nuclear Plant
Emergency Diesel Generator Load Rejection Testing
Technical Specification Changes

Basis for the TS Change

Description of Changes:

Recent NRC inspections have raised questions regarding the proper application of TS SR 4.8.1.1.2.e, for load rejection testing of the two shared EDGs at FNP. The purpose of this TS change is to clarify that testing of each shared EDG to comply with SR 4.8.1.1.2.e is only required once per five years on a per EDG basis, not on a per unit basis. The proposed changes include a footnote for clarification. The footnote states that the testing of the shared emergency diesel generator (EDG) set (EDG 1-2A or EDG 1C) on one unit may be used to satisfy the other unit's surveillance requirement for those EDGs."

General Discussion:

The EDGs that are shared between Unit 1 and Unit 2 are EDG 1-2A and EDG 1C. Testing of the shared EDGs in accordance with SR 4.8.1.1.2.e can be satisfied by testing the EDGs on either unit. The load rejection of 1200-2400 kw is accomplished by opening a breaker other than the EDG output breaker. This keeps the EDG connected to at least one emergency bus such that the effects of the load rejection are imposed upon that bus. Therefore, assurance is given that each EDG is operable, and that the effect of load rejection on each EDG does not cause adverse impacts to the emergency buses and the connected loads of each unit. This testing assures that EDG governor and voltage regulators are performing correctly. SR 4.8.1.1.2.e is a test of the EDGs themselves, not the EDG loads. EDG loads are subjected to more severe testing as noted in the following technical discussion. Testing each unit with both the 1-2A and 1C EDGs would require that each shared EDG be tested twice per five years instead of once per five years. This represents redundant and excessive testing of the EDGs and is not required.

Technical Discussion:

The load rejection testing validates that the EDGs function as required and do not subject plant loads to unacceptable transient, dynamic, and steady state effects due to generator output voltage and frequency. This position is supported by the similarity in design between Units 1 and 2 distribution systems. The following is an assessment of the requirements in step SR 4.8.1.1.2.e of the TS: (Note: The B train EDGs have no shared components and are therefore not addressed.)

Basis for the TS change

SR 4.8.1.1.2.e requires verification that the EDG can reject a load of 1200 - 2400 KW without tripping. The purpose of this requirement is to test the EDGs themselves. Testing each unit with both the 1-2A and 1C EDGs every five years would represent redundant and excessive testing of the EDGs (twice the frequency of the B-train EDGs) and is not required. EDG 1-2A is tested at least once every 5 years by rejecting a load of 1200-2400 KW without tripping. EDG 1C is tested at least once every 5 years by rejecting a load of 1200-2400 KW without tripping. Therefore, each EDG that aligns to Unit 1 and Unit 2 meets this requirement.

SR 4.8.1.1.2.e requires that the EDG breaker(s) remain closed such that the EDG is connected to at least one emergency bus. The purpose of this requirement is to insure that the load rejection test is not accomplished by tripping the respective EDG output breaker. Rather, the EDG output breaker is to remain closed such that after the load rejection, at least one bus with representative emergency loads is connected and subjected to the transient, dynamic, and steady state impacts that occur due to the EDG voltage regulator and governor response to the load rejection. The TS do not identify the specific bus and loads to be subjected to these effects, only the KW amount of load. At least one emergency bus of Unit 1 and Unit 2 is connected and subjected to an EDG load rejection and corresponding dynamic transient(s).

When EDG 1C and EDG 1-2A are tested on either unit, their respective output breaker remains closed such that the connected loads (which are similar for each unit) have been subjected to the various dynamics mentioned above. This is acceptable because the purpose of the testing is to periodically check the ability of the EDG voltage regulator and governor to respond such that voltage and frequency transients continue to remain within acceptable limits during a load rejection. Each EDG dynamic transient (voltage and speed) is recorded and checked to insure that it is within the acceptance criteria. The acceptance criteria for dynamic response is based upon industry standards that define acceptable limits and provide assurance that output breakers, connected loads, and protective devices will not be adversely impacted.

The purpose of the load rejection test is not to test each EDG output breaker. The breaker itself (on each unit) is tested by other surveillance testing at least once every 18 months.

SR 4.8.1.1.2.e requires verification that all fuses and breakers on the energized emergency bus(es) are not tripped. The purpose of this requirement is to verify that the EDG voltage regulator and governor responses to the load rejection remain within acceptable limits. In addition to the recordings of the frequency and voltage transients mentioned above, verification that the fuses and breakers do not trip provides validation that the regulator and governor are continuing to function properly. Validating that the dynamic response characteristics of each EDG are within acceptable limits also provides assurance that each of the EDG dynamic response characteristics are similar.

Basis for the TS change

The proposed testing will monitor each EDG voltage and frequency response to the specified load rejection and insure that at least one emergency bus and representative loads are subjected to the resulting (transient, dynamic, and steady state) effects of a load rejection. This demonstrates that these effects do not cause the loads to be disconnected. The TS do not identify the specific bus and loads to be subjected to these effects. The specific loads may vary from one test to the next on any given EDG. For example, in one case, a charging pump may be operating, in the next case a CCW pump may be operating. Typical low voltage loads will generally be in operation during the test, such as MCC loads, battery chargers and inverter AC bypass circuits.

In addition, the connection of specific loads (to verify the impact to these loads of an EDG load rejection) is not necessary for the following reasons. First, the loads and associated fuses and breakers are very similar between Unit 1 and Unit 2. Next, the protective device settings provide sufficient setpoint margin such that they should not trip for normally expected variations in supply voltage and frequency. This would include those generated by the EDGs during load rejections (The acceptance criteria for EDG dynamic response is based upon industry standards that are written to provide guidance on the allowable dynamic tolerances such that adverse impacts to operating loads and protective devices do not occur). Therefore, verification that the tested voltage and frequency variations continue to remain within the EDG Load Rejection STP acceptance criteria, and that representative loads do not trip, is sufficient to meet the stated requirement. Furthermore, the LOSP tests and SI/LOSP tests subject a larger number of loads, including MOVs, to comparable, and usually more severe, transient and dynamic effects than the load rejection tests. For example, based on test data, the peak 4160V bus voltage that occurred in step 1 of a recent SI/LOSP test for the 1-2A DG was 112% of 4160V vs. only 108% for the last 1-2A DG load rejection test (Voltage time responses were comparable for both tests).

SR 4.8.1.1.2.e requires that the generator voltage remain within 3330 and 4990 volts during and following the load rejection. The purpose of this requirement is to verify that the EDG voltage regulator continues to function properly so that it does not expose the equipment loads to unacceptable voltages and resultant currents in the event of a load rejection. The voltage transient from the load rejection is recorded during each load rejection test. The recordings are checked to insure that the voltage transient remains within the acceptance criteria.

A problem in the voltage regulator would be evident for a 1200-2400 KW step change in load, regardless of the plant or unit specific loads connected. (Note: A representative mix of resistive and reactive loads is desired, but the exact proportions of each is not critical. However, testing assures that at least 712 KVARs are present.) Again, the connection of specific buses and loads is not necessary to verify the impact to these loads of the EDG response to a load rejection (EDG 1-2A is tested at least once every 5 years by rejecting a load of 1200-2400 KW without exceeding the voltage limits specified. EDG 1C is also tested at least once every 5 years by rejecting a load of 1200-2400 KW without exceeding the voltage limits specified). Therefore, each shared EDG on Unit 1 and Unit 2 meets this requirement.

Basis for the TS change

Conclusion

To minimize testing of the shared EDGs, the proposed TS change clarifies that testing of the shared EDG set on one unit may be used to satisfy SR 4.8.1.1.2.e requirements for both units. This is allowed since the main purpose of the surveillance can be met by performing the test on either unit. The proposed testing validates that the EDGs function as required and do not subject plant loads to unacceptable transient, dynamic, and steady state effects due to generator output voltage and frequency. Therefore, this TS change is acceptable.

Enclosure 2

Joseph M. Farley Nuclear Plant
Emergency Diesel Generator Load Rejection Testing
Technical Specification Changes

10 CFR 50.92 Evaluation

Enclosure 2

Joseph M. Farley Nuclear Plant
Emergency Diesel Generator Load Rejection Testing
Technical Specification Changes

10 CFR 50.92 Evaluation

Pursuant to 10 CFR 50.92, SNC has evaluated the proposed amendments and has determined that operation of the facility in accordance with the proposed amendments would not involve a significant hazards consideration. The basis for this determination is as follows:

1. The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed changes clarify that load rejection testing of the shared emergency diesel generator set is only required once per five years, and that testing of the shared EDG set on one unit may be used to satisfy SR 4.8.1.1.2.e requirements for both units. These changes do not affect the probability or consequences of an accident. There are no changes being made to the emergency diesel generator testing program. These changes simply clarify the existing test program and the intent of the test requirements.

   Therefore, the proposed TS changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

   The proposed changes clarify that load rejection testing of the shared emergency diesel generator set is only required once per five years, and that testing of the shared EDG set on one unit may be used to satisfy SR 4.8.1.1.2.e requirements for both units. No new testing configuration is being proposed that could create the possibility of any new or different kind of accident from any accident previously evaluated. There are no changes being made to the emergency diesel generator testing program. These changes simply clarify the existing test program and the intent of the test requirements.

   Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed changes do not involve a significant reduction in a margin of safety.

   The proposed changes clarify that load rejection testing of the shared emergency diesel generator set is only required once per five years, and that testing of the shared EDG set on one unit may be used to satisfy SR 4.8.1.1.2.e requirements for both units. A similar technical specification change has been previously approved by the NRC for Hatch Nuclear Plant. The technical specification bases and the Final Safety Analysis Report have been reviewed. Clarification of the testing requirements has no effect on the margin of plant safety since no reduction in the test program is involved.

   Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Conclusion

Based on the preceding analysis, SNC has determined that operation of Farley Nuclear Plant in accordance with the proposed change to the Technical Specifications will not significantly increase the probability or consequences of an accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in a margin of safety. SNC therefore concludes that the proposed change meets the requirements of 10 CFR 50.92(c) and does not involve a significant hazards consideration.

Enclosure 3

Joseph M. Farley Nuclear Plant
Emergency Diesel Generator Load Rejection Testing
Technical Specification Changes

Unit 1 Technical Specification Pages

FNP Unit 1

Technical Specifications

Emergency Diesel Generator Load Rejection Testing
Technical Specification Changes

Changed Pages

Page #	Instructions
3/4 8-2	Replace